SRA INTERNATIONAL
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W211: Letters of Intent, White Papers, Preproposals, Abstracts, Logic Models and Quad Charts: The Role of Short Papers in Successful Grant Applications

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Learning Objectives

- List many of the U.S. funding agencies that require these short papers
- Describe the multiple purposes of these short papers in the grant process
- Differentiate the many types of short papers required by grant agencies
- Describe strategies to improve the preparation and success of these documents
- Apply knowledge of these qualities and strategies to help ensure a successful grant application process
- Convey this information and strategy to PIs

Your Presenter: Marjorie Piechowski

- SRAI Past President and Distinguished Faculty
- Over 35 years experience at three Midwest universities in
  - research strategy and development, for individual and large-scale collaborative grants
  - faculty workshops and mentoring in grantsmanship, especially for new faculty
  - proposal development and pre-award services
  - research compliance and training
  - post-award oversight

  - now, independent grant consultant for U.S. and global colleges and universities

Purposes of These Short Papers

- Preliminary screening of potential applicants
- Selecting/eliminating reviewers
- Managing conflict of interest
- Estimating budget requests
- Allocating appropriate staff
- Gauging interest in the topic
- Gathering data for future funding opportunities (sense of the market) or for future budget requests to Congress

U.S. Agencies That Use Short Papers

- National Science Foundation
- National Institutes of Health
- National Endowment for the Humanities
- National Aeronautics and Space Agency
- U.S. Department of Energy
- U.S. Environmental Protection Agency
- U.S. Department of the Interior
- U.S. Department of Agriculture
- U.S. Veterans Affairs
- U.S. Department of Defense and many of its branches
  - DARPA
  - Army Research Lab
  - Office of Naval Research
  - Air Force Office of Scientific Research
  - U.S. Coast Guard

Other Agencies and Organizations

- International Research Funders
- Private Foundations
- Not-for-profit organizations
- Congressional Offices
- Industries
- Federal laboratories
- State and local grant agencies
- *Internal grant programs*
- *Limited submission grant opportunities*

Letter of Intent

- Multiple purposes:
- Estimate number of applications to prepare agency staff
- Identify potential reviewers
- Determine applicant's eligibility for full grant
  - Appropriate institution/adequate infrastructure
  - Qualifications of PI and proposed team
  - Appropriate partnerships or cost-sharing
  - Fit of topic with agency program
  - Geographical distribution

Letter of Intent, continued…

- May be a screening document to invite full proposal, especially NSF, DOE, DOD
- May/may not receive written, oral or telephone reviews
- May be asked for more details before agency decides about next stages of proposal submission
- May request budget total without details or no budget information at all
- Often submitted directly online by PI
  - NSF sent by PI to specific program
  - DOD sent by PI directly to Program Officer

Letter of Intent, continued…

- Format and Content
  - May or may not have required content or length
  - Typically 1-2 pages, addressed to the program officer, signed or submitted by the PI
  - Minimum Content:
    - Number and title of the funding opportunity
    - Title and brief description of the proposed project
    - Name, affiliation, and contact information for proposed PIs and Co-PIs
    - Participating institutions, if applicable

NSF's Reasons for Letters of Intent

- "Reduce the proposers' necessary effort in proposal preparation when the chance of success is very small.

  "This is especially true of exploratory initiatives where the community senses that a major new direction is being identified, or competitions will result in a small number of actual awards." … and …
- "Increase the overall quality of the full submission."

- Reduce program officers' workload?
- Deter inappropriate applicants from applying?
- Save PI time and grief?

White Paper

- Short document that
  - Answers a funding agency's need
  - Poses a technological problem and solution
  - Helps agency decide to invite/not invite/fund
  - May be confidential to agency program officer
  - May not receive a response or review
  - May or may not lead to a proposal or grant
  - May be used by agency for internal purposes
    - Find reviewers
    - Find consultants
    - Validate their own research or technology
    - Impress Congress

Typical Format of White Paper

- Cover page (may be optional, may include abstract)
- Abstract—one paragraph, high-level overview
- Small sections, clear headings; usual sections include
- Introduction/background
  - What is the problem/question to be addressed
  - Why is it important to agency and/or proposer
  - How does proposer know about the problem
- Proposed solution
  - The current or basic solution
  - Your proposed solution or technology
    - several options with varying complexity, sophistication, time, cost, risk

White Paper Details

- Proposed solution, continued…
  - Use graphs, illustrations, sufficient detail to show that the solution and proposer can solve the problem
  - Include examples of previous/other research as proof that the solution can work
    - Case studies, comparisons, success stories, literature of proposer and others
    - Describe risks and risk management
      - What-if scenarios
      - Alternative approaches
      - TRL levels

White Paper Details, continued…

- Future direction/long-term focus
  - Clarify steps, timelines
  - Overall future of the problem/solution
- Long-term benefits/outcomes
  - To agency
  - To proposer
  - To society/nation/world
- Recommendations/results/conclusions
  - Prioritize proposed activities
  - Review recommended solution(s) and why
- Biosketches (maybe)
- References (maybe)
- Appendices (maybe)

Preliminary Proposals/Preproposals

- May be the first stage of a grant application or
- May be the second stage after letter of intent
- Often used to screen and then invite at this stage
- May have only internal agency review and/or peers
- NSF, DOE, DOD, ED, Robert Wood Johnson major users of preproposals
- Usually a mini-version of the full proposal
  - Typically 3-5 pages of narrative
  - Often same title, agency number, format as full proposal
  - May have a full budget
  - May require biosketches
  - May require references

Pros and Cons of Preproposals

- Pro: saves investigator's
  - Time: no need for full proposal unless invited
  - Anxiety: usually short turn-around decision
- Pro: allows risk-taking
  - with new ideas
  - with new agencies
    - Reviewer comments can help to improve the concept and make a more fundable proposal
- Con:
  - May disclose confidential/proprietary ideas
  - Concept may not be fully developed at this stage
  - Other problems or issues that you see?

Request for Information

- Purposes:
  - Used by funding agency/program to help shape future request for proposals
    - Document technical need for the competition
    - Elicit potential solutions to that need
  - Gauge applicant interest in the topic
  - Document need for program to Congress
    - Number of responses, nature of responses, estimated budget needs, type of solutions, benefits to funding agency, industry, research community

Proposal Abstracts

- Required by most funding agencies
- Immediately shows topic, approach, relevance
- Helps program officers select reviewers
- Forms reviewers' first impression of proposal
- Entered into permanent electronic database
- Becomes primary identifier of project
- Agencies use abstracts as press release, notice to politicians, or other publicity purposes
- Can also be called
  - Project Summary
  - Executive Summary
  - Technical Abstract
  - Project Overview

Abstract Audience/Readers

Who reads abstracts?

- Agency staff
- Highly technical, scientific peers
- Non-technical but professional peers
- Generalists/lay readers
- Public advisory council/board of directors
- Congress: staff, elected officials
- Local politicians
- Special interest groups
- General public

Components of Abstracts

- One or two sentences each on:
  - Subject: What is the project about?
  - Purpose and significance:
    - What is to be accomplished?
    - Why is this work important
      - to funder
      - to discipline
      - to society
  - Activities:
    - What will be done?
    - With what methods?

Components, continued

- Location of project, if relevant or requested
  - City, state, region, continent
- Target population and location of project, if relevant
  - Demographics of participants, including beneficiaries and/or subjects
- Expected outcomes:
  - What results will be produced?
  - How will results advance knowledge/state of the art in the discipline or the profession?
  - What will be long-term benefits/impact?

Agency Differences in Abstracts

- National Science Foundation
- National Institutes of Health
- U.S. Department of Education
- U.S. Department of Defense: DARPA
- National Endowment for the Humanities
- U.S. Environmental Protection Agency
- Private foundations
  - Robert Wood Johnson Foundation
  - The Camille and Henry Dreyfus Foundation

Agency Differences: National Science Foundation

- "Proposal Summary, not an Abstract"
  - Three distinct sections, on one page:
    - Overview:
      - Summarizes research topic, plan and approach
    - Intellectual Merit:
      - How the project contributes to scientific knowledge
    - Broader Impact:
      - How the project will benefit society

Agency Differences: National Institutes of Health

- Two separate documents, Project Abstract and Project Narrative, “to help the public understand the value of NIH-funded research.”
- NIH uses different definitions for these short documents than other federal agencies
- Each document serves different purposes and different audiences
- Both are entered into **RePORTER** and made available to the general public and the scientific community

National Institutes of Health

Project Summary/Abstract	Project Narrative
A succinct and accurate description of the proposed work	Communicates the public health relevance of the project to the public
30 lines of text or less	No more than 2-3 sentences
Should be informative to other persons working in the same or related fields and understandable to a scientifically literate reader	Use plain language understandable by a general audience
Include: the project's broad, long-term objectives and specific aims, and a description of the research design and methods. **Do not** include: proprietary or confidential information, or descriptions of past accomplishments.	Describe how, in the short or long term, the research would contribute to: the fundamental knowledge about the nature and behavior of living systems, and/or the application of that knowledge to enhance health, lengthen life, and reduce illness and disability.
If the application is funded, the summary/abstract will be available on **RePORTER**	If the application is funded, the narrative will be available on **RePORTER**

Agency Differences: U.S. Department of Education

- U.S. Department of Education
  - Requirements and format vary widely by ED program
  - Usually one page that may contain:
    - institutional information, contact person, title
    - objectives
    - budget summary
    - project outcomes
    - institutional overview
    - number/demographics of targeted population
    - competitive priorities
  - May also require a Logic Model

Agency Differences: DARPA and National Endowment for the Humanities

- U.S. Department of Defense: DARPA Young Faculty Award
  - "Write a 1-page executive summary."

- National Endowment for the Humanities Individual Fellowship: 1000 characters
  - "Provide a description of your project for a non-specialist audience."
  - "State the importance of the proposed work to larger issues in the humanities."

Agency Differences: Environmental Protection Agency

- EPA STAR Program: Project Summary (1 page)
  - Definition of technical challenge to sustainability
  - Development of innovative design approach with technical merit to address challenge
  - Discussion of how challenge and proposed design relate to sustainability, including People, Prosperity, and the Planet (P3)
  - Description of strategy for measuring results, evaluation and demonstration
  - Description of how P3 concepts will be used as an educational tool at the applicant institution
  - Supplemental key words

Agency Differences: Private Foundations

- Robert Wood Johnson Foundation
  - "In no more than 4000 characters (roughly 650 words), please summarize your proposed work in the text box below."
- Camille and Henry Dreyfus Special Grant Program in the Chemical Sciences
  - "A one-page equivalent of an executive summary that answers the following":
    - What problem does the proposal address?
    - Why is it important?
    - How will what is proposed address the issue?"

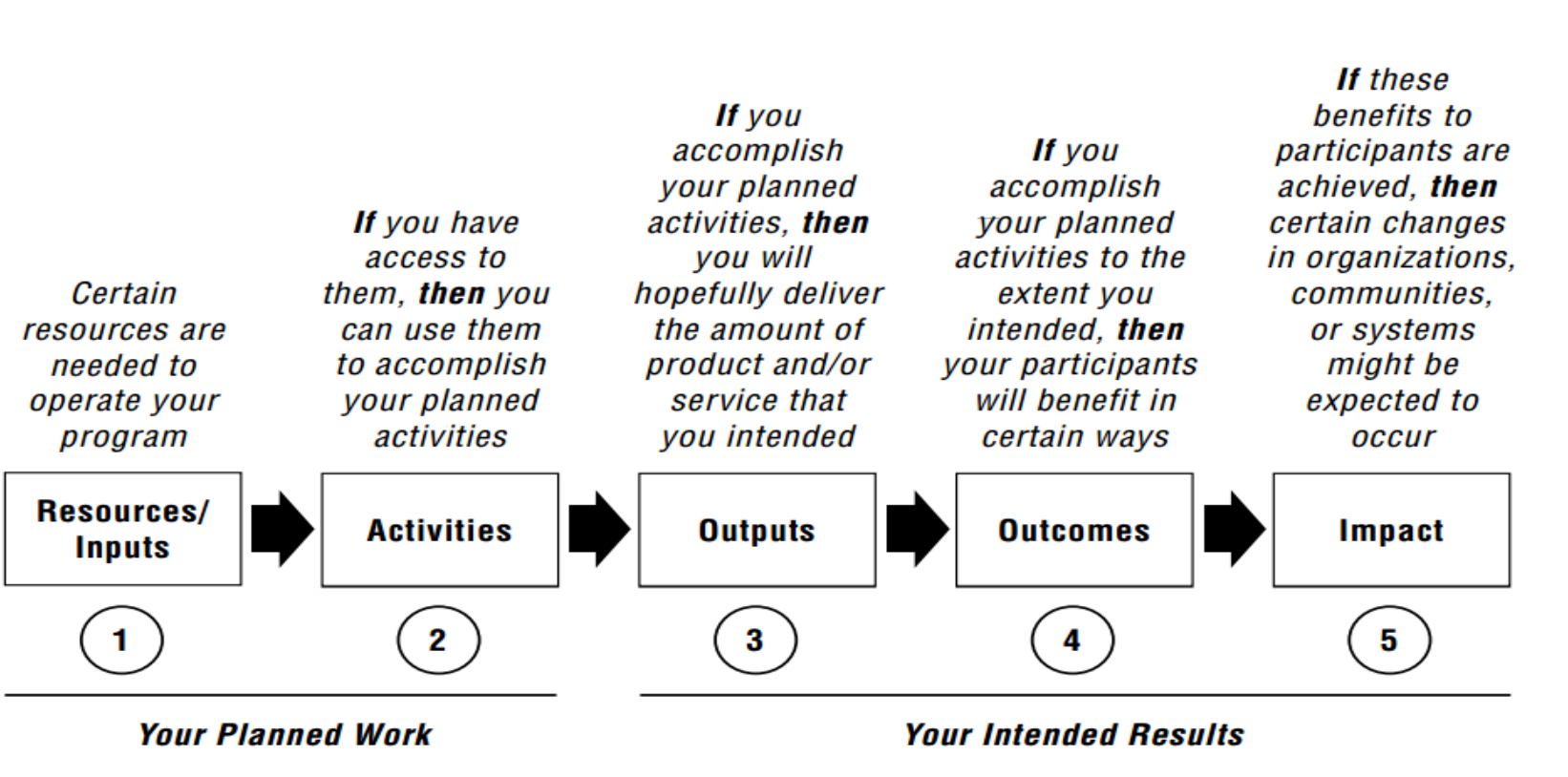
Trends in Related Documents

- More agencies are requiring logic models
  - Logic models visually show phases of the project
    - Inputs (Resources)
    - Activities (Processes)
    - Outputs (Evidence)
    - Outcomes (Expected changes and benefits)
- Many federal agencies, especially Defense, now require a Quad Chart

Logic Models

- May be part of the proposal or a preliminary screening document to determine whether the idea is a good fit with the agency
- Many forms and formats, from very simple to very complex
- Excellent resources available for developing logic models
- May be used as an internal tool for determine best candidates for limited submissions

Template for a Logic Model



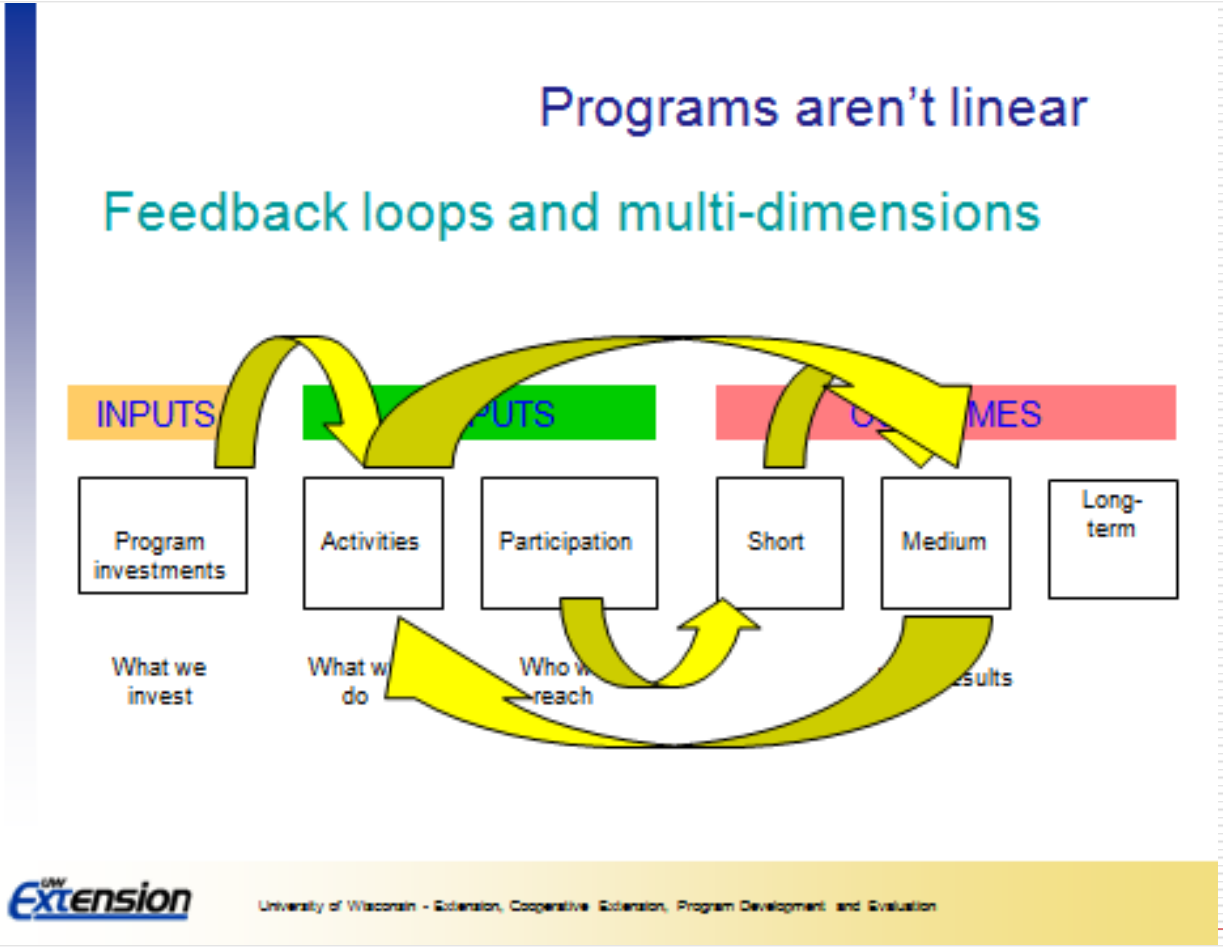
Example of Logic Model for Department of Education Grant

Inputs	Outputs *Activities*	Outcomes -- Impact *Short*	*Medium*	*Long*
1. DC-CAP study on retention strategies and best practices 2. Kalsbeek 4-Ps Framework 3. Noel-Levitz retention reports 4. UHV investments in new faculty, staff and facilities 5. Beckem II & Watkins research 6. Texas Workforce Commission 7. UHV first-time and continuing students	1. # of faculty trained 2. # of students in learning communities 3. #s of new on-line & hybrid courses 4. #s of students in outreach activities 5. # of first-year students retained to second year 6. new evaluation measures implemented	1. increased first-year student retention rates 2 increased 2nd year retention 3. increased student satisfaction (NSSE) 4. more on-line and hybrid courses 5. increased off-campus internship experiences	1. 90% of new students enter college-ready 2. increased graduation rates and shorter time to graduation 3. part-time students have more on-line course options 4. students show increased satisfaction with UHV	1. UHV graduates find successful career placement relevant to degree attained 2. UHV Hispanic students contribute to local economy and increase their own quality of life 3. UHV better prepared to serve all students, especially entering students 4. UHV Hispanic graduates enrich local community

Assumptions: UHV Hispanic enrollment will continue to increase; student readiness for college will continue to be a challenge. UHV will need to provide intensive support to ensure retention, graduation and career career success.

External Factors: Uncertain level of state support in the next five years; local career opportunities are abundant and UHV degree programs align with these employment areas; UHV will continue to enroll part-time and returning adult students as well as new first-year students

Another Logic Model Template



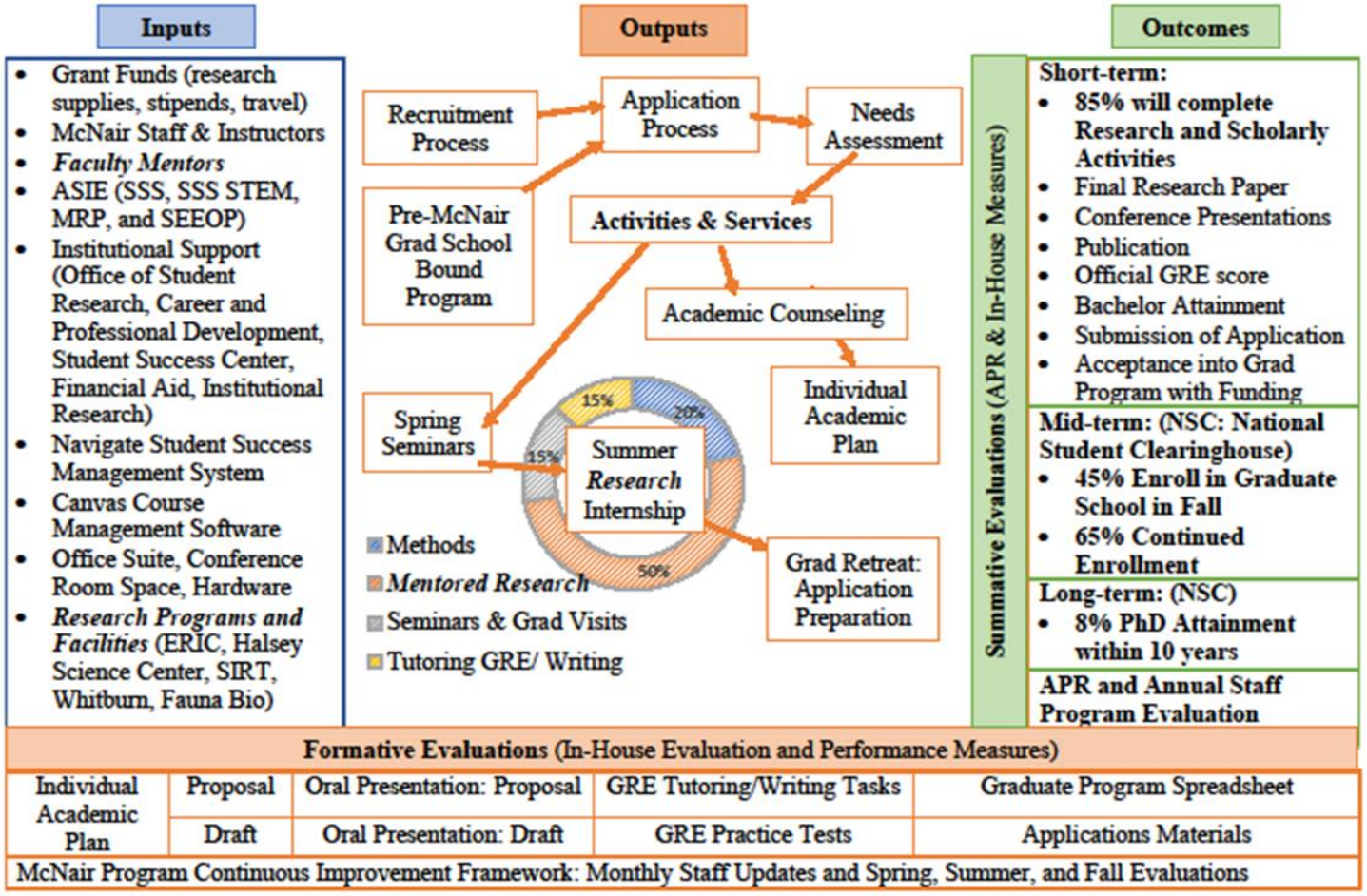
Information on Logic Models

- Introduction to Logic model http://www.youtube.com/watch?v=lLCNfDsdi9I&NR=1&feature=endscreen
- Logic model analogy (great 3 minute video) http://www.youtube.com/watch?v=JFYQoHvNLQQ

If you have not worked with Logic Models, two good sources:

- W.K. Kellogg Foundation's Logic Model Development Guide. http://www.wkkf.org/resource-directory/resource/2006/02/wk-kellogg-foundation-logic-model-development-guide
- University of Wisconsin Extension http://www.uwex.edu/ces/pande/evaluation/evallogicmodel.html

Another Logic Model Example



Quad Charts

- A visual abstract of the project, submitted as part of the proposal or as a pre-proposal
- Literally, a single Power Point divided into four sections, with specific content in each, usually concept, goals, research cost and schedule, along with a photo or illustration
- Funding agency usually provides a template or specific instructions about quad content
- Some institutions are using quad charts to showcase faculty research to funding agencies and industry sponsors

Quad Charts: VA Template

Enter Title

First Last, Degrees | *VAMC Name, Anytown, ST* | *BX/CX/RX/HX-xxxxx-xx*

Total Award Amount Requested $: X,XXX,XXX
Start Date – End Date : *MM/DD/YYYY - MM/DD/YYY*

Key Research Aims:
Aim 1: *(For a Clinical Trial – describe population, intervention, comparator, and primary outcome measure)* (aim)
Aim 2: (aim)

Aim 3: (aim)

Aim 4: (aim)

- *The graphic representation can be an illustration of the problem, pathways or conceptual model, your approach, graphics, tables, or any relevant data (especially in final year of study)*
- *Do not include any Personal Identifiable Information or images (such as face of a human subject) without a signed waiver*

- (innovation 1)
- (innovation 2)

- (benefit 1)
- (benefit 2)

# of rows should maintain readability, column headings are fiscal year

Task	20xx	20xx	20xx	20xx	20xx
Task 1					
Task 2					
Task 3					
Task 4					
Task 5					
Task 6					

Place "XXXXX" or [redacted] to indicate planned work on each specific task

SBIR Template

Project/technology title

Overall Risk:		HIGH	X	MEDIUM		LOW	SBIR/STTR Topic Number:	Date: mm/dd/yy

CONCEPT	REQUIREMENT
Concept Picture	**REQUIREMENT/PAYOFF:** Identify and describe the need driving technology development as well as its benefit to the target Agency
	DELIVERABLE: Description of product to be developed for use and how it meets customer requirement
OBJECTIVE: Short statement explaining the technology and its principal features	**TRANSITION(S):** Succinct strategy/plan for this project that addresses how the technology will transition into a system or platform

CONTACTS			
Company:	name	website	email
Company lead:	"	phone	"
Technologist:	"	"	"
Fiscal POC:	"	"	"

1

DOD Template

Project Name

Photo/Graphic

Insert brief War Fighter Tag Line such as
"Full Situational Awareness for Urban Combat"

Technology

-Be brief, use plain English (non-technical)
-Answer "Why this program/technology is better than what we have or better than the competition"
-List specific benefits/outcomes
-List if/where this item is being used today

Schedule

-Include milestones and funding
-Include Technology Readiness Level (TRL)
-Include sponsors (USSOCOM, DARPA, DTRA, etc…)
-Company name & location

POC: Name, ph #, email

Funding ($M)

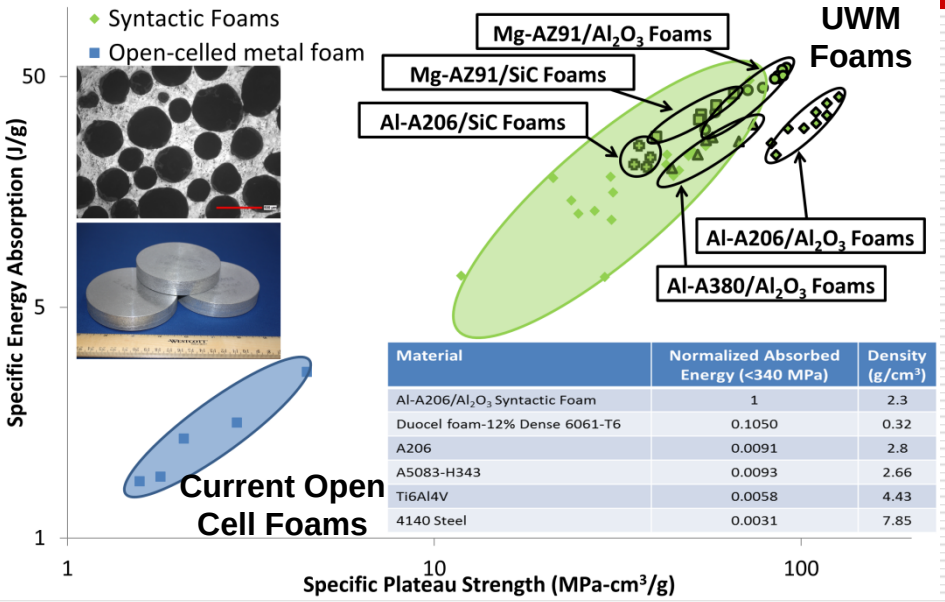
	FY10	FY11	TOTAL
Program	X.XXX	X.XXX	XX.XXX

-Include sustainment as well as procurement
-Describe manning requirements (military and/or civilian)

Example of Quad Chart

- The next slide is a quad chart prepared and submitted to the U.S. Navy as part of a grant application
- Note the specific content in each quadrant and how much information was presented in such a compressed format

Implementation of Lightweight Metallic Syntactic Foams and Hybrid Structures for Improved Performance and Survivability of U.S. Navy and Marine Corp Vehicles, UW-Milwaukee/Eck Industries/General Dynamics



Material	Normalized Absorbed Energy (<340 MPa)	Density (g/cm³)
Al-A206/Al_2O_3 Syntactic Foam	1	2.3
Duocel foam-12% Dense 6061-T6	0.1050	0.32
A206	0.0091	2.8
A5083-H343	0.0093	2.66
Ti6Al4V	0.0058	4.43
4140 Steel	0.0031	7.85

Technology Description:

- New Lightweight Metal Matrix Syntactic Foams and New Low Cost Method of Manufacture have been developed and will be implemented in vehicle components
- Technology Readiness Level (TRL) is currently 6 and will be TRL 9 at the end of Rapid Innovation Fund development

The "So What":

- The proposed project addresses Thrust Area 2: Developing, Utilizing & Maintaining Advanced Materials.
- Lightweight, advanced syntactic foams (as shown in the picture at left) will be used with hybrid composites in vehicle floor plates and applique armor
- Reduced weight and volume enhance vehicle performance and survivability
- Low cost manufacturing methods reduces initial cost.
- NAVSEA / Development and Acquisition Cost

Project Objective and Scope:

- Design, Fabrication, Testing and Implementation of Novel Lightweight Blast/Ballistic Resistant Floor Protection Plates and Applique Armor

Key Deliverables:

- 24x24x2inch plates
- Technical Report including results of testing and characterization, qualification, introduction in Navy Vehicles

Key Subcontractors:

- General Dynamics, Eck Industries

Registered with System for Award Management (SAM)?: NO

Related SBIR or Other Government Contract: NONE

Proposed Funding: $3,000,000

Notional Project Schedule Milestones:

Activity	Year 1	Year 2	Year 3
Design Of Material and Component	■		
Prototype Fabrication & Testing		■	
Component Design Optimization, Testing, and Final Delivery			■

Final Thoughts for Research Administrators

- Why is it important to know the differences between the various types of short papers?
- How can research administrators convey the importance of these short papers to PIs?
- What issues might these papers raise for pre- and post-award research administrators?
- What is your institution's policy on reviewing, approving or recording these short papers?
- How do you know they are in the works?

Thanks

For Questions and Follow-up

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