

PROJECT CONCEPT TOOL GUIDE

User Companion Guide

The America Makes Concept Tool is designed to drive the selection of the best ideas for America Makes projects. Ideas selected through this tool will then be invited to complete a full proposal to obtain federal funding.

This document is intended to orient proposal teams to the tool, answer frequently asked questions, and clearly define expectations for answering each question.

Concept Selection Overview

The Project Concept Phase of the America Makes Project Call process is focused on the proposal ideas – what you plan on doing, how you plan on doing it, **and why** America Makes should select the project ideas to advance to the Project Proposal Phase of the Project Call process – rather than a full-scale, detailed project proposal. The tool is composed of three distinct sections:

- 1) Project Profile: Questions to capture **what** the proposed project will focus on
- 2) Project Approach: Questions to capture **how** the project team will achieve what they are proposing
- 3) Project Justification: Questions that capture specific pieces of information that will be quantitatively evaluated by America Makes Reviewers to determine **why** a project should receive federal funding

Frequently Asked Questions

What has changed?

America Makes has added an additional step to the Project Call Process – the *Project Concept Phase*. We made this change based on members' feedback to validate ideas before expending the time and resources that are necessary to execute a full proposal.

The work that you do to create and shape your idea will not be wasted as the project idea will be the core of your full proposal. Ultimately, we believe that this *Project Concept Phase* will help you spend more time focusing on shaping your idea and reduce the total level of effort your team puts into the Project Call Process.

Why are we using this format?

There are two specific reasons why we are employing this format:

- 1) To show you exactly what we think is important when developing a project idea
- 2) To create structured question responses and thus helping us track of all of the great ideas. Even if your idea may not be right for this America Makes Project Call, it may be what another partner organization is looking for. This increases the opportunity that your project idea will receive federal funding.

Why are there so many questions?

The questions are designed to build on each other and progress in a logical sequence to help you design your project idea. They are specifically targeted at different aspects of the proposed project, so it should help walk you through the development of your project idea.

There is some topical overlap—this is intentional and will help us readily connect data points.

Why are we limiting word counts?

We want responses that are concise and compelling. We want you to focus on content, so that we can do in-depth reviews of all of the concepts and spend time focusing on the ideas during this stage. You will be able to add depth and breadth to your ideas in your final proposal.

What questions will be scored?

Only the *Project Justification* section will be used to evaluate the proposed idea and these are very pointed questions that are looking for specific pieces of information.

However, it critical that the *Project Profile* and *Project Approach* sections of the Project Concept Tool are thorough because they will be used by America Makes reviewers to gain a holistic understanding of the project.

What if we still have questions?

We are providing multiple opportunities for you to learn more about the process and our expectations. They are:

- 1) Project Call webinar outlining the call's expectations and topical areas on Friday, December 1, 2017. Registration is required for the webinar.
- 2) Project Call question & answer period.

All information related to the Project Call can be found on the [American Makes website](#). Please contact Projectcall@americamakes.us for any other questions you may have.

A. Project Profile

The *Project Profile* asks specific, direct questions to have the proposal teams define their vision for the project. This section has three distinct portions:

- 1) [Project Information](#): High-level questions to gain information about the project
- 2) [Free Response Questions](#): Guided questions to gain a holistic understanding of the project
- 3) [Applications & Uses](#): Space to express how the project and solution can be utilized by the American manufacturing base and supply chains

Project Information

Captures basic high-level information about the proposed project

Project Name

The name of your proposed project.

Project Team Members

List all of the team members (organizations) that you anticipate will work on the project. It is not necessary at this point in time to have teaming agreements with each team member in place although teaming agreements will be required at the final proposal stage.

Indicate the project team lead with an asterisk (*) after the team member's name.

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Which Topic is Being Addressed

America Makes has identified three (3) topics of specific interest to the sustainment community that this Project Call will focus on. Select the single topic that your Project Concept is attempting to address.

What America Makes Critical “Technology” Element (CTE) does this project address?

America Makes has identified eighteen (18) technology development CTEs. These CTEs align to the five (5) swimlanes that compose the America Makes Manufacturing Technology Roadmap.

Each project should develop a solution/new technology that solves a technical challenge related to one of these CTEs.

We understand that your project may address more than one swim lane and CTE. If this is the case, please list it in the box with the label “Is there a secondary America Makes Critical Technology Element (CTE) that this project addresses?” It is not necessary for your project to address two CTEs.

Executive Summary

Write a one paragraph (no more than 200 words, 1000 characters) description of the proposed project, its importance, and potential impact. Think of this section as a high-level overview for the project.

ASTM F42 Process Type(s)

List the F42 Process Type(s) that you anticipate you will work on the project. It is not necessary at this point in time to have the process type finalized although it will be required at the final proposal stage. Select from the dropdown. If you anticipate addressing multiple F42 Process Types select the second type from the second dropdown.

Material(s)

List the Material(s) that you anticipate you will work on the project. If you are addressing multiple materials please list them within the text box separated by commas.

Equipment/Machine Type(s)

List the Equipment/Machine Type(s) that you anticipate you will work on the project. If you are addressing multiple pieces of equipment please list them within the text box separated by commas.

Project Start and Project End Phase

We are interested in understanding the 1) current maturity of the technology that you plan on developing, as well as the 2) anticipated development stage of the technology at the end of the project. Please estimate this in both:

- **TRL** – Technology Readiness Level 1-9 to assess the technology readiness (America Makes focuses on bridging the gap on developing technologies in TRL 4-7). Find definitions [here](#).
- **MRL** – Manufacturing Readiness Level 1-10 to assess the manufacturing readiness. Find definitions [here](#).

Free Response Questions

This section is used to gain an in-depth understanding of this project, the intellectual property (IP) that it is intended to generate, and how that IP will be utilized as a result of the project.

Each one of these questions is split into two distinct parts:

1. What: What is your plan in response to the question
2. Why: Why does your team believe it is important to do this activity

These questions are aimed at addressing two (2) of America Makes core values: 1) Technology Development and 2) Technology Transition and Commercialization.

No answer should be longer than 100 words, 500 characters.

A.1) What technical challenge does this project intend to address?

America Makes looks for projects that will develop technology to address specific technical challenges relevant to AM. For this Project Call, America Makes has identified three (3) specific topics, outlining specific challenges. Refer to the RFP for additional details on the technical topics included within the Project Call.

A.2) How will the technology/solution developed in this project (the end result of the project) address the technical challenge?

This question is aiming to understand two aspects of the project:

- 1) What does this project intend to develop/create? We want to understand what you anticipate you will achieve. Examples include: build a new multi-material printer, create a new alloy blend that can withstand sub-zero temperatures, etc.
- 2) Why is this important? We want to understand how your technology development/solution will resolve the root cause of the technical challenge.

A.3) What impact will the product/solution created in the project have?

America Makes is aiming to create a positive impact in two principle areas: 1) defense sustainment community and 2) the larger American manufacturing base. We want to give you space in this question to explain what impact the product/solution that you develop in your project will have in these areas. Ground your response in quantifiable measures. Then explain why this impact is important and how this will impact change the way in which the American manufacturing base and commercial and public-sector supply chains function in a beneficial manner.

A.4) Do you have research/data (internal or external) that indicates this will be a successful project? If so, please describe.

This question provides space for you to prove why you believe your team will be able to develop the technology/solution. This question specifically targets:

- 1) What research/data/studies/prototypes, or any other like material, your team has that leads you to believe this will be a successful project
- 2) Why exactly that material is relevant to the technology/solution?

We are not looking for an exhaustive list of journals and research, but the most powerful, relevant examples, which clearly connect to your project.

A.5) Does the market understand the value in this effort? If so, why? If not, how do you intend to educate the market to demonstrate the economic value proposition?

A critical component of a market's willingness to transition and commercialize a technological development is in its understanding of a technology's economic value. This question is used to develop the reviewer's understanding of the maturity of the market – does the market understand why the technology is valuable and why it should adopt the technology?

If you believe the market has a sufficient understanding of the technology and why it is economically advantageous for it to adopt it, explain why here. This can be explained through a variety of ways, including, but not limited to: citing articles and scholarly journals, or stating how the targeted market is anticipating to employ it.

If you believe the market does not understand how the benefit of the technology, explain why. Is there a lack of understanding around the technology – i.e., no materials available about the technology? Is this a new market for the technology, so the market may not understand why this technology would be applicable to them?

Follow this with:

- 1) What you plan to do to educate the market – i.e., what would the education be about?
- 2) Who within the market would you specifically target – SMEs, specific sectors, etc.

Why:

- 3) Why would you specifically target this segment of the market?
- 4) Why is this type of or approach to training the best for this market?

A.6) Will the technology/solution replace a current product or solution? If so, what is the difference in economic and technological performance?

This question aims to understand if the technology or the solution that is being developed is similar to anything that is currently in existence, and if it is, why someone would use this technology/solution over the existing product. The answer should be grounded in economic and technological analysis. Example justifications include: the project will create a product that is 5x cheaper, or it will enable a process that is 10x faster with 2x more reliable quality, saving companies 5x annually.

If the project does not replace a product or solution, explain in broader terms what you believe the impact of the project will be to users in economic and technological performance.

A.7) How do the interested parties intend on commercializing the technology/solution created by the project?

This question focuses on understanding if there are any commercial organizations interested in transitioning and commercializing the technology/solution. In this question, focus on:

- 1) Have any manufacturing organization(s) expressed interest in commercializing this work? If yes, list the organizations. If no, what sectors do you believe should be interested in the work? Limit responses to the top three sectors.

- 2) Have these sectors expressed interest in a variety of applications, or is there just one application that they are interested in? List the top three applications the sectors are interested in.
- 3) Will they need to continue to develop the technology to commercialize it? Or will they just need to refine the application?
- 4) What impact will commercializing the technology have?

Applications & Uses

This section is intended to understand the potential applications that the technology developed in this project can be applied to. Include up to three (3) applications.

In the *Description of Application*, be creative in your thoughts about how a commercial/public sector organization may apply the technology. Provide one sentence about what the application will be and one sentence about how the project's IP will be applied.

In the *Stage of Application Development, Existing Prototype, etc.*, provide, to the best of your ability, the current state of development of that application, which can range from conceptual to prototype testing, and current product on the market.

B. Project Approach

The *Project Approach* asks specific, direct questions to capture how proposal teams intend to execute the projects they are proposing. This is important for America Makes to understand to ensure that what project teams are proposing is realistic.

All responses in this section are **limited to a 150 word response**.

Free Response Questions

B.1) Describe the Project's Scope of Work.

Outline the high-level plan of what your team anticipates delivering in response to this project.

B.2) Describe the project's approach to developing the new technology/solution.

What are the high-level tasks that your team plans on conducting in order to develop the technology/solution. These can include specific tasks or milestones that you plan on reaching. Each task/milestone does not need to be explained in depth, but should be clear and logically sequenced.

Please explain if multiple team members will be working on the tasks, or if specific team members will be working on discrete tasks.

B.3) What technical challenges do you anticipate in this project? How will you overcome these technical challenges? (Additional resources, etc.)

In the development of the technology/solution, we expect there to be technical challenges/barriers due to the advanced nature of the solutions. It is important for us that projects are able to adapt to meet these challenges and, if necessary, change the course of the project to adapt to the technical challenge.

Use this section to highlight one to two technical challenges that you expect your team to face. In this description, highlight what the technical challenge is, why you expect it to be a challenge your team faces, and how you anticipate overcoming this technical challenge.

B.4) Describe the likelihood of impact to a USAF organization.

The “likelihood of impact” is a critical aspect of determining how the project team intends to transition/commercialize the results of the technology development/solution. At this point in time, we do not expect a fully detailed plan, but please provide a synopsis of the:

- The market entry strategy
- How the project will be transitioned
- Targeted maturity level of technology for transition
- Window of opportunity

B.5) Describe the likelihood of impact to DoD supply chain partners.

An Economic Development Plan (EDP) articulates the impact that a technology/solution will have on the American AM infrastructure supply chains. Explain how you anticipate your project to deliver results that will impact American AM infrastructure supply chains, particularly identifying specific supply chain partners and the impact it will have on them, as well as the applications relevant to the commercial industry and public sector.

B.6) Summarize the team members (strengths, resources to be leveraged).

Highlight the key contribution that each organizational team member will bring to this project. The contributions can include, but are not limited to, capabilities, facilities, and experiences.

B.7) Estimate the Project Length and Cost.

Provide a rough-order of magnitude (ROM) estimation of how long you expect the project to take, breaking down the estimation into two (2) distinct parts: 1) technology/solution development and 2) technology transition. Please note that these segments can overlap. Proposed projects should have a total period of performance of less than 22 months with 2 months allowed for final report generation. NO project plan should extend beyond 24 months of the total effort. Shorter periods of performance will be accepted.

Provide a rough estimate for how much you expect the project to cost for each segment of the project. A proposed project must not exceed the funding profile outlined in the RFP. To receive federal funding, projects must include a cost share from the project team consisting of at least 1:2 match of the federal funding from non-federal funding sources. Meaning for every \$1.00 of federal funding requested a minimum of \$0.50 cost share must be provided by the project team.

Please note that we do not expect detail cost for timing calculations at this point of the Project Concept Phase of this process.

C. Project Justification

The *Project Justification* section provides specific questions that will be used for America Makes reviewers to score the Project Concept against. The America Makes reviewer will use both the “explanation” in the *Project Justification* and the answers in the *Project Profile and Approach* to determine their score.

This section focuses on 2 groups of questions:

- 1) [Technology Development](#): Identify the specific technical challenge related to AM this project will address and the solution the project will develop.
- 2) [Technology Transition and Commercialization](#): How the project team intends to transition/ commercialize the project to impact the American Manufacturing base.

Aspects of the *Asset Profile* should be used in the explanations. The explanations should be clear and concisely written, focusing solely on the most important facts. Every question should have an explanation.

Explanations should not exceed 100 words.

1. Technology Development

The section focuses on the specific technology development/solution that the project will create, and how the project will solve that technical challenge, emphasizing clarity in the vision of the intended solution.

1.1. Will the technology/solution developed address a specific technical challenge?

Clearly articulate the technical challenge related to AM the project will address. Link the technical challenge to the specific project call topic and requirements.

1.2. Will the technology/solution developed provide significant impact to the American Manufacturing sector?

Outline how you believe this project will impact the American Manufacturing sector i.e., create a new capability for manufactures so they produce new products, increase the efficiency of existing processes to reduce costs, etc.

1.3. Will the technology developed provide significant impact to the commercial and public-sector supply chains?

Outline what impact you believe this project will have on supply chains i.e., reduce lead time, help optimize inventory levels, etc. This impact should include impact to the sustainment community.

1.4. Is there a clearly defined vision of the new technology/solution that this project will develop to solve the technical challenge?

It is critical that all project teams have a clear vision of what technology/solution they intend to create. The justification for this question should not focus on how the team intends to get to that point – but rather the advancement the team will develop – e.g., a new alloy blend that can withstand 200 degrees once printed.

1.5. Is there a clearly defined way to measure the team's success in developing the technology/solution?

The team should be able to define one (1) to two (2) measures of how it anticipates it will be able to quantifiably measure the IP's success in addressing the technical challenge.

1.6. Will the technology/solution provide a major "breakthrough" in how things are done?

This question is intended to discern if the technology/solution created in the project will be an evolutionary change (an improvement on the existing technology), or a revolutionary change (a completely new technology).

If you believe you are creating an evolutionary change, outline what existing technology/solution and how this technology/solution will evolve it in the justification. If you are creating a revolutionary change, concisely explain why the technology/solution is unique in the justification.

1.7. Is there clear ownership of the IP (i.e., no legal conflict)?

Let us know if within your team and the institutions that your team members represent, if there is any doubt of the ownership of the IP. For example, do you anticipate any legal issues? Are legal agreements already in place or in draft form?

2. Technology Transition and Commercialization

This section focuses on questions specific to how the technology/solution developed by this project will be applied to the wider American Manufacturing base to make American manufacturing more competitive.

2.1. Have DoD supply chain partners expressed an interest in the effort?

We want to understand how much demand there is for the project within the DoD and America Makes membership. Please let us know if any government partners or members have expressed an interest in the project, who that member is, and how they expressed their interest in the justification.

2.2. Does the Project Team have relationships with potential customers in the Air Force Sustainment community interested in the effort?

We want to understand how much demand there is for the project within the Air Force Sustainment community. Please let us know if there are any organizations that you have relationships with any potential customers for the technology/solution, who that organization is, and why you think they will be a customer.

Limit your justification response to the two (2) strongest potential customers.

2.3. Are specific applications and uses for the technology/solution clearly defined and targeted to a USAF organization?

Are there uses for the applications mentioned in the *Applications & Uses* section in *Project Profile*, and will those uses be developed with a specific customer and markets in mind? In the justification, mention the application, the use, and the specific USAF organization that will be targeted with the development of the use.

Limit justification response to the two (2) strongest application uses.

2.4. Are there comparable or like assets that compete with this technology/solution?

We want to understand if the technology or the solution that is being developed is similar to anything that is currently in existence. In the justification, please list what similar product/solution exists and concisely outline why it is similar and how it may compete.

2.5. Will the technology/solution complement existing products or distribution channels?

We want to understand if there are any synergies that will accelerate the commercialization of the technology/solution. In the justification, include what similar products/distribution channel exists and why you believe it to be similar. When responding, think about how a current distribution channel can be leveraged to distribute

an application for the technology/solution first, then think, within that distribution channel are there any products that would naturally bundle with that application to promote sales.

2.6. *Is there a known "killer application" associated with the effort?*

A "killer application" is a market defining application that is so necessary or desirable that it can substantially increase the sale of the technology/solution application. Please explain if there is a killer application associated with the application, and why it is market defining.