NSF E[1]ngines' Governance and Management Plan

A. Background

1. Rubric Background

The NSF Engines program adopted rubrics to inform the design and content of the component parts of the strategic and implementation plan, establish expectations for outcomes, and as the program or project continues, estimate progress toward Engines' goals. They also foster discussion among new and established multi-disciplinary teams within Engines, among the group of award recipients, and between NSF program staff and Engines.

Rubrics are composed of three components: topics, criteria, and stage of development (Figure 2). Topics are conceptual areas of the program or project essential to its successful development and implementation. For the Engines program, examples of topics are research and development or ecosystem building. Criteria are characteristics or descriptors inherent in the topics, and they are often presented sequentially for a topic. Stage of development describes steps to fully achieve a criterion. Each stage of development builds on the previous stage, moving from initial steps to a mature state (left to right).

Engines will follow an iterative path of planning, drafting plans, approving them, evaluating the implementation of their plans, and planning again to make necessary adjustments. The stages of development thus begin in drafting the plan (preliminary

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stage), continue with finalizing and approving the plan (intermediate stage), and then implementing the plan (operational stage). The next round of planning needs the experience of implementation. The most advanced stage of development in this rubric (established) is when the Engine assesses how the plan was implemented and if it determines that changes are needed, amends the plan. An Engine reaches this stage of the rubric when their plans have been implemented for a sufficiently long period of time to test the given criteria. It is suggested that this length of time be at least three months. As the new period begins, the Engine will draft amendments to the original plans, thus returning the preliminary stage of this rubric and from there on, the planning stages start again.

Topic	Criteria	Stage of Development				
		0. No Evidence	1. Preliminary	2. Intermediate	3. Operational	4. Established

Figure 2. Rubric Composition

Rubrics make transparent the essential components of program, project, or policy development and implementation. Rubrics are intended to promote honest assessment of the state of an Engine's progress and identify areas that may benefit from additional consideration. They are not intended to evaluate the importance or value of an Engine.

2.   Governance and Management Plan Background

Corporate governance "refers to patterns of rule within businesses—that is, to the systems, institutions, and norms by which corporations are directed and controlled."[2] The specific systems, institutions, and norms of a corporation originate with its governing body, the board of directors. The board of directors "collectively manage the company's affairs and reach decisions by a majority vote but also have the right to delegate any of their powers, or even the whole management of the company's business, to one or more of their number."[3] The management of the corporation is thus constituted by the board of directors, the chief executive officer (CEO), and the leadership team.

A Governance and Management Plan (henceforth used interchangeably with Governance Plan) describes the establishment of the organization and the appointment of the board of directors and the management team. That plan also describes the roles and responsibilities of board members, the CEO, and the leadership team, as well as the relation between these offices. The Governance and Management Plan includes a general description of the policies necessary for the operation of the organization and the actions

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2   *Encyclopedia Britannica, Online*, "Governance," Accessed April 30, 2024.

3   Ibid., "Management and control of companies," Accessed April 30, 2024

taken for the continuity of business under a set of common contingencies (such as the resignation of a board member or insolvency).

The NSF Engines program prescribed that award recipients appoint a governing board (equivalent to the aforementioned board of directors), an advisory board (a body external to the Engine), and a leadership team led by a CEO who sits at the governing board but cannot preside over it. In addition, NSF required award recipients to deliver a Governance and Management Plan to codify the foregoing actions, organize the management team, and set the basic policies for the operation of the Engine.[4]

3.   Governance and Management Plan Rubric

The rubric presented in Section D below is designed to be used as a tool for Engines in the preparation of their Governance and Management Plan deliverable.

This section presents the rubric in four parts: the first and second parts describe the criteria for this rubric organized in two matrices; one matrix in a) below applies to the governance of the Engine as a whole, and the second matrix in b) applies to each of the main operational/programmatic units of the Engine. Each matrix is organized in two topics and each topic contains several criteria. Point c) describes the stages of development of the criteria as they apply to the planning process and point d) briefly describes how to propose new criteria per the specific needs of each Engine.

a. Regional Innovation Engine

- Plan for Engine leadership

    - *Governing Board*: Describe your plan for conforming a governing board, including the roles and responsibilities of board members. Your plan may:

        o Describe the relationship of the board to the advisory board and the CEO.

        o Include a general description of the professional profiles of board members.

        o Include a timeline for establishing the board, its duration, and procedures for replacing board members due to foreseeable and unforeseeable circumstances.

    - *Advisory Board*: Describe your plan for conforming an advisory board, including the roles and responsibilities of board members. Your plan may:

        o Describe the relationship of the board to the advisory board and the CEO.

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[4]   NSF terms and conditions.

- o Include a general description of the professional profiles of board members.
- o Include a timeline for establishing the board, its duration, and procedures for replacing board members due to foreseeable and unforeseeable circumstances.
- _CEO_: Describe your plan for establishing the office of the chief executive. Your plan should describe the roles and responsibilities of the CEO. Your plan may:
  - o Describe the relationship of the CEO with the governing and advisory boards.
  - o Include a general description of the professional profile of the CEO.
  - o Include a timeline for hiring, the tenure of the CEO, and procedures for replacing the CEO due to foreseeable and unforeseeable circumstances.
- _Leadership Team_: Describe your plan for establishing a line of senior leaders who will directly report to the Engine's CEO. Your plan may describe in general terms the units under that leadership, their role in the Engine, and their relation with one another.
- Plan for Engine governance and operations
  - _Charter_: Describe your plan for drafting and approving the charter of the Engine. This charter may include the roles and responsibilities of the CEO and two board members (per descriptions above), and other necessary elements of a charter, including continuity of business, dissolution, capital, etc. As charters are legal documents, the Engine may choose to engage legal counsel to draft the charter.
  - _Governance Plan_: Describe your plan for drafting and approving the Governance Plan for the Engine. While the charter establishes the Engine as an organization, the Governance Plan describes, in general terms, the organization of the Engine and the main responsibilities of the leadership team. The Governance Plan also describes in general terms decision rights allocated to each unit within the Engine. The Governance Plan may include provisions for:
    - o Data governance including data sharing
    - o Cybersecurity
    - o Research security

The Governance Plan may also consider aspects of work culture—such as fostering a culture of innovation—and of internal policies, namely:

- o Conflict resolution (internal and with sub-contractors)
- o Processes for international collaboration/partnerships
- o Hiring/DEI policy/DEI culture
- o Individual Engine evaluation and self-assessment of progress

- *Financial and resources plan*: Describe your plan for managing the financial and other resources of the Engine. At minimum, this plan should include a balance sheet and an income statement along a time horizon of 5 years (a cash flow can also be included). The plan should articulate in general terms for how, resources financial and otherwise, will be put to the service of the Engine's goals.

- *Sustainability plan*: Describe your plan for sustainability of the Engine. At minimum the plan is two-fold:

  - o The plan states in general terms how the Engine will become financially sustainable over time.

  - o The plan also states the actions that the Engine will take to contribute to social and environmental sustainability; these may be inherent to the core functions of the Engine and they may also be extension activities, such as community education, voluntarism, as well as recycling and minimizing carbon footprint.

b. Leadership Unit X

Section B will be completed by each member of the leadership team for the unit they manage. They should do this in coordination with the CEO.

Unit X is the generic name of each of the units in an Engine with leaders reporting to the CEO. Each Engine will adopt an organizational structure that best suits their needs. Consequently, without assuming any specific structure that Engines will adopt, Unit X is sufficiently flexible to fit any organizational structure. For instance, an Engine may have one leader for each of the following functions: research and development, translation, workforce development, inclusive engagement, and an administrative manager. In this example, the Engine would complete five unit sell-assessments, one for each of its units.

Engines should contact their NSF cognizant program director to confirm the number of units for which they will complete this second matrix.

The topics and criteria are similar to Matrix 1, but more specific to units within the Engine:

- Plan for Unit X leadership
  - *Unit X Leader:* Describe your plan for establishing a Unit X within the Engine. Your plan should describe the roles and responsibilities of the Unit X leader. Your plan may:
    - o Describe the relationship of the Unit X Leader and the CEO.
    - o Include a general description of the professional profile of the Unit X Leader.
    - o Include a timeline for hiring, the tenure of Unit X Leader, and procedures for replacing them due to foreseeable and unforeseeable circumstances.
  - *Unit X Organization:* Describe your plan for organizing Unit X within the Engine. Describe the main positions to be hired for this unit, their main responsibilities, and decision rights.
- Plan for Unit X governance and operations
  - *Unit X's Governance Plan*: Describe your plan for drafting and approving the Governance Plan for Unit X. While the Engine's Governance Plan describes the organization of the Engine and the main responsibilities of the leadership team, this unit's Governance Plan focuses on the organization and operation of this unit within the Engine. Though they are different documents, the Engine Governance Plan and Unit X's Governance Plan should align. This plan may include the policies of the unit. This plan may also include the anticipated milestones in the unit's development.
  - *Unit X's financial and resources plan:* Complementing the unit's Governance Plan, this plan describes the unit's resources, at least, over a 5-year time horizon. The plan should articulate how, resources financial and otherwise for this unit, will be aligned with the Engine's goals.

c. Open Response Rubric

The Open Response Rubric is an optional rubric provided as a free space for you to offer additional topics or criteria not captured in the Governance Plan Rubric.

B. Instructions to Complete the Rubric

To complete the deliverable, Engines should submit two documents to NSF: the written Governance and Management Plan that will include a section for each criterion on the rubric and the Self-Assessment Index for each criterion listed on the rubric.

The process starts with the Governance and Management Plan; use the Governance Plan Rubric (Section D) to make sure all elements of the plan are in place. Then, fill out the Self-Assessment Index (Appendix A) for each criterion in the Governance Plan Rubric. Declare a stage of development for each criterion in Section B.3.a and B.3.b and justify your choice of stage with text from your Governance Plan and any other pertinent information. Please mark the page of the excerpt in your Governance Plan so that this index maps criteria with their respective excerpts. If you would like to share information that does not adhere to the criteria provided here, do so in the Open Response Template at the end of the rubric.

- **Content for the Governance and Management Plan Rubric**. Any information germane to the Governance Plan should be used to respond to the rubrics. Use of information verbatim from prior documents is acceptable to keep administrative burden as low as possible.

- **Framework for assessing each criterion**. Each criterion in the rubric should be examined through the lens of its description in Section B.3. of this document. Each criterion in the rubric should be applied to the Engine's Governance and Management Plan.

- **Determining the stage of development**. The selection of a given stage of development assumes that prior stages have been completed. Many of the criteria are anticipated to be at the preliminary, possibly the intermediate stage of development, and future analyses will show advancement over time. If a criterion is not applicable or is a task not yet started, please indicate so in the "No Evidence" column.

- **Documents constituting the NSF deliverable**. Two documents: The Governance and Management Plan itself and the Self-Assessment Index (Appendix A) that maps the criteria of the rubric with supporting text from the plan.

- **Submission process**. Upload content to your NSF Engine's SharePoint site within the following folder path: "Award Oversight – Programmatic → Strategic and Implementation Plan → Drafts of Component Plans → Governance and Management Plan". Email the cognizant and second Program Directors for your NSF Engine after uploading the documents.

- **Questions about the Governance and Management Plan Rubric**. STPI will hold a webinar to introduce this rubric to Engines and will participate in NSF office hours to resolve further doubts. Award recipients should direct Engine-specific questions to their cognizant and second Program Directors. If you want to meet with STPI outside of the earlier noted webinar or office hours, please organize this through your cognizant and second Program Directors.

C. Governance and Management Plan Rubric

Section A. Regional Innovation Engine

Topic	Criteria	Stages of Development				
		0. No evidence	1. Preliminary	2. Intermediate	3. Operational	4. Established
Plan for Engine Leadership	Governing Board	No evidence	First draft of plan	Plan finalized and internally approved	Plan is implemented	Plan is assessed, any changes recommended
	Advisory Board	No evidence	First draft of plan	Plan finalized and internally approved	Plan is implemented	Plan is assessed, any changes recommended
	CEO	No evidence	First draft of plan	Plan finalized and internally approved	Plan is implemented	Plan is assessed, any changes recommended
	Leadership team	No evidence	First draft of plan	Plan finalized and internally approved	Plan is implemented	Plan is assessed, any changes recommended
Plan for Engine governance & operations	Charter	No evidence	First draft of plan	Plan finalized and internally approved	Plan is implemented	Plan is assessed, any changes recommended
	Governance plan	No evidence	First draft of plan	Plan finalized and internally approved	Plan is implemented	Plan is assessed, any changes recommended
	Financial and Resources plan	No evidence	First draft of plan	Plan finalized and internally approved	Plan is implemented	Plan is assessed, any changes recommended
	Sustainability plan	No evidence	First draft of plan	Plan finalized and internally approved	Plan is implemented	Plan is assessed, any changes recommended

Section B. Decision Unit X

Topic	Criteria	Stages of Development				
		0. No evidence	1. Preliminary	2. Intermediate	3. Operational	4. Established
Plan for Unit X Leadership	Unit X Leader	No evidence	First draft of plan	Plan finalized and internally approved	Plan is implemented	Plan is assessed, any changes recommended
	Unit X Organization	No evidence	First draft of plan	Plan finalized and internally approved	Plan is implemented	Plan is assessed, any changes recommended
Plan for Unit X governance & operations	Unit X Governance plan	No evidence	First draft of plan	Plan finalized and internally approved	Plan is implemented	Plan is assessed, any changes recommended
	Unit X Financial and Resources plans	No evidence	First draft of plan	Plan finalized and internally approved	Plan is implemented	Plan is assessed, any changes recommended

(Optional) Other Criteria Relevant to your Engine

Engines have the option to propose additional criteria that are relevant to them but not included in the rubrics above. Any new criterion proposed should be named, described, and accompanied by the rationale for its inclusion. The related description of the criterion's stages of development is optional.

Example Format

Topic	Criteria	Reasoning

Example Outline for the Governance and Management Component Plan

The following is an example outline for organizing this section of the Strategic and Implementation Plan primarily using the "Topic" headers in the above rubric as sections and the "Criteria" headers as subsections. NSF Engine teams are NOT required to use this outline.

I. Introduction
II. Plan for NSF Engine Leadership
    A. Governing Board
    B. Advisory Board
    C. CEO
    D. Leadership team

III. Plan for NSF Engine Governance and Operations
    A. Charter
    B. Governance plan
    C. Financial and Resources plan
    D. Sustainability plan

IV.   Plans for Each Unit in the NSF Engine [Provide an overall description of the units within the NSF Engine.]
    A. Unit A [Instead of Unit A include the name of the unit. For example, Use-inspired R&D, Translation of Innovations to Practice, or however the NSF Engine is organized.]
        1.   Plan for Unit A
           Leadership
                a. Unit X Leader
                b. Unit X Organization

        2. Plan for Unit A Governance and Operations
                a. Unit X Governance plan
                b. Unit X Financial and Resources plans

[Add a subsection for each unit]

Appendix A. Self-assessment Index

Section A. Regional Innovation Engine

Topic	Criteria	Engine self-assessment*	Explanation of self-assessment**
Plan for Engine Leadership	Governing Board		
	Advisory Board		
	CEO		
	Leadership team		
Plan for Engine governance & operations	Charter		
	Governance plan		
	Financial and Resources plan		
	Sustainability plan		

* Engines should indicate their self-assessment of the Stage of Development achieved in the deliverable.
** Refer to the text in your Governance Plan; note the page of the excerpt. You may also use any other documents that support your self-assessment.

Section B. Decision Unit X

Topic	Criteria	Engine self-assessment*	Explanation of self-assessment**
Plan for Unit X Leadership	Unit X Leader		
	Unit X Organization		
Plan for Unit X governance & operations	Unit X Governance plan		
	Unit X Financial and Resources plans		

* Engines should indicate their self-assessment of the Stage of Development achieved in the deliverable.
** Refer to the text in your Governance Plan; note the page of the excerpt. You may also use any other documents that support your self-assessment.

Other Criteria Relevant to Your Engine

Topic	Criteria	Reasoning

Appendix B. Literature Review

The preparation of the Governance and Management Plan is not a subject of scholarly research but rather is the domain of business and legal practitioners. There are no theoretical debates on writing this sort of plan; rather, there are reference textbooks that Engines can consult as they prepare their Governance and Management Plan. In lieu of a literature review, some useful textbooks are here recommended.

The classic text used in law schools for *Starting and Managing a Nonprofit Organization* was written by Bruce Hopkins (2013). Likewise, *The Law of Business Organizations* by Jonathan Macey and Douglas Moll (2020) includes a detailed description of actions and options for legally standing up an organization.

Details of a Governance Plan are discussed in business management textbooks, of which a didactic presentation is given in *Due Diligence Handbook* by Linda Spedding (2009). *The High-Performance Board*, by Dennis Pointer and James Orlikoff (2002), offers additional practical considerations when establishing a board of directors.

STPI's rubric is general in content and is intended to be suggestive of best practices; therefore, STPI's rubric should not be construed as business or legal advice. Engines are highly encouraged to seek professional legal counsel for chartering their organizations and preparing the bylaws and internal policies.

A. Textbook Resources

Hopkins, Bruce R. (2013). *Starting and Managing a Nonprofit Organization: A Legal Guide, 6th Ed*. John Wiley & Sons.

Macey, Jonathan R. and Douglas K Moll (2020). *The Law of Business Organizations, Cases, Materials, and Problems,* 14th Ed. West Academic Publishing.

Spedding, Linda S. (2009). *The Due Diligence Handbook: Corporate Governance, Risk Management and Business Planning*. Elsevier.

Pointer, Dennis D. and James E. Orlikoff (2002). *The High-Performance Board: Principles of Nonprofit Organization Governance*. Jossey-Bass a Wiley Company.

B. Related Literature on Innovation Hubs

Innovation studies—the body of literature most relevant to Engines—is not focused on the operational level of the governance of innovation hubs. That literature instead

explores the relation between the actors of innovation, the formation of innovation hubs, the outcomes of various hub configurations, and the role of hubs in the emergence of innovation ecosystems. The following is a list of selected readings that may help Engines place their governance planning in a larger context.

Feldman, Maryann P. and Nichola Lowe (2017). "Innovation, governance and place." Chapter 42, in *Elgar Companion to Innovation and Knowledge Creation*. Edward Elgar.

Johnson, David and Mark Muro (2024). *Financing Transformation: How to Sustain Place-based Economic Development Beyond Early Federal Awards*, February 23, Brookings: Washington DC. Accessed April 30, 2024 at https://www.brookings.edu/articles/financing-transformation-how-to-sustain-place-based-economic-development-beyond-early-federal-awards/

Morisson, Arnault and Mathieu Doussineau (2019). "Regional Innovation Governance and place-based policies: design implementation and implications." *Regional Studies, Regional Science,* 6(1), pp. 101-116.

Youtie, Jan and Phil Shapira (2008). "Building an innovation hub." *Research Policy* 37 (8) pp 1188-1204.