



TIP Proposal Preparation Kit

June 2008

For a quick look to see if TIP is right for you and to answer the following questions:

- **What is TIP?**
- **Who may apply?**
- **How can I receive funding?**
- **When do I submit my proposal?**
- **Where do I submit my proposal?**

See Chapter 1, pages 1 through 2, in this Kit.

Telephone: 1-888-847-6478*

Fax: 301-926-9524 or 301-590-3053

E-mail: tip@nist.gov

Internet: <http://www.nist.gov/tip>

***Call this TIP toll-free hotline to hear recorded messages about the current status of TIP and workshops being held.**

Foreword



With the release of this Proposal Preparation Kit and the announcement of a first competition, the National Institute of Standards and Technology launches the Technology Innovation Program (TIP), an exciting new opportunity for investment in technology research that address important societal needs and concerns.

TIP was established as part of the America COMPETES Act in 2007 to work with the nation's robust R&D community—entrepreneurial businesses, institutions of higher education, nonprofit research institutes, and national laboratories—to support, promote, and accelerate technically challenging research and innovation in transformative technologies to meet areas of critical national need.

We have drawn on NIST's considerable experience in the organization and management of competitive, merit-based R&D grant programs to craft what we hope to be a highly effective and efficient process to achieve the TIP goals. This Kit is one result of that effort.

To learn more about the Technology Innovation Program, I encourage you to visit our Web site at www.nist.gov/tip where you will find detailed background materials and a calendar of any upcoming TIP meetings or events. If you would like to be added to our mailing list to receive future TIP announcements, take your browser to http://tipmailing.nist.gov/forms/mailling_list.cfm.

One of our nation's greatest strengths is its capacity for innovation. TIP was created to tap that strength and become a resource for solving the significant challenges that we face as a nation and a society. We invite you to join with us in this effort.

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CHAPTER 1

QUESTIONS AND ANSWERS ABOUT THE TECHNOLOGY INNOVATION PROGRAM (TIP)

A. GENERAL INFORMATION

1. What is TIP?

TIP is a cost-shared federal financial assistance program to support, promote, and accelerate innovation in the United States through high-risk, high-reward research in areas of critical national need. High-risk, high-reward research is research that:

- a. has the potential for yielding transformational results with far-ranging or wide-ranging implications;
- b. addresses areas of critical national need that support, promote, and accelerate innovation in the United States and is within NIST's areas of technical competence; and
- c. is too novel or spans too diverse a range of disciplines to fare well in the traditional peer-review process.

The TIP statutory authority is 15 U.S.C. § 278n (see Appendix A). The TIP implementing regulations are set forth in 15 C.F.R. Part 296 (see Appendix B). Both are also available at <http://www.nist.gov/tip/helpful.html>.

2. How can I receive funding?

You must submit a proposal to TIP in response to a notice published in the *Federal Register* announcing a competition and availability of TIP funds (solicitation/request for proposals).

Notices are also posted on the TIP Web site <http://www.nist.gov/tip> and at <http://www.grants.gov> (Announcement of Federal Funding Opportunity).

In addition, you can have your name added to the TIP mailing list by completing an electronic request at http://tipmailing.nist.gov/forms/mailing_list.cfm or by calling 1-888-847-6478 to receive competition announcements.

3. What are areas of critical national need?

Areas of critical national need are those for which government attention is warranted because the magnitude of the problem is large and the societal challenges that need to be overcome are not being addressed, but could be addressed through high-risk, high-reward research. The areas of critical national need to be addressed in a particular competition are described in the *Federal Register* notice announcing the competition.

4. Is there a deadline for submitting a TIP proposal?

Yes. The deadline date(s) are included in the *Federal Register* notice announcing the competition and notices posted on the TIP and grants.gov Web sites. Once a competition is announced, proposals may be submitted until the deadline date(s).

5. What information is required in a TIP proposal?

Information requirements are discussed in detail in Chapters 2 and 3.

6. Does TIP accept unsolicited proposals?

No.

7. How are proposals submitted?

Proposals may be submitted either electronically or in hardcopy. Electronic submissions are encouraged and offer many benefits to the proposer, including no mailing or copying fees. See Chapter 3 for format instructions and Chapter 5 for electronic submission guidance.

8. Where do I submit proposals?

Proposals must be submitted to either of the following locations only and will not be accepted if submitted directly to any TIP staff member:

- a. Electronic: www.grants.gov
- b. Paper copy:

Technology Innovation Program
National Institute of Standards and
Technology
100 Bureau Drive, Stop 4701
Gaithersburg, MD 20899-4701

9. Will confidential/proprietary information in my proposal be protected?

Yes. All individuals who will have access to submitted proposals must sign nondisclosure agreements. The government will protect confidential/proprietary information about business operations and trade secrets possessed by any company or participant to the full extent of the law. To the extent permitted by law, TIP will withhold such information from disclosure pursuant to the following statutes, which can be found at <http://www.nist.gov/tip/helpful.html>.

- a. Freedom of Information Act (FOIA)—5 U.S.C. § 552(b).
- b. Economic Espionage Act—18 U.S.C. § 1832.

- c. Trade Secrets Act—18 U.S.C. § 1905.

In view of the above, proposers are cautioned that proposals are likely to be less competitive if significant details are omitted due to the proposer's reluctance to reveal confidential/proprietary information.

10. Does TIP hold any public meetings or conferences to assist in proposal preparation?

Yes. TIP will hold one or more proposers' conferences after a competition is announced. Proposers' conferences will provide general information regarding TIP, guidance on preparing proposals, and the opportunity for questions and answers. Proprietary technical discussions about specific project ideas with NIST staff are not permitted at these conferences or at any time before submitting the proposal to TIP. Therefore, you should not expect to have proprietary issues addressed at proposers' conferences.

Also NIST/TIP staff will not critique or provide feedback on project ideas while they are being developed by a proposer. However, NIST/TIP staff will, at any time, answer questions about the TIP eligibility and cost-sharing requirements, evaluation and award criteria, selection process, and the general characteristics of a competitive TIP proposal at the Proposers' Conferences and by phone and email.

Attendance at TIP proposers' conferences is not required. Information regarding dates and locations of TIP proposers' conferences is published in the *Federal Register* and posted at <http://www.nist.gov/tip> and <http://www.grants.gov>.

Presentation materials from proposers' conferences will be made available on the TIP Web site.

11. Where can I seek additional help with proposal preparation?

It is the responsibility of proposers to seek the assistance and resources they need for completing a proposal.

a. Proposers may wish to contact the NIST Hollings Manufacturing Extension Partnership (MEP), a nationwide network of locally managed extension centers whose sole purpose is to provide small- and medium-sized manufacturers with the help they need to succeed. The centers provide guidance to high-technology companies seeking resources and teaming

relationships. To contact an MEP center, call 1-800-MEP-4-MFG (1-800-637-4634) or visit MEP's Web site at <http://www.mep.nist.gov>.

b. Proposers may wish to contact independent state, regional, or area specific resources, for example, economic development agencies.

c. University research offices and technology transfer offices are also very often interested in building teaming relationships with the private sector.

12. Whom do I contact if I have questions?

Subject Area	Point of Contact
Administrative, budget, cost-sharing, and eligibility questions	Barbara Lambis Phone: 301-975-4447 Fax: 301-869-1150 E-mail: barbara.lambis@nist.gov
Human and/or animal subjects used in research	Lawrence Uhteg Human & Animal Subjects Advisor Phone: 301-975-8779 Fax: 301-548-1087 E-mail: lawrence.uhteg@nist.gov
Project selection, evaluation and award criteria, and other programmatic questions	Thomas Wiggins, Director Selection Management Office Phone: 301-975-5416 Fax: 301-975-2147 E-mail: thomas.wiggins@nist.gov
Electronic proposal submission	Christopher Hunton Phone: 301-975-5718 Fax: 301-840-5976 E-mail: christopher.hunton@nist.gov
Technical questions related to NIST-1022 and associated forms	Deborah Dubeau Phone: 301-975-3462 Fax: 301-975-2147 E-mail: deborah.dubeau@nist.gov
Foreign-owned company participation	Kathleen McTigue Phone: 301-975-8530 Fax: 301-975-2147 E-mail: kathleen.mctigue@nist.gov
Grant and cooperative agreement rules and regulations	Grants & Agreements Mgmt. Division Phone: 301-975-6328 Fax: 301-840-5976 E-mail: grants@nist.gov

B. ELIGIBILITY

1. Who is eligible to apply?

A U.S.-owned, single, small-sized or medium-sized company doing a majority of its business in the United States or a joint venture may apply for TIP funding. Members of joint ventures that are companies must also be doing a majority of their business in the United States. In addition, a company incorporated in the United States that has a parent company incorporated in another country may apply provided that certain requirements are met as discussed in Section 4 below. The term business or company means a for-profit organization, including sole proprietors, partnerships, limited liability companies (LLCs), and corporations (15 C.F.R. §296.2).

a. **Single Company**—a small-sized or medium-sized company. If the single company proposal includes contractors, the single company must be substantially involved in the R&D, with a leadership role in the project and defining the research agenda.

b. **Joint Venture**—a business arrangement that includes either:

(1) At least two separately owned small-sized or medium-sized for-profit companies that are both substantially involved in the project and both of which are contributing to the cost-sharing requirement, with the lead entity of the joint venture being either a small-sized or medium-sized company; or

(2) At least one small-sized or medium-sized for-profit company and one institution of higher education or other organization, such as a national laboratory, governmental laboratory (not including NIST), or nonprofit research institute, that are both substantially involved in the project and both of which are contributing to the cost sharing requirement, with the lead entity of the joint venture being

either that small-sized or medium-sized company or that institution of higher education.

TIP joint venture members must formally agree (i.e., sign a Joint Venture Agreement as discussed in Chapter 3, Section D) to collaborate on the project. The joint venture may include additional companies, institutions of higher education, and other organizations, such as national laboratories, governmental laboratories (not including NIST), and nonprofit research institutes, that may or may not contribute nonfederal funds to the project.

2. May institutions of higher education, national laboratories, governmental laboratories (not including NIST), and nonprofit research institutes participate as contractors to a single company or to a joint venture?

Yes.

3. May a large-sized company participate?

Yes, provided that certain requirements are met. A large-sized for-profit company may participate and receive funding as a contractor to a single company or joint venture recipient when the contract is awarded in accordance with procedures established under the Procurement Standards required by 15 C.F.R. Part 14. Specifically, the recipient(s) of a TIP award may procure supplies and other expendable property, equipment, real property and other services from any party, including large-sized businesses. A large-sized company may also participate as a joint venture member and provide cost sharing; however, a large-sized company MAY NOT receive federal funds as a joint venture member.

4. May a foreign-owned company participate and receive TIP funding?

Yes, provided that certain requirements are met. A company incorporated in the United States that has a parent company incorporated in another country is eligible to participate and receive TIP funding if it meets the conditions in the TIP legislation (15 U.S.C. § 278n(l)(1)) and regulations (15 C.F.R. §296.5). Before making a final award, TIP will make a foreign-eligibility finding based on these conditions regarding the company's participation in a TIP project. The foreign eligibility finding involves the collection of evidence of whether the following conditions are met:

a. The company's participation in the TIP project would be in the economic interest of the United States, and

b. The home country of the parent company provides all of the following:

(1) Comparable opportunities to those afforded to any other company for U.S.-owned companies to participate in government-funded programs similar to TIP,

(2) Comparable local investment opportunities to those afforded to any other company for U.S.-owned companies, and

(3) Adequate and effective protection of U.S.-owned companies' intellectual property rights.

TIP takes responsibility for gathering information related to the above requirements. The submitting organization must provide with the proposal a form NIST-1022G, Foreign-Owned Company Questionnaire (see Exhibit 10), that relates to the role of the foreign-owned company in the project to help address foreign eligibility requirement 4.a. above. If there is more than one such company, a separate questionnaire must be submitted for each one.

It is important that the information requested on the form NIST-1022G, Foreign-Owned Company Questionnaire, be provided in complete form at the time of proposal submission because it is used to assess the foreign-owned proposer's ability to bring about economic benefits to the United States. Information requested on this questionnaire relates to evidence that the company's participation is in the economic interest of the United States as stated in 4.a. above and includes the following:

(1) A sound justification that the involvement by the company and its role in the project is necessary to achieve the technical objectives and goals of the project;

(2) Evidence that the company makes investments in research, development, and manufacturing in the United States (an example might be the location and square footage of facilities and special equipment where the project will be carried out);

(3) Evidence that the company makes significant contributions to employment in the United States (i.e., number of employees); and

(4) Evidence that the company agrees to promote the manufacture of products within the United States resulting from the TIP-supported technology and to procure supplies from competitive U.S. suppliers. (For instance, will the company incorporate the technology into existing product lines or processes, or will the company develop new products or processes?)

5. Is a foreign-eligibility finding required for foreign contractors?

No. The submitting organization, however, must justify the use of foreign-owned and foreign-located contractors or subsidiaries and explain how their participation will benefit the U.S. economy (see Exhibit 11, form NIST-1022H, R&D Work Performed Outside the United States by the Recipient or Contractor Questionnaire) and the

achievement of project goals. The completed questionnaire should state how and why U.S. sources were judged to be unavailable and inadequate in meeting the project goals. If there is more than one such instance, a separate questionnaire must be submitted for each instance.

6. May a foreign-owned company without a U.S.-incorporated subsidiary receive a TIP award?

No. Foreign-owned companies located outside the United States cannot receive a TIP award. Only U.S.-owned companies and U.S. subsidiaries of foreign-owned companies that meet the requirements stated above are eligible to receive TIP funding.

7. Can a company owned or controlled by non-U.S. citizens and without a foreign parent company receive a TIP award?

No.

8. Can a Cooperative Research and Development Agreement (CRADA) with a U.S. federal government agency be involved in a TIP project?

Possibly. To be acceptable to TIP, CRADA intellectual property provisions may not be in conflict with TIP intellectual property provisions. A description of TIP intellectual property requirements may be found in Section F of this chapter. Any CRADA that is proposed to be part of a TIP proposal will require legal analysis by NIST, and revisions may be required for the CRADA to be in compliance with the TIP statute and regulations. A copy of the CRADA will be requested during the review by the Evaluation Panel for legal analysis. Therefore, parties are encouraged to carefully consider whether a CRADA is appropriate and to contact the Office of the Chief Counsel for NIST (301-975-2803) in

advance of submitting a proposal that includes a CRADA.

9. Can an informal collaboration, that does not impact the proposed funding or cost-share requirements be used to address a critical task in the project?

Possibly. NIST may require that aspects of the informal collaboration be documented to be sure the arrangement is in compliance with the TIP statute and regulations. If the collaboration is key to accomplishing a critical task in the project, the proposer needs to address what alternatives are available if maintaining the informal collaboration fails. Therefore, parties are encouraged to carefully consider whether an informal collaboration is appropriate and to contact the Office of the Chief Counsel for NIST (301-975-2803) or the TIP Selection Management Director in advance of submitting a proposal involving an informal collaboration. A copy of any existing agreements regarding the informal collaboration will be requested during the review by the Evaluation Panel for legal analysis.

C. SELECTION PROCESS AND CRITERIA TO SELECT PROPOSALS

1. How are proposals selected for funding?

Proposals are selected based on a multi-disciplinary peer-review process, as described in 15 C.F.R. §296.20 (see Appendix B). A preliminary review is conducted to determine if the proposal is in accordance with 15 C.F.R. §296.3, complies with the eligibility requirements described in 15 C.F.R. §296.5, addresses award criteria (a) through (c) of 15 C.F.R. §296.22, and is complete. Proposals that are incomplete or do not meet any one of the preliminary review requirements will normally be eliminated. All remaining proposals are then carefully reviewed based on the TIP

evaluation criteria listed in 15 C.F.R. §296.21 and award criteria listed in 15 C.F.R. §296.22. An Evaluation Panel will present funding recommendations to a Selecting Official in rank order for further consideration. The Selecting Official makes the final selections for funding. **The selection of proposals by the Selecting Official is final and cannot be appealed.** The final approval of selected proposals and award of assistance will be made by the NIST Grants Officer. The award decision of the NIST Grants Officer is final and cannot be appealed.

NIST reserves the right to negotiate the cost and scope of the proposed work with the proposers that have been selected to receive awards. This may include requesting that the proposer delete from the scope of work a particular task that is deemed by NIST to be inappropriate for support. NIST also reserves the right to reject a proposal where information exists that raises a reasonable doubt as to the responsibility of the proposer.

2. What criteria are used to select proposals for funding?

Proposals are selected for funding based on the evaluation criteria listed in 15 C.F.R. §296.21 and the award criteria listed in 15 C.F.R. §296.22 as identified below. Additionally, no proposal will be funded unless TIP determines that it has scientific and technical merit and that the proposed research has strong potential for addressing a societal challenge within the TIP-identified areas of critical national need.

Evaluation Criteria: The two components of the evaluation criteria and respective weights as listed in 15 C.F.R. §296.21 are as follows:

(a)(1) The proposer(s) adequately addresses the scientific and technical merit and how the research may result in

intellectual property vesting in a United States entity including evidence that:

- (i) The proposed research is novel;
- (ii) The proposed research is high-risk, high-reward;
- (iii) The proposer(s) demonstrates a high level of relevant scientific/technical expertise for key personnel, including contractors and/or informal collaborators, and has access to the necessary resources, for example research facilities, equipment, materials, and data, to conduct the research as proposed;
- (iv) The research result(s) has the potential to address the technical needs associated with a major societal challenge not currently being addressed; and
- (v) The proposed research plan is scientifically sound with tasks, milestones, timeline, decision points and alternate strategies.

(2) Total weight of (a)(1)(i) through (v) is 50%.

(b)(1) The proposer(s) adequately establishes that the proposed research has strong potential for advancing the state-of-the-art and contributing significantly to the United States science and technology knowledge base and to address areas of critical national need through transforming the Nation's capacity to deal with a major societal challenge(s) that is not currently being addressed, and generate substantial benefits to the Nation that extend significantly beyond the direct return to the proposer including an explanation in the proposal:

- (i) Of the potential magnitude of transformational results upon the Nation's capabilities in an area;
- (ii) Of how and when the ensuing transformational results will be useful to the Nation; and
- (iii) Of the capacity and commitment of each award participant to enable or advance the transformation to the proposed research results (technology).

(2) Total weight of (b)(1)(i) through (iii) is 50%.

Award Criteria: The six components of the award criteria as listed in 15 C.F.R. §296.22 are as follows:

(a) The proposal explains why TIP support is necessary, including evidence that the research will not be conducted within a reasonable time period in the absence of financial assistance from TIP;

(b) The proposal demonstrates that reasonable and thorough efforts have been made to secure funding from alternative funding sources and no other alternative funding sources are reasonably available to support the proposal;

(c) The proposal explains the novelty of the research (technology) and demonstrates that other entities have not already developed, commercialized, marketed, distributed, or sold similar research results (technologies);

(d) The proposal has scientific and technical merit and may result in intellectual property vesting in a United States entity that can commercialize the technology in a timely manner; and

(e) The proposal establishes that the research has strong potential for advancing the state-of-the-art and contributing significantly to the United States science and technology knowledge base; and

(f) The proposal establishes that the proposed transformational research (technology) has strong potential to address areas of critical national need through transforming the Nation's capacity to deal with major societal challenges that are not currently being addressed, and generate substantial benefits to the Nation that extend significantly beyond the direct return to the proposer.

NIST must determine that a proposal successfully meets all six award criteria for the proposal to receive funding under the Program.

Detailed guidance on how to address the evaluation and award criteria are provided in Chapter 2.

3. What factors could result in a proposal not being competitive?

Examples of factors that could result in a proposal not being competitive are:

- a. An incomplete proposal.
- b. Failure to address a societal challenge(s) as described in an area of critical national need identified in the *Federal Register* notice announcing the competition.
- c. Failure to address in detail any evaluation or award criterion.
- d. Omissions of significant details due to the proposer's reluctance to reveal confidential/ proprietary information.
- e. Lack of clear science-based explanation of the high technical risks and their potential rewards that require TIP funding.
- f. Failure to adequately address the question, "What technical issue or issues are preventing progress in addressing the particular societal challenge within an area of critical national need?"
- g. Lack of adequately documenting the novelty of the research or technology with respect to what is currently available. Specifically, it should be clear that other entities have not developed, commercialized, marketed, distributed, or sold similar technologies.
- h. Lack of detail in the technical plan or failure to clearly describe how the path to

innovation will be accomplished. For example:

(1) Use of a trial-and-error approach to generate new technologies or processes based on state-of-the-art techniques that do not result in advancing the methodology beyond trial and error.

(2) Technical risks in the project not described at the scientific level other than that the approach may not work as expected, or there is no clear identification of alternative mitigation strategies for overcoming various risks at each step in the R&D plan.

(3) Straightforward scale-ups based on standard engineering practices or state-of-the-art techniques that will not advance scale-up methodology (e.g., faster, better, cheaper).

(4) Use of proprietary techniques that are already developed in-house to generate novel technologies or processes where there is no expectation to move the technique(s) to a next-generation advancement.

(5) Lack of detail as to how the research has a strong potential for advancing the state-of-the-art and contributing significantly to the U.S. science and technology knowledge base.

(6) Unconvincing case for the need for TIP funding or failure to describe thorough actions taken to already secure non-TIP funding (or lack of evidence of the results of those actions).

D. INELIGIBLE PROJECTS AND INELIGIBLE/UNALLOWABLE COSTS

1. What types of projects are ineligible for TIP funding?

a. Straightforward improvements of existing products or product development.

b. Projects that are Phase II, III, or IV clinical trials. TIP will rarely fund Phase I clinical trials and reserves the right not to fund a Phase I clinical trial. The portion of a Phase I trial that may be funded must be critical to meeting Evaluation Criterion (a)(1) addressing the scientific and technical merit of the proposal. The trial results must be essential for completion of a critical R&D task of the project. The definitions of all phases of clinical trials are provided in the *TIP Guidelines and Documentation Requirements for Research Involving Human & Animal Subjects* located at <http://www.nist.gov/tip/helpful.html>.

c. Pre-commercial-scale demonstration projects where the emphasis is on demonstrating that some technology works on a large scale or is economically sound rather than on R&D that advances the state of the art and is high-risk, high-reward.

d. Projects that TIP determines would likely be completed without TIP funds in the same time frame or nearly the same time frame, or with the same scale or scope.

e. Predominantly straightforward, routine data gathering (e.g., creation of voluntary consensus standards, data gathering/handbook preparation, testing of materials, or unbounded research aimed at basic discovery science) or application of standard engineering practices.

f. Projects in which the predominant risk is market oriented—that is, the risk that the end product may not be embraced by the marketplace.

g. Projects with software work, that are predominantly about final product details and product development, and that have *significant* testing involving users outside the research team to determine if the software meets the original research objectives, are likely to be either

uncompetitive or possibly ineligible for funding. However, R&D projects with limited software testing, involving users outside of the research team, may be eligible for funding and contain eligible costs within a TIP award when the testing is critical to meeting Evaluation Criteria and/or Award Criteria and the testing results are essential for completion of a critical task in the proposed research. This type of testing in projects may also be considered to involve human subjects in research.

2. What types of costs are ineligible/unallowable?

The following items, regardless of whether they are allowable under the federal cost principles, are ineligible/unallowable under TIP:

- a. Bid and proposal costs unless they are incorporated into a federally approved indirect cost rate (e.g., payments to any organization or person retained to help prepare a proposal).
- b. Construction costs for new buildings or extensive renovations of existing laboratory buildings. However, costs for the construction of experimental research and development facilities to be located within a new or existing building are allowable provided the equipment or facilities are essential for carrying out the proposed project and are approved by the NIST Grants Officer. These types of facility costs may need to be prorated if they will not be used exclusively for the research activities proposed.
- c. Contractor office supplies and contractor expenses for conferences/workshops.
- d. Contracts to another part of the same company or to another company with identical or nearly identical ownership. Work proposed by another part of the same company or by another company with identical or nearly identical ownership should be shown as funded through inter-

organizational transfers that do not contain profit. Inter-organizational transfers should be broken down in the appropriate budget categories.

- e. For research involving human and/or animal subjects, any costs used to secure Institutional Review Board or Institutional Animal Care and Use Committee approvals before or during the award.
- f. General purpose office equipment and supplies that are not used exclusively for the research, e.g., office computers, printers, copiers, paper, pens, and toner cartridges.
- g. Indirect costs, which must be absorbed by the recipient. However, indirect costs are allowable for contractors under a single company or joint venture. (Note that indirect costs absorbed by the recipient may be used to meet the cost-sharing requirement.)
- h. Marketing, sales, or commercialization costs, including marketing surveys, commercialization studies, and general business planning, unless they are included in a federally approved indirect cost rate.
- i. Office furniture costs, unless they are included in a federally approved indirect cost rate.
- j. Patent costs and legal fees, unless they are included in a federally approved indirect cost rate.
- k. Preaward costs.
- l. Profit, management fees, interest on borrowed funds, or facilities capital cost of money. However, profit is allowable for contractors under a single company or joint venture.
- m. Relocation costs, unless they are included in a federally approved indirect cost rate.

n. Tuition costs. However, an institution of higher education participating in a TIP project as a contractor or as a joint venture member or lead may charge TIP for tuition remission or other forms of compensation in lieu of wages paid to students working on TIP projects, but only as provided in OMB Circular A-21, Section J.41. In such cases, tuition remission would be considered a cash contribution rather than an in-kind contribution.

3. Can a university employee establish a company and contract back to his/her university?

Generally, no. This would present a conflict of interest. However, under certain circumstances, for example, if the university's participation is unique and essential to the project, the contracting arrangement may be considered. In such a case, the organization/individual with the conflict of interest may not benefit or profit from the contract. For more information, see the Codes of Conduct guidance in 15 C.F.R. § 14.42 (<http://www.nist.gov/tip/helpful.html>).

4. Can an individual who has a financial or other interest in a company receive a contract from that company?

Generally no. See the previous question and answer.

5. Will TIP fund research performed outside the United States?

Possibly. Although TIP is not precluded from funding research performed outside the United States, proposals involving significant research outside the United States would likely be less competitive when evaluated against the TIP evaluation criteria related to advancing the state of the U.S. science and technology base and generating substantial benefits to the Nation. Any proposed use of a foreign contractor or foreign-located organization

must be justified (see Exhibit 11, NIST-1022H, R&D Work Performed Outside the United States by the Recipient or Contractor Questionnaire). The completed questionnaire must include an explanation of why the work or services cannot be performed equivalently or obtained in the United States. For requirements on research involving human subjects in research activities, or research involving live vertebrate animals proposed to be performed outside of the U.S. see the *TIP Guidelines and Documentation Requirements for Research Involving Human & Animal Subjects* located at <http://www.nist.gov/tip/helpful.html>. Contacting the TIP Human and Animal Subjects Advisor is strongly encouraged.

E. FUNDING AND COST SHARING

1. How much funding can a TIP recipient receive, and is cost sharing required?

a. Single small- or medium-sized company recipients can receive up to a total of \$3 million in TIP funding for R&D activities spanning up to 3 years. TIP funds may only be used to pay direct costs. Single company recipients are responsible for funding all of their indirect/overhead costs. Small-sized and medium-sized companies applying as single company proposers must cost share at least 50 percent of the yearly total project costs (direct plus all of the indirect costs). A large-sized company is not eligible to apply for TIP funding. A large-sized company is defined as any business, including any parent company plus related subsidiaries, having annual revenues in excess of \$1.63 billion. This number is based on the May 2008 issue of *Fortune* magazine's Fortune 1000 list. (Note that the revenue amount will be updated annually and will be noted in future annual announcements of availability of funds.)

b. Joint venture recipients can receive up to a total of \$9 million for R&D activities spanning up to 5 years. TIP funds may only be used to pay direct costs. Joint ventures are responsible for funding all of their indirect/overhead costs. Joint ventures must cost share at least 50 percent of the yearly total project costs (direct plus all of the indirect costs).

If an award is issued to a joint venture, each joint venture member will be responsible for meeting its committed cost share in accordance with the approved budget incorporated in the award. No joint venture member will be responsible for the cost-share commitment of any other joint venture member. However, with the agreement of the joint venture members, along with notification to the NIST Grants Officer, a joint venture member that has exceeded its cost-share commitment may allow its excess cost share to be applied to the cost-share deficit of another joint venture member, so that the overall joint venture cost share is met.

2. How does TIP define cost sharing?

Cost sharing is that portion of project costs not borne by the federal government. Sources of revenue to satisfy the required cost share include cash and third party in-kind contributions. Cash may be contributed by any nonfederal source, including but not limited to recipients, state and local governments, companies, and nonprofits (except contractors working on a TIP project). Third party in-kind contributions can be made by any nonfederal source (except contractors working on a TIP project) and include but are not limited to equipment, research tools, software, supplies, and/or services. Except as specified in 15 C.F.R. §296.6, the value of in-kind contributions shall be determined in accordance with 15 C.F.R. § 14.23 (Uniform Administrative Requirements for Grants and Cooperative Agreements With Institutions of Higher Education, Hospitals,

Other Non-Profit, and Commercial Organizations (<http://www.nist.gov/tip/helpful.html>) and will be prorated according to the share of total use dedicated to the TIP project.

Additionally, as with the federal share, cost share must be allowable under the following applicable federal cost principles available at <http://www.nist.gov/tip/helpful.html>:

- a. For-profit companies: 48 C.F.R. Part 31.
- b. Universities: 2 C.F.R. Subtitle A, Chapter II, Part 220 (OMB Circular A-21).
- c. Nonprofit organizations: 2 C.F.R. Subtitle A, Chapter II, Part 230 (OMB Circular A-122).
- d. State and Local Governments: 2 C.F.R., Subtitle A, Chapter II, Part 225 (OMB Circular A-87).
- e. Hospitals: 45 C.F.R. Part 74, Appendix E.

3. What are direct and indirect costs?

Direct costs are those that are directly related to a specific, single-cost objective. Examples include personnel, travel, equipment, contractors, and materials and supplies.

Indirect costs are those costs incurred for common or joint objectives that cannot be readily identified with activities carried out in support of a particular final objective. A cost may not be allocated to an award as an indirect cost if any other cost incurred for the same purpose in like circumstances has been assigned to an award as a direct cost. Because of diverse characteristics and accounting practices it is not possible to specify the types of costs which may be classified as indirect costs in all situations. However, typical examples of indirect costs include general administration expenses, such as the salaries and expenses of executive officers, office rent, personnel administration, fringe benefits, maintenance, library expenses, office supplies, general

purpose office equipment (office computers, printers, copiers, etc.), and accounting. NIST will determine the allowability of indirect costs in accordance with applicable federal cost principles.

4. I am a small startup company and do not have any indirect costs. If funded, the TIP project would be the only project for my company. Will TIP fund a proposal that only has direct costs?

No. If a company claims to have no indirect costs, this suggests to TIP that the company is inexperienced in its fiscal affairs, the company may not be a financially viable business, or the company has no intention of carrying on any business other than performing research for the TIP project.

5. I am a small startup company and expect to cost share through the use of state or other private investors. If those resources fall through after I receive a TIP award, will I be expected to make up the cost-share gap?

Yes. If a single-company or joint venture proposal is selected for funding, the recipient's percentage of cost sharing will be made a part of the award, and will become a mandatory requirement. NIST cannot violate the TIP statutory cost-sharing requirements.

6. Can independent research and development (IR&D) funds be used as cost sharing?

The fundamental expectation for cost sharing is that the proposer's share of the TIP project costs will be funded from nonfederal sources, such as retained earnings or profits, not funds included as an indirect expense that is subsequently allocated for reimbursement under federally funded procurement contracts, grants, and

other agreements. Recovering the proposer's cost share as part of its IR&D/General and Administrative (G&A) allocation to other federally funded projects would be contrary to the kind of financial commitment expected of proposers by the TIP statute.

Proposers MAY NOT classify the nonfederal share of the TIP project costs as an IR&D expense that is subsequently allocated, either as a separate cost or as an element of a G&A cost pool, to federally funded procurement contracts, grants, or other agreements.

Proposers MAY allocate to a TIP project IR&D or G&A costs that include IR&D as an element provided that the IR&D/G&A rate applied to the TIP project is a federally approved indirect cost rate.

F. INTELLECTUAL PROPERTY

1. Who retains title to patentable inventions arising from a TIP-funded project?

For single company award recipients, pursuant to the Bayh-Dole Act (35 U.S.C. 202 (a) and (b)) and "Memorandum to the Heads of Executive Departments and Agencies: Government Patent Policy" (February 18, 1983), the entity that invents owns the invention. However, pursuant to 35 U.S.C. 202(a)(i), when a single company or its contractor under a TIP award is not located in the United States or does not have a place of business located in the United States or is subject to the control of a foreign government, NIST will require that title to inventions made by such parties be transferred to a United States entity that will ensure the commercialization of the technology in a timely fashion.

For joint ventures, ownership of inventions arising from a TIP-funded project may vest in any participant in a joint venture, as agreed by the members of the joint venture

(notwithstanding 35 U.S.C. 202 (a) and (b)).
(Participant includes any entity that is identified as a recipient, subrecipient, or contractor on an award to a joint venture.)

Title to any such invention shall not be transferred or passed, except to a participant in the joint venture, until the expiration of the first patent obtained in connection with such invention.

Should the last existing participant in a joint venture cease to exist prior to the expiration of the first patent obtained in connection with any invention developed from assistance provided under TIP, title to such patent must be transferred or passed to a U.S. entity that can commercialize the technology in a timely fashion.

2. Does the federal government have any rights to patentable inventions arising from a TIP-funded project?

Yes. The United States reserves a nonexclusive, nontransferable, irrevocable paid-up license, to practice or have practiced for or on behalf of the United States any inventions developed from a TIP award. The federal government shall not in the exercise of such license publicly disclose proprietary information related to the license. This does not prohibit the licensing to any company of intellectual property rights arising from a TIP-funded project. (15 C.F.R. §296.11(b)(3)). The federal government also has march-in rights in accordance with 37 C.F.R. §401.6.

G. HUMAN AND ANIMAL SUBJECTS

1. Will TIP fund projects involving human subjects and/or live vertebrate animals in research activities?

Yes, provided the research involving human subjects or live vertebrate animals is in compliance with applicable federal

regulations and NIST policies for the protection of human subjects or live vertebrate animals. Human subjects research activities involve interactions with live human subjects or the use of data, images, tissue, and/or cells/cell lines (including those used for control purposes) from human subjects. Research involving human subjects may include activities such as the use of image and/or audio recording of people, taking surveys or using survey data, using databases containing personal information, testing software with volunteers, and many tasks beyond those within traditional biomedical research.

Vertebrate animal research involves live animals that are being cared for, euthanized, or used by the project participants to accomplish research goals or for teaching or testing. The regulations do not apply to animal tissues purchased from commercial processors or tissue banks or to uses of preexisting images of animals (e.g., a wildlife documentary or pictures of animals in newscasts). The regulations do apply to any animals that are transported, cared for, euthanized or used by a project participant for testing, research, or training such as testing of new procedures or projects, collection of biological samples or observation data on health and behavior.

2. Does TIP have any written guidance to help me determine what documentation is required if my project involves human subjects or live vertebrate animals in research activities?

Yes, and it is critical that you review this guidance. TIP has prepared detailed guidance in the *TIP Guidelines and Documentation Requirements for Research Involving Human and Animal Subjects* to help you determine what documentation is required if your research plan contains studies using human subjects, human materials, or live vertebrate animals. This booklet is available at

<http://www.nist.gov/tip/helpful.html> or it can be mailed to you by calling 1-888-847-6478 and requesting a copy. You are also encouraged to call the TIP Human & Animal Subjects Advisor for assistance at 301-975-8779.

3. We are not a biotech company. Could our research involve human subjects?

Yes, it could. Manufacturing, electronic, and information technology projects may use human subjects in a way that falls within the regulations. For example, a software company may propose to test a new approach to software development by having a group of experienced programmers try it and measure their reactions and results with the new tools. The use of human subjects is not limited to biologically based studies; there are numerous examples of nonmedical research proposals that may use human subjects or data with personal information about people. Any use of human subjects requires careful review to determine if and how the regulations apply and may require the submission of certain documents to NIST. A Human Subjects Determination Checklist is included in this Proposal

Preparation Kit in Chapter 4 to assist you in determining whether your proposed research plan has human subjects involvement, which would require additional information in your proposal submission, and possibly more documentation during the Evaluation Panel's consideration of your proposal. See the *TIP Guidelines and Documentation Requirements for Research Involving Human and Animal Subjects* for more specific information on documentation requirements and due dates for documentation.

Examples of human subjects in research activities that may require the submission of certain documents to NIST include, but are not limited to, using human subjects to:

- a. Test software, recording (audio or visual) methods, equipment, therapeutic methods or materials,
- b. Collect data about human subjects through direct interviews, written surveys, or online interactive methods, etc., or
- c. Observe people and their behavior in specified circumstances controlled by the research team.

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CHAPTER 2

GUIDELINES FOR PREPARING THE PROJECT NARRATIVE

The following is a detailed discussion of the key information needed to evaluate proposals against the TIP evaluation and award criteria. While the specific format below is not required, to be competitive a proposal must address all components of the evaluation and award criteria. TIP reviewers are familiar with the technology discussed in the proposal; however, reviewers use only what is provided in the proposal to evaluate the project against the TIP evaluation and award criteria.

A. DEFINITIONS

In preparing a proposal it is important to keep a few key definitions in mind. (A complete list of definitions can be found in 15 C.F.R. §296.2)

1. Critical National Need is an area that justifies government attention because the magnitude of the problem is large and the societal challenges that need to be overcome are not being addressed, but could be addressed through high-risk, high-reward research. Note that each competition will focus on specific societal challenges within one or more areas of critical national need as identified in the *Federal Register* notice announcing the competition.

2. High-Risk, High-Reward Research is research that has the potential for yielding transformational results with far-ranging or wide-ranging implications. The proposed research should address specific societal challenge(s) within one or more areas of critical national need as outlined in the competition solicitation. TIP awards are designed to support, promote, and

accelerate innovation within the United States in scientific and technical areas that are too novel or that span too diverse a range of disciplines and would otherwise not find adequate funding from viable alternative sources.

3. Societal Challenge is a problem or issue confronted by society that when not addressed could negatively affect the overall function and quality of life of the Nation, and as such justifies government attention.

4. Transformational Results are the potential project outcomes that enable disruptive changes over and above current methods and strategies. Transformational results have the potential to radically improve our understanding of systems and technologies, challenging the status quo of research approaches and applications.

B. EXECUTIVE SUMMARY

The proposal should begin with a brief, two-page Executive Summary that acquaints the reviewer with the major ideas in the proposal. It is suggested that the summary be completed after the other sections have been written. The summary should be well thought out and it should carefully map the salient points of the proposal to the TIP evaluation and award criteria. Do not create a summary by simply “cutting and pasting” sections from the body of your proposal; use the summary to present the “storyline” of the proposal against the criteria.

C. PROJECT NARRATIVE

To facilitate the writing of the project narrative and the process TIP uses to

evaluate the proposal, it is recommended that the narrative address each of the six sections outlined below. These sections outline the TIP award criteria, and encompass the requirements of the evaluation criteria. Sections 1, 2, and 3 are used as part of the Preliminary Review to determine if the proposal is eligible for further consideration by the Evaluation Panel. Proposals that warrant further consideration will be considered against the evaluation criteria, described in sections 4, 5, and 6, and the award criteria, described in all six sections. Section 4 describes the scientific and technical merit of the proposal, and 50% of the Evaluation Panel's consideration of your proposal will be based on the competitiveness of your narrative addressing this evaluation criterion. Section 5 addresses how the project will advance the state of the art. Section 6 addresses how the results of the project will enable the anticipated transformational results. The remaining 50% of the Evaluation Panel's consideration of your proposal will be based on the competitiveness of your narrative addressing the Evaluation Criterion made up of Section 5 and Section 6 combined. The Evaluation Panel's review is ultimately based on how well the proposal addresses **both** the award and evaluation criteria.

1. Why is TIP Support Necessary?

In the first section of the project narrative, describe why the project needs TIP funding. More specifically, discuss why the project needs taxpayer funds. Because United States tax dollars are used to benefit the Nation, provide evidence to show how the Nation will benefit from the project receiving TIP funding. Relate the specifics of the project to addressing the societal challenge(s) within a critical national need identified in the solicitation but do not merely restate the solicitation. If TIP does not provide funding, will the project be delayed (how long?) or will it be abandoned? Why? What will the potential effect with and without TIP funding be on

the potential solution to the societal challenge?

2. Efforts that the Proposer Has Made to Secure Alternative Funding

One of the TIP award criteria requires that the proposer demonstrate what reasonable and thorough attempts have been made to secure alternative funding from other relevant sources before applying for TIP funding. Information about the efforts that have been made and the reasons for being turned down for those funds are important to TIP. TIP's criteria stipulate that proposers have adequately sought alternative funds but such funds are not available or not available in a reasonable time period.

Each proposer, including each joint venture member if a joint venture, needs to describe the efforts to obtain internal funding (e.g., working capital, retained earnings, or other internal resources), describe the decision-making process and priorities the organization uses for allocating internal funds for research and development. This is especially important if the proposed technology is part of the core technology of the organization. Provide the reason(s) those efforts were not successful.

Efforts made by the proposer, including each joint venture member if a joint venture, to seek funding from external private sources (e.g., angel investors, venture capital firms, industry partners, foundations, etc.) should also be documented and reflect that they have not been successful. Discuss why these efforts were not successful. Be sure to include a discussion of how private investors viewed the technology risk and reward timing associated with the proposal's approach.

Describe any efforts that the proposer, including each joint venture member if a joint venture, made to seek funding from other government sources (federal, state, and local). Describe any past or current

submissions that have been made to other federal agencies and the outcome or current status of those submissions. If there are other sources of government funds that have not been contacted, explain why.

At the end of the proposal include any letters documenting the efforts to secure other funding. If no letter is available, then provide, as an appendix, a table with a brief paragraph for each unavailable letter or additional documentation of the effort, including: the name(s) of the person(s) who formally decided not to fund the project, their title and organizational affiliation, the reason given for the decision, the date the decision was conveyed, and to whom the decision was conveyed. Neither the letters nor the summary table of descriptions documenting specific contacts with potential funding sources count against the proposal page limit.

3. Novelty of the Proposed Research (Technology) With Respect to Competing Developments

TIP-funded research must be novel. It is not the purpose of TIP to foster the development of research results or technologies similar to those other entities have developed, commercialized, marketed, distributed, or sold (i.e., “is it out there in the public domain yet?”). If there are other entities who may appear to have developed, commercialized, marketed, distributed, or sold similar research results (technologies), identify these efforts and explain in science-based detail why the proposed research results (technologies) have the potential to more fully address the societal challenge(s) while the apparently competing technology in development or already existing will not or does not do so to a significantly lesser extent. A direct comparison of key performance metrics associated with the proposed effort to alleged competing efforts to illustrate a “next generation” level of improvement may be critical to making a competitive case.

4. Scientific and Technical Merit and How the Research May Result in Intellectual Property

It is in this section where the proposer(s) must adequately address the scientific and technical merit and how the research may result in intellectual property vesting in a United States entity. The proposer must elaborate on the novelty of the research approach and goals, the high-risk, high-reward nature of the project approach and potential outcomes, the team’s expertise, how the research addresses the technical needs associated with a major societal challenge not currently being addressed, and present the technical plan.

a. Uniqueness of the Proposed Approach and Research Goals

To be competitive, the proposal must convince expert reviewers that the research project is novel. Novel research refers to the technical approach and goals and means the research effort is new, uncommon, unusual and not currently being addressed. The research approach can be completely novel or a novel integration of existing or new technologies.

However, to be competitive, the proposed research is expected to be transformational, not just an incremental or predictable next step in the evolution of an existing technology (e.g. not a dramatic challenge to the status quo), and not just a combination of existing technologies in a new format. Transformational research enables disruptive changes beyond current methods and strategies, with the potential to radically improve the understanding of systems and technologies.

Therefore, describe how the proposed research is particularly innovative relative to alternative approaches being pursued by domestic and foreign competitors or elsewhere within the proposing team’s

organization(s). Describe any known related efforts that may have been unsuccessful, and how your approach avoids or otherwise addresses the pitfalls others may have encountered. Cite relevant patents and the open literature to support this discussion. (To aid the reviewers, include in the discussion a list of the key words for your searches.)

Ignoring state-of-the-art knowledge and ongoing work by others and within the proposing team's organization(s) may lead reviewers to assume that the proposer is not aware of existing work. Discussing existing efforts helps to ensure that the difference between proposed work and these efforts is clear.

b. Potential to Address Technical Needs Associated with a Major Societal Challenge

Identify the expected outcome(s) of the research. Define measurable success criteria for the proposed research or technology efforts. Provide quantifiable measures. These measures should be explained and contrasted against those for the state-of-the-art and any competing approaches. Explain how the research will specifically address a solution to the societal challenge(s) within an area of critical national need. Each of the major research outcomes should have a measurable, definable end point that correlates to the solicitation's discussion of a major societal challenge. Proposals that are predominantly basic science that do not have the potential for results that are measurable, definable end points that can address a major societal challenge within an area of critical national need will be considered less competitive.

c. High-Risk, High-Reward Research

Describe the scientific risks or technical barriers that prevent significant advances in addressing the societal challenge(s) within an area of critical national need. The

proposal must clearly describe what and where the high technical risk challenges are that must be overcome for the project to succeed. Describing high technical risk also entails articulating how the results have the potential for far- or wide-ranging implications if the risks are overcome, as well as why the proposer believes the research may be too novel or spans too diverse a range of disciplines to fare well in a traditional peer-review process.

Successfully accomplishing the proposed research and surmounting the technical challenges should result in a dramatic transformational change in the future direction and state of the technology. This "path change" should be a major leap forward, advancing the state-of-the-art significantly.

Proposals should provide sufficiently detailed scientific rationale to document the specific high technical risks embodied in the proposed research. The proposal must describe the technical challenges and assess the probability of success of the proposed approach(es).

TIP funds projects that seek to overcome extremely difficult technical challenges. TIP also recognizes that not every aspect of the technical plan will have high technical risk; however, the project must have an overall profile commensurate with high-risk, high-reward research.

Research (technical) risk may be high in the development of one or more single innovations within the project, or in the integration of disparate technologies, or both. Integration risk can be due to the complexity of the integration effort, unknown properties of the components to be integrated, or other factors. Critical to an explanation of high risk for integration efforts is explaining what new knowledge could result from overcoming the risks and whether the risk is in the integration approach or in the technologies to be integrated. The high cost of integration by

itself does not sufficiently justify a claim of high technical risk.

The proposal should also describe the technical and scientific benefits (leverage or high-return) that will be derived from the research proposed. It is often helpful to discuss this from the perspective of a fully successful as compared to a partially successful effort.

Summarize the impact, or technical leverage, of successfully accomplishing the proposed research and overcoming the high technical risks. Technical leverage is the possibility of using the research results or approach beyond the initial applications.

d. Qualifications of Proposed Research Team

In this section, the information required about the key technical team members that will work on your project will be described. Most projects require a multidisciplinary approach to overcome technical barriers. Describe the quality and appropriateness of the technical staff assigned to the project, and the amount of time each individual will allocate to the project. Briefly highlight the educational background and experience of key personnel, including contractors. TIP may request two-page resumes for each key team member during the review by the Evaluation Panel. If key staff will be hired, describe the qualifications needed for key positions not yet filled and the timeline for hiring these staff.

e. Research Plan Is Scientifically Sound With Tasks, Milestones, Timeline, Decision Points and Alternative Strategies

The technical plan must explain how the research and technical objectives will be reached. It must address the “what, how, where, when, why, and by whom” in substantial detail. It must anticipate likely scientific or technical problems and describe how these problems will be overcome. The

technical plan should therefore detail each key research activity and provide the basis for project management oversight of that activity should TIP issue an award. A detailed technical plan is critical for effective project management, for development of a reasonable budget, and for good communications between the TIP Project Manager and the Principal Investigator. Therefore, a sound, detailed technical plan is necessary for a proposal to be competitive.

(1) Technical Approach - The elements of the technical plan must fit together in a reasonable and logical way to instill confidence that the team can implement and conduct the proposed approach.

The following sub-elements in the technical plan are required:

(a) Tasks and Subtasks - Discuss how the work will be organized into tasks and subtasks. Provide clear descriptions for tasks and subtasks performed by operational units within the proposing organization as well as by any contractors. Clearly identify these contractors if known at the time of proposal submission. If the contractor is not known, provide the qualifications needed to perform the proposed contract work. Explain the technical rationale for the major tasks. Indicate the level of risk of each task (e.g., high, medium, low). Clearly link tasks in the budget to the proposer, including each joint venture member if a joint venture, and to contractors (where appropriate). Highlight major risks and innovations inherent in specific tasks and the strategies for managing unexpected results. High-risk research often needs contingency plans, alternative or parallel technical approaches for carrying out key portions of the technical work: discussing these alternatives is also part of a good technical plan. Highlight the level of risk and innovation inherent in each of these approaches in the proposal and compare them to the primary approach. Proposals that contain alternative or parallel

efforts that significantly impact the overall proposal's profile of research risk, or novelty of the research innovation may be considered less competitive.

(b) Interrelationship of Tasks - Discuss how the tasks link to one another, which tasks depend on others, which tasks are sequential, and which tasks will be done in parallel. If contingency plans are used in the event the primary approach is unsuccessful, describe how these tasks will be incorporated, and under what conditions.

(c) Metrics - Provide clear and concrete quantifiable metrics for measuring the project's progress toward the overall technical goals. Define what technical success would look like, i.e., these metrics should relate to the project's technical objectives, targets, and success criteria. Quantify the extent to which this advances the current state of the technology. Metrics used at decision points to decide on proposed next steps are critical. See Table 1.

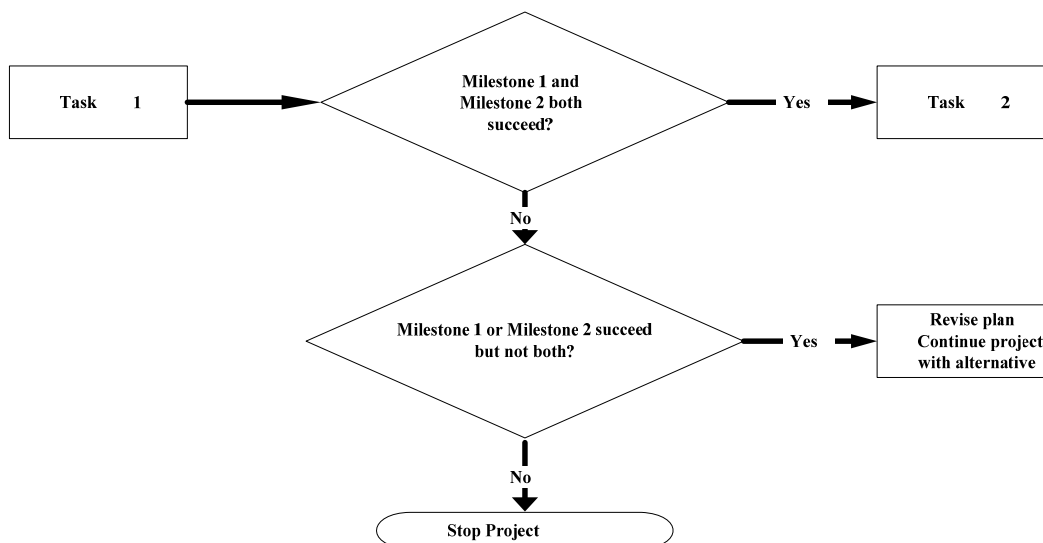
(d) Milestones - Provide appropriate interim and final key milestones for each year of the technical plan (by project years, not calendar years) and tie these to the metrics. Identify the organization responsible for, or with a key contribution to, each milestone. Milestones are critical for tracking progress made in the project. Include a discussion of the strategy for validating that a critical milestone's metrics have been met. See Table 1 for an example.

(e) Decision-Point Strategy - Provide go/no-go and other decision points for the project as appropriate. High-risk research can fail. Well-defined decision points provide a roadmap in terms of milestones and metrics showing a validated, quantifiable way that a project or line of research has succeeded or failed. For example, if a new material passes a stress test at a milestone, the decision is clearly to continue. If it fails the stress test at that milestone by a significant amount, then the project plan may recommend a designated alternative approach. If the designated alternative fails, then the project plan may define this as a no-go decision point that terminates the project. Projects that pursue more than one technical approach in parallel must discuss how the decision to select among those approaches will be made and when it will be made in the decision-point strategy. A good decision-point strategy identifies early go/no-go decision points within the first 12-18 months of a project. Appropriateness of the high-risk elements of the project should fall within this time frame. Risks, milestones, metrics, and decision points must be linked in the decision-point strategy. A decision-point tree or critical-path chart may be very helpful to communicate this information. One example of a decision-point strategy is given in the Figure below, but there are many other ways to effectively portray the information.

Table 1: Milestones/Metrics

Milestone	Timing	Responsible Organization	Metric	Minimum Value for Successful Result	Test Method	Decision
Material Down selection	First year, quarter 3	Company ABC	Figure of merit for performance (range of values)	Exceeds current technology by 200%	Series of evaluation methods	Choose optimal performance or restructure
Matrix to support cell attachment, spreading and cell in growth timing (for Engineered Rotator Cuff)	Month 15	Contractor	Timing for cell attachment and spreading throughout the matrix (range of values)	Uniform cell attachment within 5 minutes of seeding and spreading within 30 minutes at all levels of modular matrix	Use of RGD covalent coupling to enhance rates of cell attachment and support spreading	If coupling is not even throughout matrix, move from static to perfusion coupling to ensure reagent matrix contact
Demonstrate functionality of candidate sensor tips	First year, quarter 2	Contractor 1	Figure of merit based on performance standards (range of values)	Sensitivity, spatial resolution, and power consumption within 70% of final targets	Verified test methods	Select superior candidate tip or re-evaluate technical approach
Integrate and demonstrate catalyst synthesis, probe reaction, miniaturized analytical methods, and informatics system	End Year 3	Company 1 (JV Lead) and Company 2	Generate 2 new candidate lead compounds for lab-scale tests using process-grade raw material feed stocks	Candidate compounds must show: a) 15% improvement in reaction yield at reduced reaction temperatures and b) 50% higher selectivity in probe reactions	High throughput synthesis and analysis techniques	Explore different region of chemical composition space if lead compounds don't meet minimum requirements for success

Figure: Decision-Point Strategy (Example)



(f) Gantt Chart - Include a Gantt chart or other project timeline chart that illustrates timing of major tasks and key subtasks. These charts should include the level of risk associated with each task, the responsible individual(s) and organization(s), milestones, and decision points, as appropriate and should be consistent with your project and budget narratives. The timeline chart acts as a critical “task map” of

your technical plan for reviewers and for the overall project if it is selected for funding. In addition to the timeline chart, the project tasks must be described in narrative form. It must be clear how the goals of the project will be achieved by those tasks. See Table 2 for an example.

Table 2: Gantt Chart (Example)

Tasks	Q 1	Q 2	Q 3	Q 4	Q 5	Q 6	Q 7	Q 8	Q 9	Q 10	Q 11	Q 12	Performers	Level of Risk	Major Milestones, Metrics, and Decision Points
1.0 Task	-- -	---	--	--	--								Smith	High	
1.1 Subtask	-- -	M1											Contractor A	High	M1: Measure X must be greater than Y
1.2 Subtask		---	M2										Jones	Medium	M2: Material property P must be at least Z
1.3 Subtask		---	---	M3									Ahmed	High	M3: Test specific feature using described test plan Decision: If the test fails then use designated alternative
1.4 Subtask			--	--	M4								Wang	High	M4: Performance metric must exceed threshold Decision: If performance metric is not achieved, then terminate project
2.0 Task				----	----	-- --	----						Wilson	Low	
2.1 Subtask				----	M5								Todd	Low	M5: Component must be assembled
2.2 Subtask				----	M6								Jones	Low	M6: Component must be assembled
2.3 Subtask						-- --	M7						Taylor	Low	M7: Complete initial prototype
3.0 Task							----	-- --	-- --	M8	-	-	Wang	Medium	M8: Test system on specified dataset
3.1 Subtask										---	---	M9-	Ahmed	Medium	M9: Complete final test scenario

(2) Adequacy of Facilities, Equipment, and Resources - Briefly discuss the research facilities and specialized equipment required for this proposed project. Identify what facilities, equipment, and resources already exist for use; what will be obtained through contracting; and what must be obtained even though sources are not yet identified. Provide the timeline for obtaining needed facilities, equipment, and resources. Major equipment purchases need to be clearly linked to the appropriate research tasks and be described in the project budget narrative. Any collaboration agreements for access to facilities and/or associated staff being claimed as critical to tasks in the proposal must be clearly described. Copies of these agreements may be requested during the review by the Evaluation Panel (e.g., using a federal laboratory facility to perform research tasks in the proposal under a user agreement, CRADA or other written agreement). Descriptions of verbal agreements between parties for facilities access are not likely to be considered as competitive as those with written agreements, and may not be compliant with the requirements of the Program.

(3) Contractors - Projects may include contractors to obtain key expertise, access to existing facilities, or specialized goods and services. Discuss what each contractor brings to the project. Clearly identify what each contractor will do and why that contractor was chosen. Please note that contract awards must be in accordance with the Procurement Standards found in 15 C.F.R. Part 14. Discuss the relationship of the work to be done by the contractor to the technical plan. Discuss how contractor progress will be monitored and redirected as appropriate. Contractors may not contribute to the cost-sharing requirement. *Note: If a proposed recipient prefers to meet its cost share by entering into subawards with subrecipients, this can be considered on a case-by-case basis upon receipt and acceptance of subaward agreements prior to award.*

TIP expects that the proposer or the JV members if a joint venture will direct and carry out most of the key high-risk and high-innovation tasks. For example, a single company structured as a “virtual company” that proposes to have contractors perform most of the high-risk tasks is not expected to be competitive, or may not be eligible for an award.

In system or device integration projects, the proposal should make clear how the proposer is involved in integrating the technologies and taking the system forward if contractors are key players in the actual integration tasks.

Projects with high levels of contracting need to specifically address how this structure is effective in terms of cost, organizational efficiency, and long-term impact of the research results.

(4) Justification for R&D Activities At Non-U.S. Sites - TIP strongly discourages use of non-U.S. sites for research and development activities. In the event that the project includes work performed at a non-U.S. site, a completed Form NIST-1022H, R&D Work Performed outside the United States by the Recipient or Contractor Questionnaire (see Exhibit 11) must be provided. If a portion of the project can only be carried out at a non-U.S. site because of the site’s unique capabilities, the answers to the questions in Form NIST-1022H should explain the technical work to be done, the relationship of this work to the overall project, the cost of this work, the unique capabilities associated with the non-U.S. site, and why equivalent work cannot be performed within the United States.

5. What is the Potential for Advancing the State of the Art?

This section must explain how the research can advance the state-of-the-art and contribute to the U.S. science and

technology knowledge base. Explaining how the proposal advances the state-of-the-art should start with a clear definition of the current state-of-the-art to establish the difference the project will make. Explain the difference that complete success, partial success and failure to achieve any goals will make to the state-of-the-art. Regardless of the project outcome, what difference will knowledge of the results of this project make to the broader research community with special emphasis on the research community in this area of critical national need? Knowledge of failure can benefit other researchers considering a variety of possible directions.

Explain how the research results will contribute to the U.S. science and technology knowledge base. Describe the preferred strategy for disseminating the research results, and the level of commitment to that strategy for each proposed research participant. The strategy may combine diverse elements such as publishing some portions of research results, patenting, licensing of patents or of the technology itself, partnerships with manufacturers or with the next level of the solution process, holding seminars, or, for universities, teaching students or authoring textbooks. Be sure to consider how the dissemination strategy will reach across all the disciplines that could benefit from the research results with special emphasis on those most directly addressing the critical national need. The strategy must demonstrate how the state-of-the-art can change as a result of the project. Implementing the knowledge dissemination strategy could involve others beyond the proposing team. Include a detailed discussion as to the capabilities of all parties to implement the proposed technology. This discussion of capabilities for implementation is not the same as the discussion of the proposer's own capabilities to carry out the technical plans as proposed for the award.

Successfully accomplishing the proposed research and surmounting the technical challenges should result in a dramatic transformational change in the future direction and state of the technology. This "path change" should be a major leap forward, advancing the state-of-the-art significantly.

6. Transforming the Nation's Capacity to Deal with Major Societal Challenges

In this section, describe how the research (technology) has strong potential to address societal challenge(s) in an area of critical national need and how the benefits extend significantly beyond the direct return to the participants in the research.

Describe how research results and contributions to the U.S. technology knowledge base will diffuse beyond the proposed participating organizations while those organizations maintain ownership of core knowledge needed to most effectively implement the project's technical results. Discuss the planned use of patents, copyrights, trade secrets, and any other forms of intellectual property protection. Discuss any planned strategy for publishing, presenting or disseminating the technical results, including enabling methodologies that may not be patented.

The proposal must include a plan that explains how and when results of the proposed technology will have positive effects on the project participants and the Nation as a whole.

Competitive proposals should clearly define the societal challenge that the proposed technology is trying to solve in sufficient detail to enable a clear link to be made between the problem to be solved, the proposed solution, the dissemination of the solution, and the potential for overall impact on the Nation.

a. Potential magnitude of the transformational results

Describe how the Nation’s capabilities to address a societal challenge(s) in an area of critical national need will be different once the results of this research are put to use. Be clear about the current baseline in the Nation’s capabilities. Be sure to make clear how the results could extend beyond the initial societal challenge target areas.

Provide a description of the magnitude of the impact or difference that the technology will make. For example, benefits in healthcare could be reducing the number of accidental deaths due to errors in surgical procedures; benefits from developing new sources of sustainable energy could reduce the Nation’s dependency on foreign sources; and the like. Describe any assumptions and document and quantify wherever possible.

Be clear in the discussion about the difference, or “added value,” that TIP funding makes in realizing the societal benefits of the proposed project. In general, the competitiveness of a proposal is strengthened through a clear description of the specific change expected and the potential impact in solving societal needs. In discussing the advantages of this proposed technology, be sure to document what, if any, alternate technologies have been developed or are being developed. If an alternate technology has already been developed, discuss the reason why it has not been helpful in solving the societal challenge(s) being discussed.

b. How and when will the ensuing transformational results unfold?

Explain how the research results will be put to use addressing the societal challenge(s).

Discuss who will be the potential users of the research results (technology) in the immediate future and the more distant future and the relationship to solving the

stated societal need(s). Simply put, how will the research results (technology) be used? How will the research results (technology) move from the research team to those who will use it to address the societal challenge?

Describe how the research (technology) will be implemented to have the best opportunity to solve the stated areas of critical national need and societal challenges. There will be no impact to the common national good if the research (technology) cannot or will not be implemented. Identify barriers that could hinder the full implementation of the proposed research (technology) if it is successful and describe how and when these barriers will be overcome.

If this research will result in technology that is part of a larger system, describe any other technical breakthroughs that are needed to make this research useful to the Nation. How and when will the research and development needed for this technology take place? Who is likely to provide the technology? What is the basis for the assertions about the availability of this related technology?

Describe the timeline for implementing the research results.

c. Capacity and commitment of each participant

This section of your project narrative should address the following:

(1) Organizational Commitment – For each participant, describe the organization’s effective commitment to performing the research proposed. This commitment includes the resources to be brought to the TIP project. Describe the commitment in terms of the financial resources, time commitment of key people in the organization, equipment, and dedicated facilities. Describe the relationship of this project to the organization’s strategic vision and direction. Provide evidence of

commitment from senior management to the project. TIP requires a letter of commitment signed by an authorized senior executive of the single company and from each joint venture member. These letters must verify the availability of all cost share funds. If there are commitments from regional, state, or local agencies or private sources of capital to contribute cost-sharing funds, indicate the nature of those arrangements and give evidence of the commitment. NOTE: Contractors may not provide cost share.

(2) Organizational Information - TIP needs to know about the current status of the companies involved in a project it might fund. Provide information about the date and state of incorporation, how the proposing organization(s) is organized, overview of financial information, past experience, and related government work.

(3) Current and Past Federal Awards - Provide a list of all current and past federal R&D contracts, grants, and other awards for the previous five years and all pending federal awards in the general area of this proposal. For example, provide a list of the Small Business Innovative Research (SBIR) grants received for the previous five years. Include the name of the project, the funding agency/organization, the grant/contract/award number, the principal investigator, and the federal government contact's name and phone number. For

current or past awards having some relationship to the technology being proposed to TIP, briefly describe how the proposed project is distinctly different and not a duplicative effort. See Table 3 for the required format.

(4) Financial, Employment, and Ownership Information - Provide information about the financial status, current employees, and ownership of the proposing single company or for each member of a proposed joint venture (except universities, national laboratories and government agencies). See Table 4 for the required format. These worksheets must be provided as an appendix to the proposal. The worksheet is not included in the page limit; however, this worksheet is to be included in the appendix. If financial statements or annual reports are included as an appendix, they will be discarded before the proposal review process begins. If the proposal is recommended for funding, then the proposing single company or each joint venture member (except universities, national laboratories and government agencies) will be asked to provide the following:

1. Privately held companies and non-profit organizations: most recent financial statements;
2. Publicly traded companies: most recent 10-K SEC filing or annual report.

Table 3: Federal Awards Received By Company/Organization or Principal Investigator for All Technologies for Previous Five (5) Years (Example)

Project Title	Award No.	Total Federal Award (\$)	Performance Period (M/Y to M/Y)	Name of Principal Investigator, Address, & Phone No.	Name of Federal Agency, Federal Program Manager, Address, & Phone No.

Table 4: Financial, Employment and Ownership Information for Previous Three (3) Years

Financial Information	Current Year to Date	Last Year	Two Years Ago
Income			
Contract R&D			
Product Sales			
Other			
Total Income			
Expenditures			
Cost of Goods Sold			
R&D			
General and Administrative			
Total Expenditures			
Gross Income Before Taxes			
Net Income After Taxes			
Balance Sheet	Current Year to Date	Last Year	Two Years Ago
Assets			
Current Assets			
Fixed Assets			
Total Assets			
Liabilities			
Current Liabilities			
Long-term Liabilities			
Stockholders Equity			
Total Liabilities and Equity			
Employment Information	Number of Employees		
	Current Year to Date	Last Year	Two Years Ago
Full Time			
Part Time			
Full Time R&D			
Part Time R&D			
Ownership Structure (for private companies)	Current Percentage	For private companies less than 3 years old	Current Capitalization
Founders		Venture Capital	\$
Directors		Angel Investors	\$
Employees		Individuals	\$
Investors		Self-funded (Officers / Directors)	\$
Individuals		Other (e.g., state)	\$
Other (e.g. ESOP)		Total	\$

D. REQUIRED LETTERS (letters are not included in the page limit)

TIP reviewers scrutinize the content of letters very carefully to understand the actual commitment of the signatory. Table 5 summarizes which letters are required under what conditions. The remainder of this section discusses what is required in each type of letter.

1. Letters of Commitment

Letters of commitment commit specific resources to the project if the project is funded.

- a. Single Company Proposer** - A letter of commitment from an authorized senior executive of the company is required to indicate the importance of the project to the company and the company's commitment to supply key resources (e.g., the time of key personnel, cost sharing, equipment, and facilities).
- b. Joint Venture Proposer** - Letters of commitment from an authorized senior executive of each organization in the joint venture is required to indicate the importance of the project to the organization and the organization's commitment to supply key resources (e.g., the time of key personnel, cost sharing, equipment, and facilities).
- c. Contractors** - Letters of commitment from contractors who are key to the technical plan's success are useful for verifying the availability of resources, but are not required.
- d. Prospective Employees** - Letters of commitment to join the proposing organization's team are useful for verifying the availability of key personnel who are not yet employed at a proposing organization, including joint venture member, to participate in the project if the project is funded. These letters are not required but they can play an

important role in conveying the appropriateness of key staff members, especially for projects involving small companies or startups.

e. Letter of Commitment for Third Party (External) In-Kind-Contributions - A letter of commitment from an authorized senior executive of any organization providing third party in-kind-contributions that are to be used as cost share is required. This letter should clearly state the form(s) of the third party in-kind contribution, value of the in-kind contribution, and the time period over which the third party in-kind contribution is made. In addition, the Form NIST-1022D, Third Party In-Kind Contribution (see Exhibit 7) must be completed.

f. Letter of Commitment for Third Party (External) Cash Contributions - A letter of commitment from an authorized senior executive of any third-party (external) organization providing cash contributions that are to be used as cost share is required. This letter should clearly state the amount of the cash contribution, the time period over which the third party cash contribution is made, and interim performance requirements for phased contributions, if any.

2. Letters of Support

Letters of support indicate a willingness from potential members to become involved later in the project if it is funded.

- a. Contingent Funding** - Sometimes a potential investor will indicate a strong interest in evaluating the results of a project for possible future uses. This type of letter can help verify that the pathway to further uses of the research in the proposal has been studied and is feasible. *If this funding is critical to the financial viability of the organization in the first year of the project, a letter is required.*
- b. Strategic Partner** - Strategic partners can aid the future potential for the research

to yield transformational results and in the diffusion of the technology beyond the proposer. Letters of support from strategic partners that demonstrate that the research has the potential to yield transformational results and likely benefit the Nation are helpful in the proposal evaluation process. If letters are not available, but there has been some contact with a potential strategic partner, the proposer may document the contact in a paragraph, providing name, title, organizational affiliation of the contact, date of the contact, and extent of the contact. This paragraph can be included as an appendix, outside the page limit.

3. Letters of Corroboration, Documenting Efforts to Secure Other Funding

Letters documenting the proposer’s search for capital prior to seeking funds from TIP

are required for documenting the proposer’s need for TIP funding. This especially includes letters from potential funding sources indicating why they chose not to fund the project. If a letter from a potential funding source that chose not to fund the project is not available, the proposer must document the interaction with the funding source as discussed in Section C.2 of this chapter entitled, Efforts that the Proposer Has Made to Secure Alternative Funding. This alternate information should include the name of the person who decided not to fund the project, their title, organizational affiliation, the reason given for the decision, the date the decision was conveyed, and to whom it was conveyed. This should be done for each funding source that was approached and declined to fund the project and put into a table format. This table is not included in the page limit.

Table 5: Summary of Types of Letters – Required or As Appropriate

Type of Letter	Required	As Appropriate
1. Letters of Commitment		
a. Single Company Proposer	Required – signed by authorized company official to document source of cost share	
b. Joint Venture Proposer	Required from each joint venture member – signed by authorized organization official to document source of cost share	
c. Contractors		Optional – useful if contractor is critical to project
d. Prospective Employees		Optional – useful if key personnel are not yet organization employees
e. Third Party In-Kind Contributors	Required – signed by authorized organization official to commit third party in-kind contributions	
f. Third Party Cash Contributors	Required – signed by authorized organization official to commit third party cash contributions.	
2. Letters of Support		
a. Contingent Funding	Required only when funding is critical in the first year of the project	
b. Strategic Partners		Optional – Letters from or descriptions of contact with potential strategic partners
3. Letters of Corroboration		
Letters of corroboration, documenting efforts to secure other funding	Required - Letters from or descriptions documenting contact with funding sources and the outcome	

CHAPTER 3

PROPOSAL SUBMISSION REQUIREMENTS CHECKLIST

NOTE: Proposals that deviate substantially from these guidelines or that omit required information may be found unresponsive and may not be considered for funding.

A. PROPOSAL FORMAT

- 1. **Bindings.** If submitting by paper rather than electronically, bind all copies (including signed original) of the proposal, except one copy, securely. Bindings that permit the proposal to lie flat while being read are preferred. Loose-leaf ring binders or stapled copies are not acceptable.
- 2. **Double-sided copy.** Print on both sides of the paper (front to back counts as two pages).
- 3. **E-mail proposal submissions.** Will not be accepted.
- 4. **Facsimile (fax) proposal submissions.** Will not be accepted.
- 5. **Figures, graphs, and images.** Should be of a size that is easily readable or viewable.
- 6. **Font.** Times New Roman, Arial, or equivalent and readable (12-point minimum).
- 7. **Line spacing.** Single.
- 8. **Margins.** One (1) inch top, bottom, left, and right.
- 9. **Number of copies if submitting by paper rather than electronically.** Sixteen (16) (1 original, signed, bound proposal plus 15 copies [1 unbound and 14 bound]). If the original proposal is in color, all copies must also be in color. If the proposal is submitted electronically, paper copies are not required.
- 10. **Page limit.** 30 pages for single company; 40 pages for joint venture.

Page limits exclude: SF-424 (R&R), Application for Federal Assistance; Research and Related Other Project Information; Form NIST-1022; Forms NIST-1022A through NIST-1022H; Executive Summary; list of bibliographic technical references; Table of Abbreviations; Financial, Employment, and Ownership Information for the Previous Three (3) Years; letters of commitment; letters of support; letters of corroboration; and any human and/or animal subjects documentation.

Page limits include: All text, schematics, diagrams, flowcharts, tables (except Financial, Employment, and Ownership Information for the Previous Three (3) Years), pictures, images, illustrations, and resumes. To maximize pages for relevant technical information, the following suggestions are offered:

- (1) List data only for the key people and briefly highlight their education and experience. Do not include lengthy resumes for all people involved in the project.
 - (2) Do not include copies of published papers as appendices.
 - (3) Do not include supplemental material not specifically requested in this Proposal Preparation Kit, either separately or bound with the proposal.
 - (4) Do not include company sales catalogs, financial statements (TIP may request these during the Evaluation Panel's consideration on the proposal), videotapes or audiotapes, presentation slides, and other marketing materials.
- 11. Page numbering.** Number pages sequentially.
 - 12. Paper size.** 21.6 by 27.9 centimeters (8 1/2 by 11 inches).
 - 13. Proposal language.** English.
 - 14. Table of contents.** Not required.
 - 15. Typed document.** All proposals, including forms, must be typed; handwritten proposals and forms will not be accepted.

B. PROPOSAL FORMS AND OTHER REQUIREMENTS

(Forms are included in this Proposal Preparation Kit as exhibits and are posted on the TIP Web site at <http://www.nist.gov/tip/helpful.html>.)

1. SINGLE COMPANY ONLY (also complete items in section B.3. below)

- a. Proposal is from a small- or medium-sized eligible company.
- b. Total project duration does not exceed 3 years.
- c. Total TIP funding requested does not exceed \$3 million.
- d. Proposal includes Form NIST-1022E, Estimated Multi-Year Budget – Single Company (see Exhibit 8).

2. JOINT VENTURE ONLY (also complete items in section B.3. below)

- a. At least two separately owned, small- and/or medium-sized eligible companies OR at least one small- or medium-sized eligible company and one institution of higher education are part of the joint venture and are substantially involved in the R&D and both are contributing to the cost share.
- b. Lead member of the joint venture submitting the proposal is the small- or medium-sized company or institution of higher education.
- c. Total project duration does not exceed 5 years.
- d. Total TIP funding requested does not exceed \$9 million.
- e. TIP funds are not requested for any large-sized company joint venture member.
- f. Proposal includes Form NIST-1022A, Other Joint Venture Members (see Exhibit 4).
- g. Proposal includes Form NIST-1022F, Estimated Multi-Year Budget – Joint Venture (see Exhibit 9)

3. BOTH SINGLE COMPANY AND JOINT VENTURE

- a. TIP funds are not requested for indirect costs.
- b. Cost sharing is at least 50 percent of total yearly project costs (direct plus all of the indirect costs).
- c. Proposal includes SF-424 (R&R) (2 pages), Application for Federal Assistance (see Exhibit 1). Note that there are multiple versions of the SF-424, therefore, be sure to use the SF-424 (R&R) version.
- d. Proposal includes Research and Related Other Project Information (see Exhibit 2).
- e. Proposal includes Form NIST-1022, Technology Innovation Program Proposal Information Sheet (see Exhibit 3).
- f. Proposal includes Form NIST-1022B, Contractors (see Exhibit 5), if contractors are proposed in budget.
- g. Proposal includes Form NIST-1022C, Budget Narrative (see Exhibit 6).
- h. Proposal includes Form NIST-1022D, Third-Party In-Kind Contributions (see Exhibit 7), if applicable.
- i. Proposal includes Form NIST-1022G, Foreign-Owned Company Questionnaire (see Exhibit 10), if applicable. If there is more than one such company, separate questionnaires must be submitted for each one.
- j. Proposal includes Form NIST-1022H, R&D Work Performed Outside the United States by the Recipient or Contractor Questionnaire (see Exhibit 11), if applicable. If more than one such instance, separate questionnaires must be submitted for each instance.
- k. Proposal includes Executive Summary (two page limit) (see Chapter 2).
- l. Proposal includes Project Narrative (see Chapter 2).
- m. Proposal includes list of bibliographic references supporting assertions and data including patent citations (see Chapter 2, Section F).
- n. Proposal includes Table of Abbreviations that define abbreviations likely to be unfamiliar to the reader. Common abbreviations, for example, U.S., TIP, DoD, and cm, need not be defined.
- o. Proposal includes Financial, Employment, and Ownership Information for the Previous Three (3) Years (see Chapter 2, Section C).
- p. Proposal includes letters of commitment, as required (see Chapter 2, Section D).
- q. Proposal includes letters of support, as appropriate (see Chapter 2, Section D).
- r. Proposal includes letters of corroboration, documenting efforts to secure other funding, as required (see Chapter 2, Section D).
- s. Proposal includes information regarding human subjects and/or live vertebrate animals in research activities, if applicable. (See Chapter 4, Human Subjects Determination Checklist, to assist in determining whether the proposal may have human subjects involvement, which would require additional information within the proposal submission. If the required information is not included with the proposal, the proposal may be deemed unacceptable. Refer to the booklet titled *TIP Guidelines and Documentation Requirements for Research Involving Human and Animal Subjects*, which can be obtained at <http://www.nist.gov/tip/helpful.html> or by calling 1-888-847-6478. Timelines for submission of required human subjects and live vertebrate animal documentation are included in the booklet as Appendices 5 and 6.)
- t. Amounts on the Forms NIST-1022E (Estimated Multi-Year Budget – Single Company) and NIST-1022F (Estimated Multi-Year Budget – Joint Venture) add correctly and correspond with amounts on the Form NIST-1022C (Budget Narrative).

- u. Amounts on Forms NIST-1022E (Estimated Multi-Year Budget – Single Company) and NIST-1022F (Estimated Multi-Year Budget – Joint Venture) correspond with amounts on the Form NIST-1022B (Contractors), if contractors are proposed.
- v. Proposal does not include ineligible projects and/or ineligible/unallowable costs as identified in Chapter 1, Section D.

C. PROPOSAL ASSEMBLY/PRESENTATION ORDER

- a. SF-424 (R&R), Application for Federal Assistance (see Exhibit 1).
- b. Research and Related Other Project Information (see Exhibit 2).
- c. Form NIST-1022, Technology Innovation Program (TIP) Proposal Information Sheet (see Exhibit 3).
- d. Form NIST-1022A, Other Joint Venture Members (see Exhibit 4), if a joint venture.
- e. Form NIST-1022B, Contractors (see Exhibit 5), if contractors are proposed.
- f. Form NIST-1022C, Budget Narrative (see Exhibit 6).
- g. Form NIST-1022D, Third-Party In-Kind Contributions (see Exhibit 7), if applicable.
- h. Form NIST-1022E, Estimated Multi-Year Budget – Single Company (see Exhibit 8) or Form NIST-1022F, Estimated Multi-Year Budget – Joint Venture (see Exhibit 9).
- i. Form NIST-1022G, Foreign-Owned Company Questionnaire (see Exhibit 10), if applicable.
- j. Form NIST-1022H, R&D Work Performed Outside the United States by the Recipient or Contractor Questionnaire (see Exhibit 11), if applicable.
- k. Executive Summary (two (2) page limit) (see Chapter 2).
- l. Project Narrative (see Chapter 2).
- m. List of bibliographic technical references supporting technical assertions and data including patent citations (see Chapter 2, Section F).
- n. Table of Abbreviations.
- o. Federal Awards Received By Company/Organization or Principal Investigator for All Technologies for Previous Five (5) Years
- p. Financial, Employment, and Ownership Information for the Previous Three (3) Years (Chapter 2, Section C).
- q. Letters of commitment, as required (see Chapter 2, Section D).
- r. Letters of support, as appropriate (see Chapter 2, Section D).
- s. Letters of corroboration, documenting efforts to secure other funding, as required (see Chapter 2, Section D).
- t. Additional information regarding human subjects and/or live vertebrate animals in research activities, if applicable.

D. ADDITIONAL DOCUMENTATION

The following additional forms and documents, which are available at <http://www.nist.gov/tip/helpful.html>, may be requested from a proposer at any time during the multi-disciplinary peer-review process:

1. SF-424B, Assurances—Non-Construction Programs.
2. Form CD-346, Applicant for Funding Assistance.
3. Form CD-511, Certifications Regarding Lobbying.
4. SF-LLL, Disclosure of Lobbying Activities, if applicable.
5. Financial information (see Chapter 2, Section H).

6. Additional human and/or animal subjects documentation, if applicable.
7. For joint ventures only, a credible draft Joint Venture Agreement (JVA) that must be initiated by each joint venture member acknowledging review and preliminary concurrence. The information below is provided in advance to alert joint venture members of the minimum requirements so that the parties may begin negotiating the JVA early:
 - a. Authorization for one of the joint venture members (a legal entity, not an individual person) to serve as the Joint Venture Administrator to bind all of the other members to the terms and conditions of the NIST/TIP award and to administer the NIST/TIP award on behalf of all of the members.
 - b. Treatment of intellectual property—that is, who will own what, including provisions granting the required licenses to the government and acknowledging the TIP statutory intellectual property rights ownership requirement.
 - c. Agreement that the TIP award terms and conditions take priority over those in the JVA.
 - d. Acknowledgment by the parties of their respective cost-sharing commitment and that no party is responsible for the cost-sharing commitment of any other party.
 - e. Acknowledgment that if a party is removed unilaterally by the NIST Grants Officer, that party is also removed from the Joint Venture Agreement.
 - f. Provision for a party's withdrawal from the JVA, including immediate notification to the NIST Grants Officer.
 - g. Inclusion within any dispute resolution provision, the parties' acknowledgment that NIST may, at any time, suspend or terminate the NIST Cooperative Agreement.

Although the draft JVA only requires initials by each joint venture participant at the time of submission, it must be finalized, signed by all joint venture members, and approved by NIST before an award can be made. Failure to provide an acceptable, executed JVA by the established due date will jeopardize issuance of an award. An award will not be deferred in order to give more time to finalize a JVA. A sample JVA and Intellectual Property Plan is available on the TIP Web site (<http://www.nist.gov/tip/helpful.html>). The sample JVA includes important information; however, it is not meant to be the sole JVA model. If a joint venture wants to develop its own JVA, it may do so, provided the minimum provisions mentioned above are included, and provided that the alternative JVA does not otherwise conflict with TIP requirements. A draft JVA that has not been completed to include the required information will not be accepted. The legal name and contact information of each JV participant must be provided; include only those organizations to be bound by the JVA.

Some issues that are most often raised by organizations' legal counsel in negotiating the JVA include the following:

- a. Who will hold title to intellectual property?
- b. How are revenue streams to be divided?
- c. What indemnification provisions will be acceptable to all parties?
- d. Who will be the spokesperson for the joint venture?
- e. Who authorizes licensing agreements?
- f. Who handles the billing to NIST and brings issues to NIST's attention?
- g. What will happen during the course of the project if one party drops out and/or another party wishes to join?
- h. Who will coordinate writing the quarterly reports to be submitted to NIST/TIP?
- i. Who will track progress against technical milestones to bring issues to the attention of the joint venture and to NIST/TIP?

- j. In what capacity is a government laboratory participating? If as a joint venture member, is the government laboratory willing to execute the JVA? (NOTE: If it is not willing to execute the JVA, the government laboratory may possibly participate as a contractor under a separate agreement [e.g., a CRADA as addressed in Chapter 1. Section B.8] with the Joint Venture Administrator.)
- k. How will disputes be handled should they arise?
- l. How will project expenses be reported by joint venture members to the Joint Venture Administrator for reporting to NIST?

Before investing a large effort in planning technical work for a joint venture, organizations are urged to obtain a legal review of the sample JVA by all joint venture members. If it appears likely that reaching an agreement to the provisions contained in the sample JVA and Intellectual Property Plan will be contentious, TIP urges you to carefully consider whether the joint venture is feasible. If there are questions, your legal staff may contact the Office of the Chief Counsel for NIST at 301-975-2803.

TIP strongly recommends that the person who signs the proposal submission for the lead organization be someone at a high enough level in the organization to be able to deal effectively with the kinds of legal and policy concerns that are necessary to execute a successful JVA. It is often helpful if this same individual is the authorized signer of the JVA on behalf of the lead organization if the project is selected for funding. This individual must coordinate with top management within his/her own organization and the other participating organizations about their commitment and proposed cost-share contribution to the proposed project.

CHAPTER 4

HUMAN SUBJECTS DETERMINATION CHECKLIST

This checklist should be used to determine whether human subjects are involved in the research project and whether the research is exempt under the Department of Commerce regulations (see 15 C.F.R. Part 27) for the protection of human subjects. A proposal may contain more than one research activity involving human subjects, and each activity may require a different level of review. This checklist should be used for each potential use of human subjects. NIST and the Technology Innovation Program (TIP or “the Program”) reserve the right to make an independent determination of whether your research involves human subjects. If NIST or the Program determines that your research project involves human subjects, you will be required to provide additional information for review and approval. A timeline for the submission of required documents can be found in Appendix 5 of the booklet titled TIP Guidelines and Documentation Requirements for Research Involving Human and Animal Subjects.

A copy of this appendix may also be found at <http://www.nist.gov/tip/helpful.htm>.

1. Is there an intervention or an interaction with a living person that would not be occurring or would be occurring in some other fashion but for this research? Examples: videotaping people, observing children using software, surveying manufacturing personnel during a pilot test of new equipment, gathering tissue or cells from living human donors.
 - Yes—Human subjects are involved. Go to question 3.
 - No—Go to question 2.
2. a. Will data/information/specimens previously collected originally from people or about people be used in this research? Examples: broadcast video, Web-use logs, medical information, cells or tissues, survey questions.
 - Yes—Identifiable human subjects may be involved. Go to question 2.b.
 - No—Go to question 6. It appears that human subjects may not be involved in the project. However, an exemption determination may be required if it is determined that human subjects are involved. Please review question 3 for additional information about research that may require either a determination of whether the activity is not considered a use of human subjects in research under the regulation or an exemption determination.
- b. Does that information contain private information in a form in which the identity of the subject is or may readily be ascertained from the information? Examples: medical records, donor name or address, sales transaction records.
 - Yes—Identifiable human subjects are involved. Go to question 3 to see if an exemption may apply. If you know that an exemption does not apply, proceed to question 5.
 - No—Go to question 3. The research may not be within the scope of 15 C.F.R. Part 27; however, it may require an exemption determination to be made due to the use of data, recordings, or specimens that could be linked to humans without appropriate safeguards.

3. Do you think the research task may either not be within the scope of 15 C.F.R. Part 27 or qualify for an exemption under 15 C.F.R. § 27.101(b)? The following questions will help you evaluate whether to request an exemption determination by NIST and the Program or provide documentation that the research may not be within the scope of 15 C.F.R. Part 27:
- a. Will the research task involving human subjects use only existing data, recordings (audio or visual), or specimens? Examples: patient records, a company's customer data, Web-use logs, cells, or tissue.
 - Yes—Go to question 3.d.
 - No—Go to question 3.b.
 - b. Will the research task involve only normal educational practices such as instructional strategies or comparison of instructional techniques, curricula, or classroom management methods? Examples: observation of student-teacher or student-computer interactions, video taping instructional approaches.
 - Yes—Go to question 3.d.
 - No—Go to question 3.c.
 - c. Will the research task involve only educational tests (cognitive, diagnostic, aptitude, achievement), survey procedures, interview procedures, or observation of public behavior? Examples: broadcast video, software usage testing, recordings from security cameras.
 - Yes—Go to question 3.e.
 - No—Go to question 5. This research is probably not exempt and will require Institutional Review Board (IRB) review and approval.
 - d. Do any of the data, recordings, specimens, or practices involve prisoners? Examples: testing educational software with prisoners, videotaping or surveying prisoners or detainees under the authority of a law enforcement entity.
 - Yes—Go to question 5. This research is probably not exempt and will require IRB review and approval.
 - No—Go to question 3.f.
 - e. Do the procedures or observations of public behavior involve prisoners or children?
 - Yes—Go to question 5. This research is probably not exempt and will require Institutional Review Board (IRB) review and approval.
 - No—Go to question 3.h.
 - f. Are the data, recordings (audio or visual), or specimens publicly available?
NOTE: Publicly available may include items for sale, items that are freely available to the public, or items that reside in the public domain. Examples: customer data sets, catalog orders of cells or tissues, donations of pathological specimens, shareware.
 - Yes—Go to question 4. This research may be exempt under 15 C.F.R. § 27.101(b).

- No—Go to question 3.g.
- g. Will the data, recordings (audio or visual), or specimens be stripped of all identifiable information that could be linked to a human subject prior to being received by the investigator?
 - Yes—Go to question 4. This research may not be within the scope of 15 C.F.R. Part 27, or this research may be exempt under 15 C.F.R. § 27.101(b).
 - No—Go to question 3.h.
- h. Will information be recorded by the investigator in such a way that it can be linked to the human subject? Examples: Web-use logs tied to e-mail address, patient records, or specimens that include patient identifiers.
 - Yes—Go to question 5. This research is probably not exempt and will need an IRB review.
 - No—Go to question 4. This research may be exempt under 15 C.F.R. § 27.101(b).
- 4. An exemption under 15 C.F.R. § 27.101(b) may apply to the task, or the task may not be within the scope of 15 C.F.R. Part 27. In order to complete the necessary requirements for research considered exempt under 15 C.F.R § 27.101(b), review the TIP Program Guidelines and Documentation Requirements for Research Involving Human and Animal Subjects. A copy of that booklet can be obtained on the TIP Web site at <http://www.nist.gov/tip/helpful.htm> or by calling 1-888-TIP-NIST (1-888-847-6478) and requesting a copy. Complete Appendix 3 and/or Appendix 4 in the booklet as required and submit with your proposal or your request to add the research activity to an ongoing project. During the review of a proposal by the Evaluation Panel you may be asked for additional information. However, additional documentation to reach a final determination may also be requested after the proposal is funded.
- 5. An exemption probably does not apply to the proposed research, however further documentation may still be required. Review the TIP Program Guidelines and Documentation Requirements for Research Involving Human and Animal Subjects. A copy of that booklet can be obtained on the TIP Web site at <http://www.nist.gov/tip/helpful.htm> or by calling 1-888-TIP-NIST (1-888-847-6478) and requesting a copy. See Appendix 5 in the booklet for the required documentation list for your proposal or to add the research activity to an ongoing project. During the review of a proposal by the Evaluation Panel you may be asked for additional information. However, additional documentation to reach a final determination may also be requested after the proposal is funded.
- 6. It appears that human subjects are not involved in this project. This checklist is only a tool for general guidance and does not constitute a final legal opinion from NIST on whether or not human subjects are involved, or whether or not an exemption determination under the regulations is needed. If upon NIST and Program review of the proposed research it is determined that additional documentation is needed to reach a preliminary determination you will be asked to provide the additional documentation. During the review of a proposal by the Evaluation Panel you may be asked for additional information. However, additional documentation to reach a final determination may also be requested after the proposal is funded.

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CHAPTER 5

GENERAL INSTRUCTIONS FOR SUBMITTING TIP PROPOSALS ELECTRONICALLY VIA GRANTS.GOV

1. **How to Start.** Go to the www.grants.gov Web site and click on “Apply for Grants” under “For Applicants” in the left column and follow the instructions. The first thing you’ll need to do is register.

2. **Registration Process.** Before using Grants.gov for the first time, each proposer must register to create an institutional profile http://www.grants.gov/applicants/get_registered.jsp. Once registered, the proposer can then apply for any federal government grant or cooperative agreement on the Grants.gov Web site, including TIP.

To avoid any potential processing backlogs due to last minute registrations, proposers **are strongly encouraged to start their Grants.gov registration process at least four weeks prior to the proposal submission due date**. New businesses (i.e., those applying to the Internal Revenue Service (IRS) for an Employer Identification Number (EIN) to complete the registration) should allow **at least two additional weeks** to obtain the number and register.

TIP will not make any allowances for submission delays due to incomplete Grants.gov registration.

3. **Downloading a Grant Application Package and Instructions from www.grants.gov.** Once you are registered:

- a. Go to the “Apply for Grants” page and click on the “Download a Grant

Application Package and Instructions” link.

- b. Enter the **CFDA Number** as 11.613 for TIP. Leave the Funding Opportunity Number and the Funding Opportunity Competition ID fields blank. Click on the **Download Package** button.
- c. If you have not already done so, follow the instructions to download and install **Adobe Reader 8.1.2**. It is important that you use the latest version of this viewer for proper operation of the intelligent logic used by application package.
- d. Under the heading **Instructions & Application** click on **Download**.
- e. On the next screen click on **Download Application Instructions** and print out the detailed instructions for the submission process. Read these instructions carefully before continuing.
- f. Once you understand the instructions and have assembled your completed proposal and all appropriate documents on your computer, return to where you left off in Grants.gov and click on “Download Application Package.”
- g. Follow the instructions that you have printed out to complete your electronic submission. Remember, you will need to be completely familiar with the requirements in the TIP Proposal Preparation Kit and the Federal Funding Opportunity (FFO) notice to begin the proposal preparation process. Both of these documents are available on the TIP Web site at <http://www.nist.gov/tip/helpful.html>.

The FFO is also available on the www.grants.gov Web site under “Quick Links” by clicking on “Grant Search” then under the heading “Search by CFDA Number” type 11.613.

4. **Software Requirements.** In order to access, fill out, and electronically submit a proposal, proposers need to download and install the latest version of the Adobe Reader (8.1.1) from Grants.gov or Adobe. Download and installation instructions for the Adobe™ Reader are available at <http://www.adobe.com/products/acrobat/readstep.html>. For minimum system requirements and additional download instructions, please see the Grants.gov Applicant User Guide.
5. **Proposal Components.** Complete proposals must include the required forms and documents and the proposal must be assembled in accordance with the guidelines in Chapter 3 of the TIP Proposal Preparation Kit. None of the prescribed forms may be altered, including adding text outside the forms’ design. Structural changes to any of the prescribed forms may invalidate the proposal.

The SF-424 (R&R), Application for Federal Assistance serves as the cover sheet for the proposal. No other cover sheet or letter should be used. Note that there are multiple versions of the SF-424, therefore, be sure to use the SF-424 (R&R) version. Any other SF-424 form such as the SF-424 Core Form, are not required for submitting TIP proposals.

The next important form is the Research and Related Other Project Information. This form is the mechanism for attaching the remaining documents of your proposal as discussed in Chapter 3 of the TIP Proposal Preparation Kit in

order to submit a proposal electronically via grants.gov.

The remaining documents, as listed in Chapter 3 Section C Proposal Assembly/Presentation Order, must be consolidated into one PDF or Word file and attached to the Research and Related Other Project Information under Item 7.

The two forms above are available as part of the Grants.gov application kit and can be completed through the download application process described above in Section 3.e. of this chapter. The remaining required forms prescribed in Chapter 3 of the TIP Proposal Preparation Kit are available on the TIP Web site <http://www.nist.gov/tip/helpful.html>.

The proposer is responsible for ensuring that the proposal, whether submitted via Grants.gov or by hardcopy, is complete and that it conforms to the requirements of the TIP Federal Funding Opportunity notice and TIP Proposal Preparation Kit. Proposals that deviate substantially from these guidelines or that omit required information may be found unresponsive and may not be considered for funding. Please read, understand, and follow the Application Instructions that are available once you register and open the TIP application form on Grants.gov.

6. **Contact Information.** For further information or questions regarding applying electronically for the TIP FY 2008 competition contact Christopher Hunton at 301-975-5718 or at christopher.hunton@nist.gov or Sue Li at 301-975-8817 or at sue.li@nist.gov.

Proposers are strongly encouraged to start early and not wait until the approaching due date before logging on and reviewing the instructions for submitting a proposal through Grants.gov. Proposers should save and

print the proof of submission they receive from Grants.gov. If problems occur while using Grants.gov, the proposer is advised to (a) print any error message received, and (b) call

Grants.gov directly at 1-800-518-4726 for immediate assistance. Grants.gov hours of operation are Monday-Friday, 7:00 a.m. to 9:00 p.m. Eastern Time (except for Federal holidays).

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EXHIBITS

The required forms and other proposal-related documents follow this page. All of the forms and documents are available on the TIP Web site at <http://www.nist.gov/tip/helpful.html>.

1. SF-424 (R&R) (2 pages), Application for Federal Assistance
2. Research and Related Other Project Information
3. Form NIST-1022, Technology Innovation Program (TIP) Proposal Information Sheet
4. Form NIST-1022A, Other Joint Venture Members
5. Form NIST-1022B, Contractors
6. Form NIST-1022C, Budget Narrative
7. Form NIST-1022D, Third Party In-Kind Contributions
8. Form NIST-1022E, Estimated Multi-Year Budget – Single Company
9. Form NIST-1022F, Estimated Multi-Year Budget - Joint Venture
10. Form NIST-1022G, Foreign-Owned Company Questionnaire
11. Form NIST-1022H, R&D Work Performed Outside the United States by the Recipient or Contractor Questionnaire

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**APPLICATION FOR FEDERAL ASSISTANCE
SF 424 (R&R)**

2. DATE SUBMITTED

Applicant Identifier

3. DATE RECEIVED BY STATE

State Application Identifier

1. * TYPE OF SUBMISSION

-
- Pre-application
-
- Application
-
-
- Changed/Corrected Application

4. Federal Identifier

5. APPLICANT INFORMATION

* Organizational DUNS:

* Legal Name:

Department:

Division:

* Street1:

Street2:

* City:

County:

* State:

Province:

* Country:

USA: UN

* ZIP / Postal Code:

Person to be contacted on matters involving this application

 Prefix: * First Name: Middle Name: * Last Name: Suffix:

 * Phone Number: Fax Number: Email:

6. * EMPLOYER IDENTIFICATION (EIN) or (TIN):

7. * TYPE OF APPLICANT:

Please select one of the following

8. * TYPE OF APPLICATION: New

-
- Resubmission
-
- Renewal
-
- Continuation
-
- Revision

Other (Specify):

Small Business Organization Type

 Women Owned Socially and Economically Disadvantaged

If Revision, mark appropriate box(es).

 A. Increase Award B. Decrease Award C. Increase Duration D. Decrease Duration E. Other (specify):

9. * NAME OF FEDERAL AGENCY:

* Is this application being submitted to other agencies? Yes NoWhat other Agencies?

10. CATALOG OF FEDERAL DOMESTIC ASSISTANCE NUMBER:

TITLE:

11. * DESCRIPTIVE TITLE OF APPLICANT'S PROJECT:

12. * AREAS AFFECTED BY PROJECT (cities, counties, states, etc.)

13. PROPOSED PROJECT:

* Start Date

* Ending Date

14. CONGRESSIONAL DISTRICTS OF:

a. * Applicant

b. * Project

15. PROJECT DIRECTOR/PRINCIPAL INVESTIGATOR CONTACT INFORMATION

 Prefix: * First Name: Middle Name: * Last Name: Suffix:
Position/Title: * Organization Name:

Department:

Division:

* Street1:

Street2:

* City:

County:

* State:

Province:

* Country:

USA: UN

* ZIP / Postal Code:

 * Phone Number: Fax Number: * Email:

SF 424 (R&R) APPLICATION FOR FEDERAL ASSISTANCE

16. ESTIMATED PROJECT FUNDING	17. * IS APPLICATION SUBJECT TO REVIEW BY STATE EXECUTIVE ORDER 12372 PROCESS?
a. * Total Estimated Project Funding <input type="text"/>	<input checked="" type="checkbox"/> a. YES <input type="checkbox"/> THIS PREAPPLICATION/APPLICATION WAS MADE AVAILABLE TO THE STATE EXECUTIVE ORDER 12372 PROCESS FOR REVIEW ON: DATE: <input type="text"/> <input type="checkbox"/> b. NO <input type="checkbox"/> PROGRAM IS NOT COVERED BY E.O. 12372; OR <input type="checkbox"/> PROGRAM HAS NOT BEEN SELECTED BY STATE FOR REVIEW
b. * Total Federal & Non-Federal Funds <input type="text"/>	
c. * Estimated Program Income <input type="text"/>	

18. By signing this application, I certify (1) to the statements contained in the list of certifications* and (2) that the statements herein are true, complete and accurate to the best of my knowledge. I also provide the required assurances * and agree to comply with any resulting terms if I accept an award. I am aware that any false, fictitious, or fraudulent statements or claims may subject me to criminal, civil, or administrative penalties. (U.S. Code, Title 18, Section 1001)

* I agree

** The list of certifications and assurances, or an Internet site where you may obtain this list, is contained in the announcement or agency specific instructions.*

19. Authorized Representative

Prefix * First Name: Middle Name: * Last Name: Suffix:

* Position/Title: * Organization:

Department: Division:

* Street1: Street2:

* City: County: * State:

Province: * Country: * ZIP / Postal Code:

* Phone Number: Fax Number: * Email:

*** Signature of Authorized Representative**

*** Date Signed**

20. Pre-application

21. Attach an additional list of Project Congressional Districts if needed.

Instructions for the SF-424 (R&R)

The SF-424 (R&R) form has been adapted for use by the Technology Innovation Program (TIP) and is only applicable to proposals submitted to TIP. Some of the items are required and some are optional. Required items are identified with an asterisk on the form and are specified in the instructions below.

1. Type of Submission (Required): Select Application.
2. Date Submitted/Applicant Identifier: Enter date of proposal submission. Applicant Identifier: Not applicable; leave blank.
3. Date Received by State & State Application Identifier: Not applicable; leave blank.
4. Federal Identifier: Enter 2008.
5. Applicant Information/Organizational DUNS (Required): Enter the organization's DUNS or DUNS+4 number received from Dun and Bradstreet. Information on obtaining a DUNS number is available at <http://www.nist.gov/tip/helpful.htm>. Fill in Applicant Information as requested.
6. Employer Identification (Required): Enter the Employer or Taxpayer Identification Number (EIN or TIN) as assigned by the Internal Revenue Service.). For instructions on how to obtain an EIN, see <http://www.nist.gov/tip/helpful.html>.
7. Type of Applicant: Click on the drop-down menu and enter the appropriate type. Note: Large businesses are not eligible to apply.
8. Type of Application (Required): Select New.
9. Name of Federal Agency (Required): Enter NIST.
10. Catalog of Federal Domestic Assistance Number/Title: Enter 11.613 TIP.
11. Descriptive Title of Applicant's Project (Required): Enter a brief descriptive title of the project.
12. Areas Affected By Project: Self explanatory.
13. Proposed Project Start and End Dates (Required): Self explanatory.
14. Congressional Districts Of (Required): Self explanatory.
15. Project Director/Principal Investigator Contact Information: Self explanatory.
16. Estimated Funding (Required):
 - 16a. Enter amount requested from TIP.
 - 16b. Enter Total Project Cost.
 - 16c. Enter 0.
17. Is Application Subject to Review by State Under Executive Order 12372 Process? Select "NO Program is not covered by E.O. 12372"
18. Self explanatory.
19. Authorized Representative (Required): Self explanatory.
20. Pre-Application: Not applicable; leave blank.
21. Attach an additional list of Project Congressional Districts if needed. Self explanatory.

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RESEARCH & RELATED Other Project Information

1. * Are Human Subjects Involved? Yes No

1.a If YES to Human Subjects

Is the IRB review Pending? Yes No

IRB Approval Date:

Exemption Number: 1 2 3 4 5 6

Human Subject Assurance Number:

2. * Are Vertebrate Animals Used? Yes No

2.a. If YES to Vertebrate Animals

Is the IACUC review Pending? Yes No

IACUC Approval Date:

Animal Welfare Assurance Number

3. * Is proprietary/privileged information included in the application? Yes No

4.a. * Does this project have an actual or potential impact on the environment? Yes No

4.b. If yes, please explain:

4.c. If this project has an actual or potential impact on the environment, has an exemption been authorized or an environmental assessment (EA) or environmental impact statement (EIS) been performed? Yes No

4.d. If yes, please explain:

5.a. * Does this project involve activities outside the U.S. or partnership with International Collaborators? Yes No

5.b. If yes, identify countries:

5.c. Optional Explanation:

6. * Project Summary/Abstract

7. * Project Narrative

8. Bibliography & References Cited

9. Facilities & Other Resources

10. Equipment

11. Other Attachments

INSTRUCTIONS FOR THE RESEARCH & RELATED OTHER PROJECT INFORMATION FORM

The **Research & Related Other Project Information** form has been adapted for use by the Technology Innovation Program (TIP) for proposals submitted to TIP. For electronic submissions of proposals, this is a mandatory, predefined form that you will use to **attach** the various documents that make up your proposal. For hardcopy submissions of proposals, this is also a required form. Some of the items are required and some are optional. Required items are identified with an asterisk on the form and are specified in the instructions below.

- 1-5 For hardcopy and electronic submissions these items are self explanatory.
- 6-11 For hardcopy submissions, no further entries required; leave blank.

For electronic submissions these entries are used to include the required Attachments that make up your proposal. Instructions for each item are as follows:

6. Project Summary/Abstract: Click on Add Attachment that opens the Attach File window. Locate and highlight your completed Form NIST-1022 file that is on your computer and click on the Open button to attach this file. **NOTE: It is important that you view the file once you have attached it and verify that the information that you have entered appears and that it is not a blank document.**
7. Project Narrative: Click on Add Attachment that opens the Attach File window. Locate and highlight your completed Project Narrative (single file addressing Scientific and Technological Merit, including bibliographic references and letters of commitment) file that is on your computer and click on the Open button to attach this file. **NOTE: It is important that you view the file once you have attached it and verify that the information that you have entered**

appears and that it is not a blank document.

8-11 Leave blank.

NOTE: It is extremely important that you view each file you attached and verify the information you entered appears on each attachment and that the attachment is not a blank document.

When you have completed attaching all of your forms, click on the Close Form button and return to Grant Application Package.

Click on the Check for Errors button at the top of the screen and correct any errors if indicated.

After your application package is complete, click on the Save button at the top of the screen. This will save your application (in PDF format) on your computer. **NOTE:** if you do not save you application at this stage you may have to reenter your data and reattach your files.

When you are ready to submit your proposal application, click on the Submit button at the top of the screen. If the Submit button is grayed out you need to click on the Check for Errors button and the Save button. Note: if your browser has a "pop-up" blocker installed, you may have to hold the Ctrl key down while clicking on the Submit button.

The next screen that appears asks you to enter your Username and password. When you enter this the next screen will ask "Do you wish to sign and submit this application?" When you are ready to do so click on the Sign and Submit Application button.

The next screen that appears is the confirmation page. This is evidence of your electronic submission to TIP through Grants.gov. Please print this page and keep it in a safe location. Click on Close to exit Grants.gov.

NIST-1022
DAO 203-26

U.S. DEPARTMENT OF COMMERCE
NATIONAL INSTITUTE OF STANDARDS AND TECHNOLOGY

TECHNOLOGY INNOVATION PROGRAM (TIP) PROPOSAL INFORMATION SHEET

NOTE: This application/questionnaire contains collection of information requirements subject to the Paperwork Reduction Act (PRA). Notwithstanding any other provisions of the law, no person is required to respond to, nor shall any person be subject to penalty for failure to comply with, a collection of information subject to the requirements of the PRA. The estimated response time for this application questionnaire is 37 hours. The response time includes the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this estimate or any other aspects of this collection of information, including suggestions for reducing the length of this questionnaire, to the National Institute of Standards and Technology, Attn., Barbara Lambis, via email at barbara.lambis@nist.gov or telephone (301) 975-4447. The OMB Control No. is #0693-0050, which expires on 12/31/2008.

1. COMPETITION NUMBER: <input style="width: 50px;" type="text" value="2008"/>	2. LEGAL NAME OF SUBMITTING ORGANIZATION <input style="width: 95%; height: 20px;" type="text"/>
---	--

3. PROPOSAL TYPE <input type="checkbox"/> SINGLE COMPANY <input type="checkbox"/> JOINT VENTURE	4. ORGANIZATION TYPE <input style="width: 100%; height: 20px;" type="text"/>	5. PROJECT DURATION <input style="width: 30%; height: 20px;" type="text"/> <input style="width: 30%; height: 20px;" type="text"/>	6. WILL CONTRACTORS BE USED ? <input style="width: 30%; height: 20px;" type="text"/>
---	---	--	---

7. Does the single company or if a joint venture, any joint venture member, have a parent company outside the United States? (If yes, complete form NIST-1022G, Foreign Owned Company Questionnaire, for each such company.)

8. Is the single company or if a joint venture, any joint venture member, majority owned by non-U.S. citizens? (If yes, explain below.)

9. Is the single company or if a joint venture, any joint venture member, subject to control by non-U.S. citizens? (If yes, explain below.)

10. Will any R&D work be performed outside the United States? (If yes, complete form NIST-1022H, R&D Work Performed Outside the United States by the Recipient or Contractor Questionnaire.)

11. Is the company or if a joint venture, any joint venture member, delinquent on any federal debt? (If yes, explain below.)

12. Are there any third party in-kind contributions?

13. NONPROPRIETARY PROPOSAL ABSTRACT

14. In addition to the certification on item 18 of the SF-424 (R&R), I agree with the certification statements in the instructions to this item 14.

[Show Next Forms](#)

Instructions for Form NIST-1022 Technology Innovation Program (TIP) Proposal Information Sheet

Notwithstanding any other provision of the law, no person is required to respond to, nor shall any person be subject to, a penalty for failure to comply with a collection of information subject to the requirements of the Paperwork Reduction Act, unless that collection of information displays a currently valid OMB Control Number. The reason for collecting this information is for NIST to be able to perform the appropriate technical and impact reviews of a TIP proposal. The information obtained will assist in determining eligibility for federal financial assistance. Responses to the collection of information are required to be considered for a TIP award.

The NIST-1022 family of forms consists of the form NIST-1022 TIP Proposal Information Sheet, which is considered the first or cover page, and forms NIST-1022A through NIST-1022H. The NIST-1022 family of forms is available as a dynamic, interactive set of Adobe PDF forms where answers supplied on the form NIST-1022 cover page are used to present the specific forms needed to meet proposal submission needs. Data entered in the family of forms propagates through the entire set of forms to minimize duplicative data entry. **Due to the dynamic nature of these forms changes in key data elements (explained below) will cause form regeneration and may result in the loss of previously entered data if the data has been entered in an ad hoc manner.** We strongly encourage that you finalize all project information before data entry to avoid potential loss of data.

This form is designed to make data submission easier and more accurate. However, there are several caveats that should be clearly understood before beginning data entry.

a. After data is entered on the form NIST-1022 cover page, clicking the "Show Next Forms" button at the bottom of the page locks items 3 and 5 on this form and generates the forms needed to complete

your proposal. If there is a change in the proposal type (item 3) or the project duration (item 5), data/information previously entered on the forms NIST-1022A through NIST-1022H **WILL BE LOST** since new responses to these questions will generate new forms.

- b. Deleting or adding a joint venture member after the form NIST-1022C Budget Narrative is generated will invalidate the information and the form will need to be started again.
- c. Once the form NIST-1022C Budget Narrative is generated for a joint venture proposal, the number of joint venture members cannot be changed without the regeneration of the entire form NIST-1022C Budget Narrative. In order to change the number of joint venture members from the number initially specified, click on the "Unlock Items 3 and 5" button on the form NIST-1022. This will reset the forms and **ALL information/data previously entered on the forms NIST-1022A through NIST-1022H WILL BE LOST** and will have to be reentered. Therefore, if there is any doubt about the number of joint venture members, delay generating and completing the form NIST-1022C Budget Narrative until this matter is resolved to avoid starting over.
- d. Review all the forms and plan data entry to minimize change so time and data are not lost. It is recommended that you turn off the auto complete feature in your browser if you are using it to complete Adobe forms.
- e. The single PDF file containing these forms must remain intact and the PDF format must remain unaltered. Altering the PDF form may invalidate your proposal.

Once complete, the PDF file containing the NIST-1022 family of forms must be submitted electronically by attaching its link to item 6 of

*the SF-424 Research & Related Other Project Information form. If paper copies are submitted, the entire NIST-1022 family of forms that are generated electronically by your answers on the form NIST-1022 are to be submitted. **Failure to submit a complete and accurate set of forms may result in disqualification.***

Instructions for each item on the form NIST-1022 follow:

1. The FY 2008 competition number is pre-filled; therefore, no data entry is required here.
2. Enter the legal name of the organization submitting the proposal. You cannot get past the form NIST-1022 to see the other NIST-1022 family of forms without entering a legal name in item 2. The legal name entered in this item must be the same as the legal name shown on item 5 of the SF-424 (R&R). If this is a joint venture proposal the lead company name must appear in item 2 of the form NIST-1022. The joint venture members must be identified on the form NIST-1022A Other Joint Venture Members.
3. Select Proposal type by clicking the box next to Single Company or Joint Venture. Once the appropriate proposal type is clicked, the applicable Budget Narrative and Multi-Year Budget forms will be generated corresponding to the answer given, as well as the form NIST-1022A, which must be completed if Joint Venture is clicked.
4. Select organization type from the drop down box.
5. Enter the number of years and months for the duration of this project. The answer to this question will impact the Budget Narrative and Multi-Year Budget forms generated.
6. Select Yes or No from the drop down box as appropriate. Selecting Yes will generate the form NIST-1022B, which must be completed.
7. Select Yes or No from the drop down box as appropriate. Selecting Yes will generate

the form NIST-1022G, which must be completed.

8. Select Yes or No as appropriate. Selecting Yes requires explanation in the text box that will pop up.
9. Select Yes or No as appropriate. Selecting Yes requires explanation in the text box that will pop up.
10. Select Yes or No from the drop down box as appropriate. Selecting Yes will generate the form NIST-1022H, which must be completed.
11. Select Yes or No as appropriate. Selecting Yes requires explanation in the text box. If the company is delinquent on any federal debt, including the Internal Revenue Service (IRS), provide the amount of the debt, the name of the federal agency to which the debt is owed, how old the debt is, the circumstances surrounding the establishment of the debt, and why the debt has not been paid.
12. Select Yes or No as appropriate. Selecting Yes requires explanation in the text box. Selecting Yes will generate the form NIST-1022D, which must be completed
13. Enter a nonproprietary proposal abstract of the proposed work in the text box provided. As part of the abstract, include a statement of the technical problem addressed in the proposal. The text box is limited to the visible space in the box.
14. The authorized company representative who certifies the form must have delegated fiduciary authority. By checking this box the company representative agrees to the certification on item 18 of the SF-424 (R&R), certifies the commitment of cost sharing, and attests to the accuracy of the proposal. The certification also signifies that the company representative has coordinated with top management within their own company and if a joint venture, with all companies/organizations identified as joint venture members about their commitment and cost sharing to the proposed project.

IMPORTANT REMINDER: When the “Show Next Forms” button at the bottom of this form is clicked, items 3 and 5 are “locked” and the required applicable forms are generated for completion. They can be unlocked but this will cause loss of forms previously generated and data entered. For example, when item 3 Proposal Type is clicked as a Single

Company, the applicable form NIST-1022C sheets and form NIST-1022E are automatically generated. If Joint Venture is clicked, the form NIST-1022A, applicable form NIST-1022C sheets, and form NIST-1022F are automatically generated.

NIST-1022A
DAO 203-26

U.S. DEPARTMENT OF COMMERCE
NATIONAL INSTITUTE OF STANDARDS AND TECHNOLOGY

**TECHNOLOGY INNOVATION PROGRAM (TIP)
OTHER JOINT VENTURE MEMBERS**

Show Budget Narrative
Add Joint Venture Member

1. LEGAL NAME, ADDRESS, CONTACT INFORMATION & CONGRESSIONAL DISTRICT OF MEMBER #1 Remove

NAME OF CONTACT

ORG: <input type="text"/>	PREFIX: <input type="text"/>
STREET 1: <input type="text"/>	FIRST NAME: <input type="text"/>
STREET 2: <input type="text"/>	LAST NAME: <input type="text"/>
CITY: <input type="text"/>	MIDDLE NAME: <input type="text"/>
COUNTY: <input type="text"/>	SUFFIX: <input type="text"/>
STATE: <input type="text"/> <input type="text" value="v"/> ZIP: <input type="text"/>	POSITION/TITLE: <input type="text"/>
COUNTRY: UNITED STATES <input type="text" value="v"/>	DEPARTMENT: <input type="text"/>
PHONE: <input type="text"/>	DIVISION: <input type="text"/>
FAX: <input type="text"/>	CONGRESSIONAL DISTRICT: <input type="text"/>
EMAIL: <input type="text"/>	

2. ORGANIZATION TYPE

(Pick one) (Check if applicable)

<input type="checkbox"/> SMALL-SIZED BUSINESS	<input type="checkbox"/> NONPROFIT RESEARCH INSTITUTE	<input type="checkbox"/> FOREIGN-OWNED, U.S.-LOCATED COMPANY
<input type="checkbox"/> MEDIUM-SIZED BUSINESS	<input type="checkbox"/> INSTITUTION OF HIGHER EDUCATION	
<input type="checkbox"/> LARGE-SIZED BUSINESS	<input type="checkbox"/> NATIONAL LABORATORY	
<input type="checkbox"/> GOVERNMENTAL LABORATORY (not including NIST)		

3. EMPLOYER IDENTIFICATION NUMBER: 4. DUN AND BRADSTREET NUMBER:

Instructions for Form NIST-1022A Technology Innovation Program (TIP) Other Joint Venture Members

This form must be submitted with each joint venture proposal to identify specific information on each joint venture member (excluding the organization submitting the proposal since that information is provided on form NIST-1022 TIP Proposal Information Sheet.

Once item 3, Proposal Type, of the form NIST-1022 TIP Proposal Information Sheet, is clicked as a joint venture, the form NIST-1022A TIP Joint Venture Members is automatically generated. You must then enter data for each joint venture member. To generate additional pages of the form NIST-1022A, click the "Add Joint Venture Member" button after data is entered for a joint venture member.

*After completing a form NIST-1022A for each joint venture member, click the "Show Budget Narrative" button. **Reminder:** Once you click on the "Show Budget Narrative" button, you cannot add or delete Joint Venture members until you purge all data by clicking on the "Unlock Items 3 and 5" button found on form NIST-1022 TIP Proposal Information Sheet. This will reset the forms and **ALL information/data previously entered on the forms NIST-1022A through NIST-1022H WILL BE LOST** and will have to be reentered. Therefore, if there is any doubt about the number of joint venture members, delay generating and completing the form NIST-1022C Budget Narrative until this matter is resolved to avoid starting over.*

Review all the forms and plan data entry to minimize change so time and data are not lost. It is recommended that you turn off the auto complete feature in your browser if you are using it to complete Adobe forms.

Categories of joint venture members are not adequate identification. For example, do not list a "manufacturing company," a "university," or a "hospital." You must provide the legal name and contact information of each joint venture member. Include only those organizations to be bound by the Joint Venture Agreement. Do not list contractors on this form, as information about proposed contractors should be provided on the form NIST-1022B. Additionally, do not list informal collaborators.

1. Enter the organization's legal name, address, contact information (individual in the organization to be contacted regarding technical portion of the proposal), and Congressional District (home office). **DO NOT USE A POST OFFICE BOX.**
2. Self-explanatory.
3. Enter the joint venture member's employer identification number (EIN). For instructions on how to obtain an EIN, see <http://www.nist.gov/tip/helpful.html>.
4. Enter the joint venture member's Dun and Bradstreet (D&B) number. For instructions on how to obtain a D&B number, see <http://www.nist.gov/tip/helpful.html>.

NIST-1022B
DAO 203-26

U.S. DEPARTMENT OF COMMERCE
NATIONAL INSTITUTE OF STANDARDS AND TECHNOLOGY

**TECHNOLOGY INNOVATION PROGRAM (TIP)
CONTRACTORS**

Add Contractor

1. LEGAL NAME, ADDRESS, CONTACT INFORMATION & CONGRESSIONAL DISTRICT OF CONTRACTOR #1 Remove

		NAME OF CONTACT	
NAME:	<input type="text"/>	PREFIX:	<input type="text"/>
STREET 1:	<input type="text"/>	FIRST NAME:	<input type="text"/>
STREET 2:	<input type="text"/>	LAST NAME:	<input type="text"/>
CITY:	<input type="text"/>	MIDDLE NAME:	<input type="text"/>
COUNTY:	<input type="text"/>	SUFFIX:	<input type="text"/>
STATE:	<input type="text"/> <input type="button" value="v"/>	ZIP:	<input type="text"/>
COUNTRY:	UNITED STATES <input type="button" value="v"/>	POSITION/TITLE:	<input type="text"/>
PHONE:	<input type="text"/>	DEPARTMENT:	<input type="text"/>
FAX:	<input type="text"/>	DIVISION:	<input type="text"/>
EMAIL:	<input type="text"/>		

2. ORGANIZATION TYPE

(Pick one)	(Check if applicable)
<input type="checkbox"/> SMALL-SIZED BUSINESS	<input type="checkbox"/> NONPROFIT RESEARCH INSTITUTE
<input type="checkbox"/> MEDIUM-SIZED BUSINESS	<input type="checkbox"/> INSTITUTION OF HIGHER EDUCATION
<input type="checkbox"/> LARGE-SIZED BUSINESS	<input type="checkbox"/> NATIONAL LABORATORY
<input type="checkbox"/> GOVERNMENTAL LABORATORY (not including NIST)	<input type="checkbox"/> FOREIGN-OWNED, U.S.-LOCATED COMPANY
	<input type="checkbox"/> FOREIGN-LOCATED ENTITY

3. ESTIMATED AMOUNT OF CONTRACT:

4. DESCRIBE SCOPE OF WORK AND IDENTIFY WHICH TASK OR TASKS IN R&D PLAN REQUIRE CONTRACTOR'S INVOLVEMENT.

5. IS THIS A SOLE SOURCE CONTRACT?

NO YES (If yes, explain; e.g., is this the only contractor that can perform the work, what is the nature of its unique capabilities/experience, etc.)

6. DOES THE CONTRACTOR HAVE ANY FINANCIAL OR OTHER INTEREST IN THE SUBMITTING ORGANIZATION?

NO YES (If yes, briefly explain what type and how much.)

7. DOES THE SUBMITTING ORGANIZATION HAVE ANY FINANCIAL OR OTHER INTEREST IN THE CONTRACTOR?

NO YES (If yes, briefly explain what type and how much.)

**Instructions for Form NIST-1022B
Technology Innovation Program (TIP) Contractors**

1. Self explanatory. If a contractor's identity is undetermined, enter "Undetermined" in the NAME box.

2. Click the appropriate box to identify the contractor's type of organization. Also click the appropriate box if foreign-owned or foreign-located.

3. Self explanatory.

4. Briefly describe the scope of work and identify which task(s) in the R&D plan will be performed by the contractor.

5. Click the appropriate box to identify if the contractor will be selected on a sole source basis. Contractors should be selected on a competitive basis pursuant to the Procurement Standards in 15 C.F.R. Part 14.

If the contractor is to be selected on a sole source basis, provide a brief justification for selection on a noncompetitive basis. In writing a sole source justification, be sure to refer to the Procurement Standards in 15 C.F.R. Part 14 and address bases for selecting non-competitively.

6. If the contractor has any financial or other interest in the submitting organization or if a joint venture, in any joint venture member, briefly explain what type and how much.

7. If the submitting organization or if a joint venture, any joint venture member, has any financial or other interest in the contractor, briefly explain what type and how much.

NIST-1022C
DAO 203-2U.S. DEPARTMENT OF COMMERCE
NATIONAL INSTITUTE OF STANDARDS AND TECHNOLOGY**TECHNOLOGY INNOVATION PROGRAM (TIP)
BUDGET NARRATIVE**Organization Name: Year: **A. Personnel**

Add Line

Remove Line

Employee Name	Position Title	Annual Salary	Percentage of Time	Cost
TOTAL:				

B. Travel

Add Line

Remove Line

Purpose of Travel	Destination	Item (Mode of transportation, lodging and subsistence)	Computation	Cost
TOTAL:				

Justification for foreign travel and/or foreign conference(s) [include an explanation of how the foreign travel and/or foreign conference(s) are specifically related to the R&D activities of the TIP project (i.e., how will the information gathered contribute to funded tasks), why the information cannot be obtained in the United States, and summarize conference agenda or topics for meeting with key experts (name and expertise) at the conference, etc.]:

Justification for domestic conference(s) [include an explanation of how the conference(s) specifically relates to the R&D activities of the TIP project (i.e., how will the information gathered contribute to funded task(s), summarize conference agenda or topics for meeting with key experts (name and expertise) at the conference, etc.]:

C. Equipment

Add Line

Remove Line

Item	Methodology	Computation	Cost
TOTAL:			

Justification for each equipment item exceeding \$100,000, to be purchased outside the United States, and/or any construction costs:

D. Materials/Supplies

Add Line

Remove Line

Item	Methodology	Computation	Cost
TOTAL:			

E. Contractors

Add Line

Remove Line

Name of Contractor	Service Provided	Computation	Cost
SUBTOTAL:			

If contractor's fees are in excess of \$550 per day, justify here:

Contractor Expenses		Add Line	Remove Line
Name of Contractor	Expense	Computation	Cost
SUBTOTAL:			
TOTAL:			

F. Other		Add Line	Remove Line
Description	Methodology	Computation	Cost
AUDIT			
TOTAL:			

Check here if audit is part of indirect costs. (If checked, enter 0 for AUDIT costs above.)

Check here if cognizant federal audit agency will perform audits and provide names of agency:

G. Indirect Costs

Percentage Rate:

Check here if the indirect cost rate has been negotiated and approved by a cognizant federal agency and a copy of the agreement is included in proposal.

Check here if the indirect cost rate has not been negotiated and approved by a cognizant federal agency.

Total:

H. Cost Sharing

Nonfederal Cash

Nonfederal Third Party In-Kind Contributions

FEDERAL (direct costs only):

NONFEDERAL (direct costs only):

NONFEDERAL (indirect costs only, which must be the same amount in section G.):

Total:

Instructions for Form NIST-1022C Technology Innovation Program (TIP) Budget Narrative

The Budget Narrative is used to determine reasonableness and allowability of costs in a TIP proposal. Proposed costs must be reasonable, allocable, and allowable in accordance with applicable federal cost principles and TIP guidelines.

TIP recognizes that unexpected events may occur in R&D projects and that budgets may need to be changed as a project proceeds. Providing a multi-year budget beyond the first year may not lock the proposal into all of the details. TIP allows a certain amount of flexibility in moving funds from one line item to another as circumstances change in accordance with the terms and conditions of the award. In stating an amount for a given task, you will not be required to spend precisely that amount on that task. For example, if, in the second or third year of your project, you find that you need to spend more on one task and less on another than anticipated, that can be accommodated as long as you obtain the required prior approval from the NIST Grants Officer. A task that proves unnecessary may be deleted and a new task defined if there is adequate justification that such changes will enhance the chances of accomplishing the objectives of the project and the spirit of the original proposal objective is maintained.

Recognizing that change is inevitable, recipients may be requested to submit a revised budget prior to the beginning of each year of a multi-year project. However, the total amount provided by TIP for the project cannot be increased and cost-share commitments must be honored. You will not be reimbursed for project overruns. Overestimating or underestimating project costs should be avoided. The dollar amount requested must be commensurate with the defined tasks, as TIP will evaluate for cost reasonableness.

All proposed direct and indirect costs must be consistent with costs incurred for like or similar items on all other federal and nonfederal projects or cost centers. A Budget Narrative is

required for each year of the project and for each joint venture participant, if a joint venture. Joint Venture members cannot be deleted from the form NIST-1022A Joint Venture Members once the form NIST-1022C Budget Narrative is shown. Any inter-organizational transfers included in the respective object class categories that are not within the United States must be clearly identified next to the budgeted item as "Foreign Inter-organizational Transfer." All figures must be rounded to the nearest dollar. The data entered in the NIST-1022C is populated automatically into the section 1 of the NIST-1022E Estimated Multi-Year Budget – Single Company or NIST-1022F Estimated Multi-Year Budget – Joint Venture. Therefore, no data entry is required for section 1 of the NIST-1022E or NIST-1022F. However, the computation for each line item of each section is not automatically calculated. Therefore, be sure calculations are correct. The total of the costs for each line will automatically be computed. The underlying structure of this form should not be altered.

A. Personnel. List each employee's name, if available, position title, annual salary, percentage (up to 3 digit whole number, e.g., "100" for 100%, "75" for 75%, or "5" for 5%) of time to be devoted to the project, and cost. Compensation paid for employees must be consistent with that paid for similar work within the proposer's organization and similar positions in the industry. Employees who are considered indirect labor should not be included as direct personnel costs. Escalation rates for the out-years should be reasonable. If unable to identify all of the personnel to be assigned to the project, state "To be determined" or "TBD" under "Employee Name." Use generic position titles such as "senior chemical engineer." Non-employees of the organization such as consultants and temps should NOT be included in this category; they should be included in Section E Contractors.

B. Travel. Provide best estimate of essential travel under the project. For each trip, provide purpose of travel, destination, item (total cost per person for each trip, which includes mode of transportation, lodging, and subsistence), computation (i.e., item multiplied by number of people multiplied by number of trips), and cost. Note that TIP recipients are expected to adhere to Federal Travel Regulations regarding travel, such as coach rather than first-class accommodations. Do not include travel to NIST for project review meetings as these meetings are held at the funded organizations. Travel costs should represent a coherent part of the project's "communications strategy" for smooth coordination among participants. While foreign travel is not precluded, it is discouraged and requires strong justification. Likewise, conference costs are not generally considered R&D-related expenses and should not typically be included; however, if attendance is critical to performing the R&D, strong justification is required.

C. Equipment. Identify each item of equipment, methodology used to arrive at proposed costs (i.e., historical costs, competitive bid, published price lists, or cost/price analysis), computation (i.e., cost per item multiplied by number of items), and cost. In addition, be sure the need for the equipment is clearly stated in the technical plan. Any equipment item exceeding \$100,000 to be purchased outside the United States and/or any construction costs must be clearly identified and require strong justification. TIP funds may not be used for the construction of new buildings; however, they may be used for construction of experimental R&D facilities to be located within a new or existing building provided that the equipment or facilities are essential for carrying out the project. General-purpose office equipment, e.g., office computers, printers, copiers, etc., are normally included in indirect costs and should not be budgeted as direct costs. If they are not included in indirect costs, then they may be included as a direct cost, however, they must be used exclusively for the TIP project, and a justification and explanation must be provided. Office furniture is not allowed. Also identify by placing an asterisk on any third party in-kind equipment. The value of equipment must be prorated according to the share of total use dedicated to carrying out the proposed project.

D. Materials/Supplies. Provide a breakdown of each item/type of expendable materials/supplies, methodology (methodology used to arrive at proposed costs, i.e., historical costs, competitive bid, published price lists, or cost/price analysis), computation (i.e., item multiplied by number of items), and cost. Office supplies, e.g., paper, pens, toner cartridges, etc., are normally included in indirect costs and should not be budgeted as direct costs. If they are not included in indirect costs, they must be used exclusively for the TIP project, and a justification and explanation must be provided.

E. Contractors. For each contractor identified on Form NIST-1022B, Contractors, enter the name, if known, service to be provided, computation (i.e., hourly or daily fee [8-hour day] multiplied by estimated time on the project) and cost. If contractor fees are in excess of \$550 per day, provide a justification. Contractors should be selected on a competitive basis pursuant to the Procurement Standards in 15 C.F.R. Part 14. If proposing any foreign contractors, a completed form NIST-1022H, R&D Work Performed Outside the United States by the Recipient or Contractor Questionnaire, is required. List any contractor expenses in addition to their fees. Identify the name of the contractor to incur the expense, the type of expense, computation ((i.e., item multiplied by number of items), and cost. Expenses such as office supplies and conferences/workshops for contractors are not allowed.

F. Other. Describe in detail any other direct costs that do not fall within the direct object cost categories above, methodology (methodology used to arrive at proposed cost, i.e., historical costs, competitive bid, published price lists, or cost/price analysis), computation (i.e., cost per item multiplied by number of items), and cost. The cost of the project audit should also be included in this category unless it is part of the indirect costs or to be performed by a cognizant federal audit agency, e.g., DCAA. If it is part of indirect costs or to be performed by a cognizant federal audit agency, indicate it as such. If a joint venture, each joint venture participant should budget for its own audits individually. Nonprofit organizations subject to OMB Circular A-133, *Audits of States, Local Government, and Non-Profit Organizations*, the annual Circular A-

133 audit is deemed to meet the TIP audit requirement. Audits must be conducted by an independent Certified Public Accountant (CPA) or cognizant federal audit agency auditor. For projects less than 24 months, an audit is required at the end of the project; for 2-, 3-, or 4-year projects, an audit is required after the first year and at the end of the project; for 5-year projects, an audit is required after the first year and the third year and at the end of the project. If a recipient has never received federal funding from any federal agency, a certification will be required within 60 days of award from an independent CPA to determine whether the recipient has a functioning financial management system that meets the provisions of 15 C.F.R § 14.21. Costs may be budgeted for this certification expense.

G. Indirect Costs. Specify the current indirect cost rate(s) and cost. Also indicate if a copy of a negotiated indirect cost rate agreement by a cognizant federal agency is included in your proposal. If an indirect cost rate has not been established by a cognizant federal agency, check the appropriate box.

H. Cost Sharing. Identify the associated amount of cost share by cash and third party in-kind contributions, if any. If there are any third party in-kind contributions, a completed Form NIST-1022D Third Party In-Kind Contributions, must be provided at the time of proposal submission. Additionally, since TIP cannot fund any indirect costs, the following cost sharing breakdown must be identified: federal direct costs, nonfederal direct costs, nonfederal indirect costs, and total.

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NIST-1022D
DAO 203-26

U.S. DEPARTMENT OF COMMERCE
NATIONAL INSTITUTE OF STANDARDS AND TECHNOLOGY

**TECHNOLOGY INNOVATION PROGRAM (TIP)
THIRD PARTY IN-KIND CONTRIBUTIONS**

Add Another Form

Remove This Form

A. Name of organization to receive in-kind contributions:

B. In-kind contributions will consist of the following as noted:

Project Year:

Add Line	Remove Line			
Type of Personnel Service	Employee Name & Position Title	Percentage of Time	Method of Valuation	Cost

Add Line	Remove Line			
Equipment	Percentage of Use	Method of Valuation	Cost	

Add Line	Remove Line			
Research Tools	Percentage of Use	Method of Valuation	Cost	

Add Line	Remove Line			
Software	Percentage of Use	Method of Valuation	Cost	

Add Line	Remove Line			
Materials/Supplies	Percentage of Use	Method of Valuation	Cost	

Add Line	Remove Line			
Other	Percentage of Use	Method of Valuation	Cost	

C. Total value of third-party in-kind contributions:

By submitting this form, the donor of the in-kind contributions certifies that it is authorized to legally commit the in-kind contributions listed above for the proposed Technology Innovation Program proposal, if funded, entitled:

Print Name and Title:

Name of Organization Donating In-Kind Contributions:

**Instructions for Form NIST-1022D Technology Innovation Program (TIP)
Third Party In-Kind Contributions**

Third party in-kind contributions include but are not limited to equipment, research tools, software, supplies, and/or services. The value of in-kind contributions shall be determined in accordance with 15 C.F.R. §14.23 and will be prorated according to the share of total use dedicated to the TIP project.

Pursuant to § 296.10 Third Party In-Kind Contribution of Research Services, NIST shall not issue a TIP award to a single recipient or joint venture whose proposed budget includes the use of third party in-kind contribution of research as cost share, and no costs shall be incurred under such a TIP project, until such time as an agreement between the recipient and the third party contributor of in-kind research has been executed by both parties and approved by NIST.

A. Name of organization to receive in-kind contributions. The entity identified in the TIP proposal that will be receiving the third party contributions should be identified here; not the entity that is donating the third party in-kind contributions.

B. In-Kind Contributions. The appropriate type(s) of in-kind contributions, i.e., personnel service, equipment, research tools, software, materials/supplies, or other, must be provided in the appropriate section with each column completed. Enter the project year during which these contributions will be received. Fill out one form for each applicable Project Year for each donating organization if there is more than one.

C. Total value of third party in-kind contributions. Enter the sum of the last column (Cost) of each type of third party in-kind contribution.

By submitting this form, the donor of the in-kind contributions certifies that it is authorized to legally commit the in-kind contributions listed on the form NIST-1022D if the project is funded. The title of the TIP proposal, name and title of authorized donor organization official, name of organization donating in-kind contributions must be provided in the spaces indicated.

NIST-1022E
 DAO 203-26

U.S. DEPARTMENT OF COMMERCE
 NATIONAL INSTITUTE OF STANDARDS AND TECHNOLOGY

**TECHNOLOGY INNOVATION PROGRAM (TIP)
 ESTIMATED MULTI-YEAR BUDGET - SINGLE COMPANY**

	YEAR 1	YEAR 2	YEAR 3	TOTAL
1. OBJECT CLASS CATEGORY				
A. Personnel salaries/wages				
B. Travel				
C. Equipment				
D. Materials/supplies				
E. Contractors				
F. Other				
G. Total direct costs (lines A thru F)				
H. Total direct costs requested from TIP				
I. Total direct costs shared by proposer (if any)				
J. Total indirect costs absorbed by proposer				
K. Total costs (lines G + J)				
2. SOURCES OF FUNDS				
			Remove Source Line	Add Source Line
A.				
B1				
C. Total of all sources of funds (same as line K)				
3. TASKS				
			Remove Task Line	Add Task Line
A1				
B. Total of all tasks (same as line K)				

**Instructions for Form NIST-1022E Technology Innovation Program (TIP)
Estimated Multi-Year Budget – Single Company**

1. Object Class Category. The data for section 1 is populated automatically from previously entered data on the form NIST-1022C Budget Narrative. Therefore, no data entry is required for section 1.

2. Sources of Funds. List in the left-most column the names of all sources of funds individually. Line 2.A. is the TIP source of funding that is automatically populated from section 1.H. of this form, therefore, no data entry is required. Click on the “Add Source Line” button and B.1. will automatically appear below 2.A. Enter the name of the first nonfederal source of funds, e.g., submitting organization, third party in-kind contributions, state/local government, etc., followed by the source amounts under each column for the appropriate years. Click the “Add Source Line” after each source data is entered until all sources are listed. For example, if there are five nonfederal sources of funds, each source will be identified below line 2.A. as B.1, B.2., B.3., B.4., and B.5. The form will allow you to type past the end of the box in the left-most column, but only the visible data will be displayed and printed. Enter short references to sources in the visible part of this form. **The last line 2.C. of each column will be computed automatically and must match the total sources in line 1.K.**

3. Tasks. List in the left-most column, beginning with A1, all of the proposed tasks by name, and enter the associated costs in the appropriate rows and columns. (Click the “Add Task Line” button as needed to generate new lines.) Tasks should be a high-level aggregation of subtasks that have costs that can be easily updated as a group on an annual basis. TIP does not prescribe the appropriate number of tasks. Task names and amounts must correspond with those in the Gantt chart in the R&D plan discussion in the proposal.

If Section 1. Sources of Funds and Section 2. Tasks are lengthy and result in the total lines being shifted to second page, be sure to **review all totals in Lines 2.C. and 3.B. to ensure that they match the totals on line 1.K.**

If changes are made to the NIST-1022C, Budget Narrative, they will not appear on the 1022E until the data is saved. To insure accurate data, manually save the file before printing or submitting to be sure the changes are reflected on the 1022E. Check the totals of lines 2.C. and 3.B. to be sure they still match totals in 1.K. after the changes apply.

Data does not update on this form automatically.

NIST-1022F
DAO 203-26

U.S. DEPARTMENT OF COMMERCE
NATIONAL INSTITUTE OF STANDARDS AND TECHNOLOGY

**TECHNOLOGY INNOVATION PROGRAM (TIP)
ESTIMATED MULTI-YEAR BUDGET - JOINT VENTURE**

YEAR:				YEAR TOTAL ALL JV MEMBERS
1. OBJECT CLASS CATEGORY				
A. Personnel salaries/wages				
B. Travel				
C. Equipment				
D. Materials/supplies				
E. Contractors				
F. Other				
G. Total direct costs (lines A thru F)				
H. Total direct costs requested from TIP				
I. Total direct costs shared by proposer (if any)				
J. Total indirect costs absorbed by proposer				
K. Total costs (lines G + J)				
2. SOURCES OF FUNDS				
A.			Remove Source Line	Add Source Line
B1				
C. Total of all sources of funds (same as line K)				
3. TASKS				
A1			Remove Task Line	Add Task Line
B. Total of all tasks (same as line K)				

NIST-1022F
DAO 203-26

U.S. DEPARTMENT OF COMMERCE
NATIONAL INSTITUTE OF STANDARDS AND TECHNOLOGY

**TECHNOLOGY INNOVATION PROGRAM (TIP)
ESTIMATED MULTI-YEAR BUDGET - JOINT VENTURE**

Update Consolidated Data

YEAR: ALL				YEAR TOTAL ALL JV MEMBERS
1. OBJECT CLASS CATEGORY				
A. Personnel salaries/wages				
B. Travel				
C. Equipment				
D. Materials/supplies				
E. Contractors				
F. Other				
G. Total direct costs (lines A thru F)				
H. Total direct costs requested from TIP				
I. Total direct costs shared by proposer (if any)				
J. Total indirect costs absorbed by proposer				
K. Total costs (lines G + J)				
2. SOURCES OF FUNDS				
A.				
B1				
C. Total sources of funds (same as line K)				
3. TASKS				
A1				
B. Total of all tasks (same as line K)				

Instructions for Form NIST-1022F Technology Innovation Program (TIP) Estimated Multi-Year Budget – Joint Venture

Year. A sufficient number of forms will be generated reflecting the information entered on the forms NIST-1022, NIST-1022A, and 1022C. The year will be shown at the top of each form; the first column will be for the submitting organization and the remaining column headings for each year will be populated automatically with the names of each joint venture member beginning with the submitting organization followed in order with the other joint venture members as they appear on the form NIST-1022A Other Joint Venture Members.

1. Object Class Category. The data for section 1 is populated automatically from previously entered data on the form NIST-1022C Budget Narrative. Therefore, no data entry is required for section 1.

2. Sources of Funds.

List in the left-most column the names of all sources of funds individually. Line 2.A. is the TIP source of funding that is automatically populated from section 1.H. of this form, therefore, no data entry is required. Click on the “Add Source Line” button and B.1. will automatically appear below 2.A. Enter the name of the first nonfederal source of funds, e.g., submitting organization, joint venture member, third party in-kind contributions, state/local government, etc., followed by the source amounts under each column for the appropriate joint venture member. Click the “Add Source Line” after each source data is entered until all sources are listed. For example, if there are five nonfederal sources of funds, each source will be identified below line 2.A. as B.1, B.2., B.3., B.4., and B.5. The form will allow you to type past the end of the box in the left-most column, but only the visible data will be displayed and printed. Enter short references to sources in the visible part of this form. **The last line 2.C. of each column will be computed automatically and must match the total sources in line 1.K.**

3. Tasks. List in the left-most column, beginning with A1, all of the proposed tasks by name, and enter the associated costs in the appropriate rows and columns. (Click the “Add Task Line” button as needed to generate new lines.) Tasks should be a high-level aggregation of subtasks that have costs that can be easily updated as a group on an annual basis. TIP does not prescribe the appropriate number of tasks. Task names and amounts must correspond with those in the Gantt chart in the R&D plan discussion in the proposal.

Once all data for each year is entered, a cumulative total page will automatically be generated. The last page(s) of this form will show “ALL” in the Year box and provide a consolidated budget by joint venture member for all years. At the top right side of this form is an “Update Consolidated Data” button, which must be pressed to update the consolidated view if changes are made to the form NIST-1022C Budget Narrative or the form NIST-1022F Multi-Year Budget after the last save.

If Section 1. Sources of Funds and Section 2. Tasks are lengthy and result in the total lines being shifted to second page, be sure to **review all totals in Lines 2.C. and 3.B. to ensure that they match the totals on line 1.K.**

If changes are made to the NIST-1022C, Budget Narrative, they will not appear on the 1022E until the data is saved. To insure accurate data, manually save the file before printing or submitting to be sure the changes are reflected on the 1022E. Check the totals of lines 2.C. and 3.B. to be sure they still match totals in 1.K. after the changes apply.

Data does not update on this form automatically.

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NIST-1022G
DAO 203-26U.S. DEPARTMENT OF COMMERCE
NATIONAL INSTITUTE OF STANDARDS AND TECHNOLOGY**TECHNOLOGY INNOVATION PROGRAM (TIP)
FOREIGN OWNED COMPANY QUESTIONNAIRE**[Add Questionnaire](#)[Remove Questionnaire](#)

Complete answers to all questions must be provided for each foreign-owned company participating in the proposed TIP project. Submit additional documentation if necessary. [See Chapter 1, section 4 in the TIP Proposal Preparation Kit for explanation.]

Title of Proposal:

Submitting Organization:

1. Is the foreign-owned company incorporated in the United States, or is the LLC, partnership, or sole proprietorship with foreign ownership organized in the United States? (NOTE: A company, LLC, partnership, or sole proprietorship is considered foreign owned if it is majority owned or controlled by a non-U.S. entity, or its ultimate parent, if any, is incorporated outside the United States.)

 No. You are ineligible to continue.

 Yes. Please continue.

2. Name of foreign-owned company and U.S. address where research for the project will be conducted.

3. Name of ultimate foreign parent, address, and country of incorporation. Also provide percentage of ownership.

4. What is the type of participation of the foreign-owned company?

 Single Company

 Joint Venture Lead

 Joint Venture Participant

5. What is the role of the foreign-owned company? (Check all that apply.)

 Key contributor to the high-risk tasks of the project.

 Minor contributor to the high-risk tasks of the project.

 Supplier of materials, equipment, or software services.

 Manufacturer.

 Other. Please explain.

6. What skills, capabilities, and resources does the foreign-owned company bring to the project? How will the company's role affect project milestones and plans, if any, for commercialization?

7. Provide a brief description of:

a. Facility or facilities where project activities will be carried out;

b. Location, including address;

c. Square footage; and

d. Special equipment.

8. How many employees will be dedicated to the project?

9. Provide the names, titles, and main responsibilities of key project staff.

10. Will there be any activities performed outside the United States?

No.

Yes. If yes, a completed NIST-1022H TIP R&D Work Performed Outside the United States by the Recipient or Contractor Questionnaire must be submitted.

11. Does the foreign-owned company expect to develop any new products or apply any new processes to its product lines incorporating the TIP supported technology?

No.

Yes. If yes, provide the following:

- a. For each new product or process, when will it first occur?
- b. Where?
- c. If in the United States, which facility?
- d. Which U.S. product line?
- e. Other? Please explain.

12. a. Provide investments that the foreign-owned company has made in research, development, manufacturing, distribution, sales, and marketing in the United States in the past 3 years.

b. State approximate dollar value.

13. Describe the relationship between the foreign-owned company and its ultimate foreign parent. Include financial arrangements, intercompany research agreements, and intellectual property arrangements.

NIST-1022H
DAO 203-26U.S. DEPARTMENT OF COMMERCE
NATIONAL INSTITUTE OF STANDARDS AND TECHNOLOGY[Add Questionnaire](#)[Remove Questionnaire](#)**TECHNOLOGY INNOVATION PROGRAM (TIP)
R&D WORK PERFORMED OUTSIDE THE UNITED STATES BY THE
RECIPIENT OR CONTRACTOR QUESTIONNAIRE**

Title of Proposal:

Submitting Organization:

Name of Company To Perform R&D Work Outside the United States:

Country Where Work Will Be Performed:

1. Is the work to be performed outside the United States less technically challenging and lower risk relative to the work carried out in the United States?

 Yes. No. If no, explain.

2. Describe the impact on U.S. economic interests with and without the R&D being performed outside the United States.

3. What is the percentage of the total TIP project for R&D performed outside the United States?

4. What are the total dollars by organization for R&D performed outside the United States?

5. a. Explain how your organization made a good faith effort to identify alternatives to have this particular work performed outside the United States.

b. Explain why those alternatives were not considered adequate to meet the R&D plan needs (e.g., cost, schedule, insufficient interest, or commitment).

6. Would the project be less likely to generate substantial benefits to the United States if the work outside the United States were not carried out at all, or if TIP insisted that the work be performed in the United States?

 Yes. No.

Explain why:

7. Does the facility proposing to carry out the work outside the United States bring to the project special expertise, extra resources, or other factors that would represent a substantial loss to the project were they not present?

Yes.

No.

Explain why:

8. a. Is the entity proposing to do work outside the United States U.S. owned?

Yes.

No.

b. Does the entity also have R&D and manufacturing facilities in the United States that would benefit from the project?

Yes. If yes, describe the facilities and benefits:

No.

c. Who else would benefit?

TIP STATUTE

NOTE: The TIP statute originated in the America Creating Opportunities to Meaningfully Promote Excellence in Technology, Education, and Sciences (COMPETES) Act of 2007 (Pub. L. 110-69).

Sec. 3012. Technology Innovation Program

(a) **Repeal of Advanced Technology Program.** Section 28 of the National Institute of Standards and Technology Act (15 U.S.C. 278n) is repealed.

(b) **Establishment of Technology Innovation Program.** The National Institute of Standards and Technology Act (15 U.S.C. 271 et seq.) is amended by inserting after section 27 the following:

Sec. 28. TECHNOLOGY INNOVATION PROGRAM

(a) **Establishment.** There is established within the Institute a program linked to the purpose and functions of the Institute, to be known as the "Technology Innovation Program" for the purpose of assisting United States businesses and institutions of higher education or other organizations, such as national laboratories and nonprofit research institutions, to support, promote, and accelerate innovation in the United States through high-risk, high-reward research in areas of critical national need.

(b) **External Funding.**

(1) In general. The Director shall award competitive, merit-reviewed grants, cooperative agreements, or contracts to --

(A) eligible companies that are small-sized businesses or medium-sized businesses; or

(B) joint ventures.

(2) Single company awards. No award given to a single company shall exceed \$3,000,000 over 3 years.

(3) Joint venture awards. No award given to a joint venture shall exceed \$9,000,000 over 5 years.

(4) Federal cost share. The Federal share of a project funded by an award under the program shall not be more than 50 percent of total project costs.

(5) Prohibitions. Federal funds awarded under this program may be used only for direct costs and not for indirect costs, profits, or management fees of a contractor. Any business that is not a small-sized or medium-sized business may not receive any funding under this program.

(c) **Award Criteria.** The Director shall only provide assistance under this section to an entity:

(1) whose proposal has scientific and technical merit and may result in intellectual property vesting in a United States entity that can commercialize the technology in a timely manner;

(2) whose application establishes that the proposed technology has strong potential to address critical national needs through transforming the Nation's capacity to deal with major societal challenges that are not currently being addressed, and generate substantial benefits to the Nation that extend significantly beyond the direct return to the applicant;

(3) whose application establishes that the research has strong potential for advancing the state-of-the-art and contributing significantly to the United States science and technology knowledge base;

A-1

(4) whose proposal explains why Technology Innovation Program support is necessary, including evidence that the research will not be conducted within a reasonable time period in the absence of financial assistance under this section;

(5) whose application demonstrates that reasonable efforts have been made to secure funding from alternative funding sources and no other alternative funding sources are reasonably available to support the proposal; and

(6) whose application explains the novelty of the technology and demonstrates that other entities have not already developed, commercialized, marketed, distributed, or sold similar technologies.

(d) **Competitions.** The Director shall solicit proposals at least annually to address areas of critical national need for high-risk, high-reward projects.

(e) **Intellectual Property Rights Ownership.**

(1) In general. Title to any intellectual property developed by a joint venture from assistance provided under this section may vest in any participant in the joint venture, as agreed by the members of the joint venture, notwithstanding section 202 (a) and (b) of title 35, United States Code. The United States may reserve a nonexclusive, nontransferable, irrevocable paid-up license, to have practice for or on behalf of the United States in connection with any such intellectual property, but shall not in the exercise of such license publicly disclose proprietary information related to the license. Title to any such intellectual property shall not be transferred or passed, except to a participant in the joint venture, until the expiration of the first patent obtained in connection with such intellectual property.

(2) **Licensing.** Nothing in this subsection shall be construed to prohibit the licensing to any company of intellectual property rights arising from assistance provided under this section.

(3) **Definition.** For purposes of this subsection, the term “intellectual property” means an invention patentable under title 35, United States Code, or any patent on such an invention, or any work for which copyright protection is available under title 17, United States Code.

(f) **Program Operation.** Not later than 9 months after the date of the enactment of this section, the Director shall promulgate regulations --

(1) establishing criteria for the selection of recipients of assistance under this section;

(2) establishing procedures regarding financial reporting and auditing to ensure that awards are used for the purposes specified in this section, are in accordance with sound accounting practices, and are not funding existing or planned research programs that would be conducted within a reasonable time period in the absence of financial assistance under this section; and

(3) providing for appropriate dissemination of Technology Innovation Program research results.

(g) **Annual Report.** The Director shall submit annually to the Committee on Commerce, Science, and Transportation of the Senate and the Committee on Science and Technology of the House of Representatives a report describing the Technology Innovation Program's activities, including a description of the metrics upon which award funding decisions were made in the previous fiscal year, any proposed changes to those metrics, metrics for evaluating the success of ongoing and completed awards, and an evaluation of ongoing and completed awards. The first

annual report shall include best practices for management of programs to stimulate high-risk, high-reward research.

(h) **Continuation of ATP Grants.** The Director shall, through the Technology Innovation Program, continue to provide support originally awarded under the Advanced Technology Program, in accordance with the terms of the original award and consistent with the goals of the Technology Innovation Program.

(i) **Coordination With Other State and Federal Technology Programs.** In carrying out this section, the Director shall, as appropriate, coordinate with other senior State and Federal officials to ensure cooperation and coordination in State and Federal technology programs and to avoid unnecessary duplication of efforts.

(j) **Acceptance of Funds From Other Federal Agencies.** In addition to amounts appropriated to carry out this section, the Secretary and the Director may accept funds from other Federal agencies to support awards under the Technology Innovation Program. Any award under this section which is supported with funds from other Federal agencies shall be selected and carried out according to the provisions of this section. Funds accepted from other Federal agencies shall be included as part of the Federal cost share of any project funded under this section.

(k) **TIP Advisory Board.**

(1) Establishment. There is established within the Institute a TIP Advisory Board.

(2) Membership.

(A) In general. The TIP Advisory Board shall consist of 10 members appointed by the Director, at least 7 of whom shall be from United States industry, chosen to reflect the wide diversity of technical disciplines and industrial sectors represented in Technology Innovation

Program projects. No member shall be an employee of the Federal Government.

(B) Term. Except as provided in subparagraph (C) or (D), the term of office of each member of the TIP Advisory Board shall be 3 years.

(C) Classes. The original members of the TIP Advisory Board shall be appointed to 3 classes. One class of 3 members shall have an initial term of 1 year, one class of 3 members shall have an initial term of 2 years, and one class of 4 members shall have an initial term of 3 years.

(D) Vacancies. Any member appointed to fill a vacancy occurring prior to the expiration of the term for which his predecessor was appointed shall be appointed for the remainder of such term.

(E) Serving consecutive terms. Any person who has completed 2 consecutive full terms of service on the TIP Advisory Board shall thereafter be ineligible for appointment during the 1-year period following the expiration of the second such term.

(3) Purpose. The TIP Advisory Board shall meet not less than 2 times annually, and provide the Director --

(A) advice on programs, plans, and policies of the Technology Innovation Program;

(B) reviews of the Technology Innovation Program's efforts to accelerate the research and development of challenging, high-risk, high-reward technologies in areas of critical national need;

(C) reports on the general health of the program and its effectiveness in achieving its legislatively mandated mission; and

(D) guidance on investment areas that are appropriate for Technology Innovation Program funding;

(4) Advisory capacity. In discharging its duties under this subsection, the TIP Advisory Board shall function solely in an advisory capacity, in accordance with the Federal Advisory Committee Act.

(5) Annual report. The TIP Advisory Board shall transmit an annual report to the Secretary for transmittal to the Congress not later than 30 days after the submission to Congress of the President's annual budget request in each year. Such report shall address the status of the Technology Innovation Program and comment on the relevant sections of the programmatic planning document and updates thereto transmitted to Congress by the Director under subsections (c) and (d) of section 23.

(l) **Definitions.** In this section --

(1) the term "eligible company" means a small-sized or medium-sized business that is incorporated in the United States and does a majority of its business in the United States, and that either --

(A) is majority owned by citizens of the United States; or

(B) is owned by a parent company incorporated in another country and the Director finds that --

(i) the company's participation in the Technology Innovation Program would be in the economic interest of the United States, as evidenced by --

(I) investments in the United States in research and manufacturing;

(II) significant contributions to employment in the United States; and

(III) agreement with respect to any technology arising from assistance provided under this section to promote the manufacture within the United States of products resulting from that technology; and

(ii) the company is incorporated in a country which --

(I) affords to United States-owned companies opportunities, comparable to those afforded to any other company, to participate in any joint venture similar to those receiving funding under this section;

(II) affords to United States-owned companies local investment opportunities comparable to those afforded any other company; and

(III) affords adequate and effective protection for intellectual property rights of United States-owned companies;

(2) the term "high-risk, high-reward research" means research that --

(A) has the potential for yielding transformational results with far-ranging or wide-ranging implications;

(B) addresses critical national needs within the National Institute of Standards and Technology's areas of technical competence; and

(C) is too novel or spans too diverse a range of disciplines to fare well in the traditional peer-review process;

(3) the term "institution of higher education" has the meaning given that term in section 101 of the Higher Education Act of 1965 (20 U.S.C. 1001);

(4) the term "joint venture" means a joint venture that --

(A) includes either --

(i) at least 2 separately owned for-profit companies that are both substantially involved in the project and both of which are contributing to the cost-sharing required under this section, with the lead entity of the joint venture being one of those companies

that is a small-sized or medium-sized business; or

(ii) at least 1 small-sized or medium-sized business and 1 institution of higher education or other organization, such as a national laboratory or nonprofit research institute, that are both substantially involved in the project and both of which are contributing to the cost-sharing required under this section, with the lead entity of the joint venture being either that small-sized or medium-sized business or that institution of higher education; and

(B) may include additional for-profit companies, institutions of higher education, and other organizations, such as national laboratories and nonprofit research institutes, that may or may not contribute non-Federal funds to the project; and

(5) the term “TIP Advisory Board” means the advisory board established under subsection (k).

(c) Transition. Notwithstanding the repeal made by subsection (a), the Director shall carry out section 28 of the National Institute of Standards and Technology Act (15 U.S.C. 278n) as such section was in effect on the day before the date of the enactment of this Act, with respect to applications for grants under such section submitted before such date, until the earlier of --

(1) the date that the Director promulgates the regulations required under section 28(f) of the National Institute of Standards and Technology Act, as added by subsection (b); or

(2) December 31, 2007.

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TIP RULE – 15. C. R. PART 296

Subpart A – General

- § 296.1 Purpose.
- § 296.2 Definitions.
- § 296.3 Types of assistance available.
- § 296.4 Limitations on assistance.
- § 296.5 Eligibility requirements for companies and joint ventures.
- § 296.6 Valuation of transfers.
- § 296.7 Joint venture registration.
- § 296.8 Joint venture agreement.
- § 296.9 Activities not permitted for joint ventures.
- § 296.10 Third party in-kind contribution of research services.
- § 296.11 Intellectual property rights and procedures.
- § 296.12 Reporting and auditing requirements.

Subpart B -- The Competition Process

- § 296.20 The selection process.
- § 296.21 Evaluation criteria.
- § 296.22 Award criteria.

Subpart C – Dissemination of Program Results

- § 296.30 Monitoring and evaluation.
- § 296.31 Dissemination of results.
- § 296.32 Technical and educational services.
- § 296.33 Annual report.

Authority: 15 U.S.C. 278n (Pub. L.110-69 section 3012)

Subpart A -- General

§ 296.1 Purpose.

- (a) The purpose of the Technology Innovation Program (TIP) is to assist United States businesses and institutions of higher education or other organizations, such as national laboratories and nonprofit research institutes, to support, promote, and accelerate innovation in the United States through high-risk, high-reward research in areas of critical national need within NIST's areas of technical competence.
- (b) The rules in this part prescribe policies and procedures for the award and administration of financial assistance (grants and/or cooperative agreements) under the TIP. While the TIP is authorized to enter into grants, cooperative agreements, and contracts to carry out the TIP mission, the rules in this part address only the award of grants and/or cooperative agreements.

§ 296.2 Definitions.

Award means Federal financial assistance made under a grant or cooperative agreement.

Business or company means a for-profit organization, including sole proprietors, partnerships, limited liability companies (LLCs), and corporations.

Contract means a procurement contract under an award or subaward, and a procurement subcontract under a recipient's or subrecipient's contract.

Contractor means the legal entity to which a contract is made and which is accountable to the recipient, subrecipient, or contractor making the contract for the use of the funds provided.

Cooperative agreement refers to a Federal assistance instrument used whenever the principal purpose of the relationship between the Federal government and the recipient is to transfer something of value, such as money, property, or services to the recipient to accomplish a public purpose of support or stimulation authorized by Federal statute instead of acquiring (by purchase, lease, or barter) property or services for the direct benefit or use of the Federal government; and substantial involvement is anticipated between the Federal government and the recipient during performance of the contemplated activity.

Critical national need means an area that justifies government attention because the magnitude of the problem is large and the societal challenges that need to be overcome are not being addressed, but could be addressed through high-risk, high-reward research.

Direct costs means costs that can be identified readily with activities carried out in support of a particular final objective. A cost may not be allocated to an award as a direct cost if any other cost incurred for the same purpose in like circumstances has been assigned to an award as an indirect cost. Because of the diverse characteristics and accounting practices of different organizations, it is not possible to specify the types of costs which may be classified as direct costs in all situations. However, typical direct costs could include salaries of personnel working on the TIP project, travel,

equipment, materials and supplies, subcontracts, and other costs not categorized in the preceding examples. NIST shall determine the allowability of direct costs in accordance with applicable Federal cost principles.

Director means the Director of the National Institute of Standards and Technology (NIST).

Eligible company means a small-sized or medium-sized business or company that satisfies the ownership and other requirements stated in this part.

Grant means a Federal assistance instrument used whenever the principal purpose of the relationship between the Federal government and the recipient is to transfer something of value, such as money, property, or services to the recipient to accomplish a public purpose of support or stimulation authorized by Federal statute instead of acquiring (by purchase, lease, or barter) property or services for the direct benefit or use of the Federal government; and no substantial involvement is anticipated between the Federal government and the recipient during performance of the contemplated activity.

High-risk, high-reward research means research that:

- (1) has the potential for yielding transformational results with far-ranging or wide-ranging implications;
- (2) addresses areas of critical national need that support, promote, and accelerate innovation in the United States and is within NIST's areas of technical competence; and
- (3) is too novel or spans too diverse a range of disciplines to fare well in the traditional peer-review process.

Indirect costs means those costs incurred for common or joint objectives that cannot be readily identified with activities carried

out in support of a particular final objective. A cost may not be allocated to an award as an indirect cost if any other cost incurred for the same purpose in like circumstances has been assigned to an award as a direct cost. Because of diverse characteristics and accounting practices it is not possible to specify the types of costs which may be classified as indirect costs in all situations. However, typical examples of indirect costs include general administration expenses, such as the salaries and expenses of executive officers, personnel administration, maintenance, library expenses, and accounting. NIST shall determine the allowability of indirect costs in accordance with applicable Federal cost principles.

Institution of higher education means an educational institution in any State that—

- (1) Admits as regular students only persons having a certificate of graduation from a school providing secondary education, or the recognized equivalent of such a certificate;
- (2) Is legally authorized within such State to provide a program of education beyond secondary education;
- (3) Provides an educational program for which the institution awards a bachelor's degree or provides not less than a 2-year program that is acceptable for full credit toward such a degree;
- (4) Is a public or other nonprofit institution; and
- (5) Is accredited by a nationally recognized accrediting agency or association, or if not so accredited, is an institution that has been granted preaccreditation status by such an agency or association that has been recognized by the Secretary of Education for the granting of preaccreditation status, and the Secretary of Education has determined that there is satisfactory assurance that the institution will meet the accreditation standards of such an agency or association within a reasonable time (20 U.S.C. 1001). For the purpose of this paragraph (I) only, the term *State* includes,

in addition to the several States of the United States, the Commonwealth of Puerto Rico, the District of Columbia, Guam, American Samoa, the United States Virgin Islands, the Commonwealth of the Northern Mariana Islands, and the Freely Associated States. The term Freely Associated States means the Republic of the Marshall Islands, the Federated States of Micronesia, and the Republic of Palau.

Intellectual property means an invention patentable under title 35, United States Code, or any patent on such an invention, or any work for which copyright protection is available under title 17, United States Code.

Joint venture means a business arrangement that:

- (1) Includes either:
 - (i) At least two separately owned companies that are both substantially involved in the project and both of which are contributing to the cost-sharing required under the TIP statute, with the lead company of the joint venture being an eligible company; or
 - (ii) At least one eligible company and one institution of higher education or other organization, such as a national laboratory, governmental laboratory (not including NIST), or nonprofit research institute, that are both substantially involved in the project and both of which are contributing to the cost-sharing required under the TIP statute, with the lead entity of the joint venture being either the eligible company or the institution of higher education; and
- (2) May include additional for-profit companies, institutions of higher education, and other organizations, such as national laboratories and nonprofit research institutes, that may or may not contribute non-Federal funds to the project.

Large-sized business means any business, including any parent company plus related subsidiaries, having annual revenues in excess of the amount published by the Program in the relevant *Federal Register*

notice of availability of funds in accordance with §296.20. In establishing this amount, the Program may consider the dollar value of the total revenues of the 1000th company in Fortune magazine's Fortune 1000 listing.

Matching funds or cost sharing means that portion of project costs not borne by the Federal government. Sources of revenue to satisfy the required cost share include cash and third party in-kind contributions. Cash may be contributed by any non-Federal source, including but not limited to recipients, state and local governments, companies, and nonprofits (except contractors working on a TIP project). Third party in-kind contributions include but are not limited to equipment, research tools, software, supplies, and/or services. The value of in-kind contributions shall be determined in accordance with §14.23 of this title and will be prorated according to the share of total use dedicated to the TIP project. NIST shall determine the allowability of matching share costs in accordance with applicable Federal cost principles.

Medium-sized business means any business that does not qualify as a small-sized business or a large-sized business under the definitions in this section.

Member means any entity that is identified as a joint venture member in the award and is a signatory on the joint venture agreement required by §296.8.

Nonprofit research institute means a nonprofit research and development entity or association organized under the laws of any state for the purpose of carrying out research and development.

Participant means any entity that is identified as a recipient, subrecipient, or contractor on an award to a joint venture under the Program.

Person will be deemed to include corporations and associations existing under or authorized by the laws of the United States, the laws of any of the Territories, the laws of any State, or the laws of any foreign country.

Program or TIP means the Technology Innovation Program.

Recipient means an organization receiving an award directly from NIST under the Program.

Small-sized business means a business that is independently owned and operated, is organized for profit, has fewer than 500 employees, and meets the other requirements found in 13 CFR part 121.

Societal challenge means a problem or issue confronted by society that when not addressed could negatively affect the overall function and quality of life of the Nation, and as such justifies government attention.

State, except for the limited purpose described in paragraph (l) of this section, means any of the several States of the United States, the District of Columbia, the Commonwealth of Puerto Rico, and any territory or possession of the United States, or any agency or instrumentality of a State exclusive of local governments. The term does not include any public and Indian housing agency under the United States Housing Act of 1937.

Subaward means an award of financial assistance made under an award by a recipient to an eligible subrecipient or by a subrecipient to a lower tier subrecipient. The term includes financial assistance when provided by any legal agreement, even if the legal agreement is called a contract, but does not include procurement of goods and services.

Subrecipient means the legal entity to which a subaward is made and which is accountable to the recipient for the use of the funds provided.

Transformational results means potential project outcomes that enable disruptive changes over and above current methods and strategies. Transformational results have the potential to radically improve our understanding of systems and technologies, challenging the status quo of research approaches and applications.

United States owned company means a for-profit organization, including sole proprietors, partnerships, limited liability companies (LLCs), and corporations, that has a majority ownership by individuals who are citizens of the United States.

§ 296.3 Types of Assistance Available.

Subject to the limitations of this section and §296.4, assistance under this part is available to eligible companies or joint ventures that request either of the following:

- (a) Single Company Awards: No award given to a single company shall exceed a total of \$3,000,000 over a total of 3 years.
- (b) Joint Venture Awards: No award given to a joint venture shall exceed a total of \$9,000,000 over a total of 5 years.

§ 296.4 Limitations on Assistance.

- (a) The Federal share of a project funded under the Program shall not be more than 50 percent of total project costs.
- (b) Federal funds awarded under this Program may be used only for direct costs and not for indirect costs, profits, or management fees.
- (c) No large-sized business may receive funding as a recipient or subrecipient of an award under the Program. When procured in accordance with procedures established under the Procurement Standards required by part 14 of Subtitle A of this title,

recipients may procure supplies and other expendable property, equipment, real property and other services from any party, including large-sized businesses.

(d) If a project ends before the completion of the period for which an award has been made, after all allowable costs have been paid and appropriate audits conducted, the unspent balance of the Federal funds shall be returned by the recipient to the Program.

§ 296.5 Eligibility Requirements for Companies and Joint Ventures.

Companies and joint ventures must be eligible in order to receive funding under the Program and must remain eligible throughout the life of their awards.

(a) A company shall be eligible to receive an award from the Program only if:

- (1) The company is a small-sized or medium-sized business that is incorporated in the United States and does a majority of its business in the United States; and
- (2) Either

(i) The company is a United States owned company; or

(ii) The company is owned by a parent company incorporated in another country and the Program finds that:

(A) The company's participation in TIP would be in the economic interest of the United States, as evidenced by investments in the United States in research, development, and manufacturing (including, for example, the manufacture of major components or subassemblies in the United States); significant contributions to employment in the United States; and agreement with respect to any technology arising from assistance provided by the Program to promote the manufacture within the United States of products resulting from that technology, and to procure parts and materials from competitive United States suppliers; and

(B) That the parent company is incorporated in a country which affords to United States-owned companies

opportunities, comparable to those afforded to any other company, to participate in any joint venture similar to those authorized to receive funding under the Program; affords to United States-owned companies local investment opportunities comparable to those afforded to any other company; and affords adequate and effective protection for the intellectual property rights of United States-owned companies.

(b) NIST may suspend a company or joint venture from continued assistance if it determines that the company, the country of incorporation of the company or a parent company, or any member of the joint venture has failed to satisfy any of the criteria contained in paragraph (a) of this section, and that it is in the national interest of the United States to do so.

(c) Members of joint ventures that are companies must be incorporated in the United States and do a majority of their business in the United States and must comply with the requirements of paragraph (a)(2) of this section. For a joint venture to be eligible for assistance, it must be comprised as defined in §296.2.

§ 296.6 Valuation of Transfers.

(a) This section applies to transfers of goods, including computer software, and services provided by the transferor related to the maintenance of those goods, when those goods or services are transferred from one joint venture member to another separately-owned joint venture member.

(b) The greater amount of the actual cost of the transferred goods and services as determined in accordance with applicable Federal cost principles, or 75 percent of the best customer price of the transferred goods and services, shall be deemed to be allowable costs. Best customer price means the GSA schedule price, or if such price is unavailable, the lowest price at which a sale was made during the last twelve months prior to the transfer of the particular good or service.

§ 296.7 Joint Venture Registration.

Joint ventures selected for assistance under the Program must notify the Department of Justice and the Federal Trade Commission under section 6 of the National Cooperative Research Act of 1984, as amended (15 U.S.C. 4305). No funds will be released prior to receipt by the Program of copies of such notification.

§ 296.8 Joint Venture Agreement.

NIST shall not issue a TIP award to a joint venture and no costs shall be incurred under a TIP project by the joint venture members until such time as a joint venture agreement has been executed by all of the joint venture members and approved by NIST.

§ 296.9 Activities Not Permitted for Joint Ventures.

The following activities are not permissible for TIP-funded joint ventures:

(a) Exchanging information among competitors relating to costs, sales, profitability, prices, marketing, or distribution of any product, process, or service that is not reasonably required to conduct the research and development that is the purpose of such venture;

(b) Entering into any agreement or engaging in any other conduct restricting, requiring, or otherwise involving the marketing, distribution, or provision by any person who is a party to such joint venture of any product, process, or service, other than the distribution among the parties to such venture, in accordance with such venture, of a product, process, or service produced by such venture, the marketing of proprietary information, such as patents and trade secrets, developed through such venture, or the licensing, conveying, or transferring of intellectual property, such as patents and trade secrets, developed through such venture; and

(c) Entering into any agreement or engaging in any other conduct:

- (1) To restrict or require the sale, licensing, or sharing of inventions or developments not developed through such venture; or
- (2) To restrict or require participation by such party in other research and development activities, that is not reasonably required to prevent misappropriation of proprietary information contributed by any person who is a party to such venture or of the results of such venture.

§ 296.10 Third Party In-Kind Contribution of Research Services.

NIST shall not issue a TIP award to a single recipient or joint venture whose proposed budget includes the use of third party in-kind contribution of research as cost share, and no costs shall be incurred under such a TIP project, until such time as an agreement between the recipient and the third party contributor of in-kind research has been executed by both parties and approved by NIST.

§ 296.11 Intellectual Property Rights and Procedures.

(a) Rights in Data. Except as otherwise specifically provided for in an award, authors may copyright any work that is subject to copyright and was developed under an award. When claim is made to copyright, the applicable copyright notice of 17 U.S.C. 401 or 402 and acknowledgment of Federal government sponsorship shall be affixed to the work when and if the work is delivered to the Federal government, is published, or is deposited for registration as a published work in the U.S. Copyright Office. The copyright owner shall grant to the Federal government, and others acting on its behalf, a paid up, nonexclusive, irrevocable, worldwide license for all such works to reproduce, publish, or otherwise use the work for Federal purposes.

(b) Invention Rights.

(1) Ownership of inventions developed from assistance provided by the Program under §296.3(a) shall be governed by the requirements of chapter 18 of title 35 of the United States Code.

(2) Ownership of inventions developed from assistance provided by the Program under §296.3(b) may vest in any participant in the joint venture, as agreed by the members of the joint venture, notwithstanding section 202 (a) and (b) of title 35, United States Code. Title to any such invention shall not be transferred or passed, except to a participant in the joint venture, until the expiration of the first patent obtained in connection with such invention. In accordance with

§296.8, joint ventures will provide to NIST a copy of their written agreement that defines the disposition of ownership rights among the participants of the joint venture, including the principles governing the disposition of intellectual property developed by contractors and subcontractors, as appropriate, and that complies with these regulations.

(3) The United States reserves a nonexclusive, nontransferable, irrevocable paid-up license, to practice or have practiced for or on behalf of the United States any inventions developed using assistance under this section, but shall not in the exercise of such license publicly disclose proprietary information related to the license. Nothing in this subsection shall be construed to prohibit the licensing to any company of intellectual property rights arising from assistance provided under this section.

(4) Should the last existing participant in a joint venture cease to exist prior to the expiration of the first patent obtained in connection with any invention developed from assistance provided under the Program, title to such patent must be transferred or passed to a United States entity that can commercialize the technology in a timely fashion.

(c) Patent Procedures. Each award by the Program will include provisions assuring the retention of a governmental use license in each disclosed invention, and the government's retention of march-in rights. In addition, each award by the Program will contain procedures regarding reporting of subject inventions by the recipient through the Interagency Edison extramural invention reporting system (iEdison), including the subject inventions of recipients, including members of the joint venture (if applicable), subrecipients, and contractors of the recipient or joint venture members.

§ 296.12 Reporting and Auditing Requirements.

Each award by the Program shall contain procedures regarding technical, business, and financial reporting and auditing requirements to ensure that awards are being used in accordance with the Program's objectives and applicable Federal cost principles. The purpose of the technical reporting is to monitor "best effort" progress toward overall project goals. The purpose of the business reporting is to monitor project performance against the Program's mission as required by the Government Performance and Results Act (GPRA) mandate for program evaluation. The purpose of the financial reporting is to monitor the status of project funds. The audit standards to be applied to TIP awards are the "Government Auditing Standards" (GAS) issued by the Comptroller General of the United States and any Program-specific audit guidelines or requirements prescribed in the award terms and conditions. To implement paragraph (f) of §14.25 of this title, audit standards and award terms may stipulate that "total Federal and non-Federal funds authorized by the Grants Officer" means the total Federal and non-Federal funds authorized by the Grants Officer annually.

Subpart B -- The Competition Process

§ 296.20 The selection process.

(a) To begin a competition, the Program will solicit proposals through an announcement in the Federal Register, which will contain information regarding that competition, including the areas of critical national need that proposals must address. An Evaluation Panel(s) will be established to evaluate proposals and ensure that all proposals receive careful consideration.

(b) (1) A preliminary review will be conducted to determine whether the proposal:

(i) Is in accordance with §296.3;

(ii) Complies with either paragraph (a) or paragraph (c) of §296.5;

(iii) Addresses the award criteria of paragraphs (a) through (c) of §296.22;

(iv) Was submitted to a previous TIP competition and if so, has been substantially revised; and

(v) Is complete.

(2) Complete proposals that meet the preliminary review requirements described in paragraphs (b)(1)(i) through (v) of this section will be considered further.

Proposals that are incomplete or do not meet any one of these preliminary review requirements will normally be eliminated.

(c) The Evaluation Panel(s) will then conduct a multi-disciplinary peer review of the remaining proposals based on the evaluation criteria listed in §296.21 and the award criteria listed in §296.22. In some cases NIST may conduct oral reviews and/or site visits. The Evaluation Panel(s) will present funding recommendations to the Selecting Official in rank order for further consideration. The Evaluation Panel(s) will not recommend for further consideration any proposal determined not to meet all of the eligibility and award requirements of this part and the Federal Register notice announcing the availability of funds.

(d) In making final selections, the Selecting Official will select funding recipients based upon the Evaluation Panel's rank order of the proposals and the following selection factors: assuring an appropriate distribution of funds among technologies and their applications, availability of funds, and/or Program priorities. The selection of proposals by the Selecting Official is final.

(e) NIST reserves the right to negotiate the cost and scope of the proposed work with the proposers that have been selected to receive awards. This may include requesting that the proposer delete from the scope of work a particular task that is deemed by NIST to be inappropriate for support against the evaluation criteria. NIST also reserves the right to reject a proposal where information is uncovered that raises a reasonable doubt as to the responsibility of the proposer. The final approval of selected proposals and award of assistance will be made by the NIST Grants Officer as described in the Federal Register notice announcing the competition. The award decision of the NIST Grants Officer is final.

§ 296.21 Evaluation Criteria.

A proposal must be determined to be competitive against the Evaluation Criteria set forth in this section to receive funding under the Program. Additionally, no proposal will be funded unless the Program determines that it has scientific and technical merit and that the proposed research has strong potential for meeting identified areas of critical national need.

(a) (1) The proposer(s) adequately addresses the scientific and technical merit and how the research may result in intellectual property vesting in a United States entity including evidence that:

- (i) The proposed research is novel;
- (ii) The proposed research is high-risk, high-reward;
- (iii) The proposer(s) demonstrates a high level of relevant scientific/technical

expertise for key personnel, including contractors and/or informal collaborators, and have access to the necessary resources, for example research facilities, equipment, materials, and data, to conduct the research as proposed;

(iv) The research result(s) has the potential to address the technical needs associated with a major societal challenge not currently being addressed; and

(v) The proposed research plan is scientifically sound with tasks, milestones, timeline, decision points and alternate strategies.

(2) Total weight of (a)(1)(i) through (v) is 50%.

(b)(1) The proposer(s) adequately establishes that the proposed research has strong potential for advancing the state-of-the-art and contributing significantly to the United States science and technology knowledge base and to address areas of critical national need through transforming the Nation's capacity to deal with a major societal challenge(s) that is not currently being addressed, and generate substantial benefits to the Nation that extend significantly beyond the direct return to the proposer including an explanation in the proposal:

(i) Of the potential magnitude of transformational results upon the Nation's capabilities in an area;

(ii) Of how and when the ensuing transformational results will be useful to the Nation; and

(iii) Of the capacity and commitment of each award participant to enable or advance the transformation to the proposed research results (technology).

(2) Total weight of (b)(1)(i) through (iii) is 50%.

§ 296.22 Award Criteria.

NIST must determine that a proposal successfully meets all of the Award Criteria set forth in this section for the proposal to

receive funding under the Program. The Award Criteria are:

- (a) The proposal explains why TIP support is necessary, including evidence that the research will not be conducted within a reasonable time period in the absence of financial assistance from TIP;
- (b) The proposal demonstrates that reasonable and thorough efforts have been made to secure funding from alternative funding sources and no other alternative funding sources are reasonably available to support the proposal;
- (c) The proposal explains the novelty of the research (technology) and demonstrates that other entities have not already developed, commercialized, marketed, distributed, or sold similar research results (technologies);
- (d) The proposal has scientific and technical merit and may result in intellectual property vesting in a United States entity that can commercialize the technology in a timely manner;
- (e) The proposal establishes that the research has strong potential for advancing the state-of-the-art and contributing significantly to the United States science and technology knowledge base; and
- (f) The proposal establishes that the proposed transformational research (technology) has strong potential to address areas of critical national need through transforming the Nation's capacity to deal with major societal challenges that are not currently being addressed, and generate substantial benefits to the Nation that extend significantly beyond the direct return to the proposer.

Subpart C -- Dissemination of Program Results

§ 296.30 Monitoring and Evaluation.

The Program will provide monitoring and evaluation of areas of critical national need and its investments through periodic analyses. It will develop methods and

metrics for assessing impact at all stages. These analyses will contribute to the establishment and adoption of best practices.

§ 296.31 Dissemination of Results.

Results stemming from the analyses required by §296.30 will be disseminated in periodic working papers, fact sheets, and meetings, which will address the progress that the Program has made from both a project and a portfolio perspective. Such disseminated results will serve to educate both external constituencies as well as internal audiences on research results, best practices, and recommended changes to existing operations based on solid analysis.

§ 296.32 Technical and Educational Services.

(a) Under the Federal Technology Transfer Act of 1986, NIST has the authority to enter into cooperative research and development agreements with non-Federal parties to provide personnel, services, facilities, equipment, or other resources except funds toward the conduct of specified research or development efforts which are consistent with the missions of the laboratory. In turn, NIST has the authority to accept funds, personnel, services, facilities, equipment and other resources from the non-Federal party or parties for the joint research effort. Cooperative research and development agreements do not include procurement contracts or cooperative agreements as those terms are used in sections 6303, 6304, and 6305 of title 31, United States Code.

(b) In no event will NIST enter into a cooperative research and development agreement with a recipient of an award under the Program which provides for the payment of Program funds from the award recipient to NIST.

(c) From time to time, TIP may conduct public workshops and undertake other

educational activities to foster the collaboration of funding Recipients with other funding resources for purposes of further development and diffusion of TIP-related technologies. In no event will TIP provide recommendations, endorsements, or approvals of any TIP funding Recipients to any outside party.

296.33 Annual Report.

The Director shall submit annually to the Committee on Commerce, Science, and Transportation of the Senate and the

Committee on Science and Technology of the House of Representatives a report describing the Technology Innovation Program's activities, including a description of the metrics upon which award funding decisions were made in the previous fiscal year, any proposed changes to those metrics, metrics for evaluating the success of ongoing and completed awards, and an evaluation of ongoing and completed awards. The first annual report shall include best practices for management of programs to stimulate high-risk, high-reward research.

U.S. Department of Commerce

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