Measuring Inspiration

Planning for NASA Education's Performance Measurement and Evaluation

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Overview

I. Introduction

II. STEM Education and NASA's Approach

III. The OEID

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V. Process Documentation

VI. Performance Measurement: Current Concerns
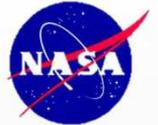
Life-Cycle Sources of Data
to Inform Evidence-Based Decisions

Performance Measurement and Evaluation + **Process Documentation** = **Scalable Sustainable Replicable**

Employ

Educate

Engage

Inspire

NASA Approach to STEM Education

➢ Restructure into a consolidated education program: the Office of Education Infrastructure Division (*OEID*.)

➢ Prioritize activities that support Agency education goals via *lines of business model*:

1) Internships, Fellowships and Scholarships;
2) Educator Professional Development;
3) STEM Engagement and
4) Institutional Engagement.

➢ Focus on *evidence-based* project activities.

➢ Align STEM education investments with the *CoSTEM 5-Year Strategic Plan*.

Office of Education Infrastructure Division: A New Model for Providing Evaluation Support

➢ OEID is an umbrella organization made up of 5 components, called *functional areas*:

- Communications & Operations
- Information Technology Systems
- Dissemination & Web Services
- Special Projects
- *Performance Assessment*, which includes responsibilities for program design support, assurance of compliance for information collections, process documentation & evaluation, performance measurement, and outcome/impact evaluation.

➢ OEID goals for serving the NASA Office of Education:

- provide *unified communications*, and
- *information and technology structure*.
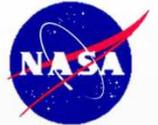
Life-Cycle Sources of Data
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Performance
Measurement
and Evaluation
+
Process
Documentation
=
Scalable
Sustainable
Replicable

Planning for Performance Measurement and Evaluation: The Process

- ➢ **Facilitated** by OEID assessment team in accordance with specific Government Auditing Standards and involved LOB team members.

- ➢ Development of a **logic model** for each LOB to involve:

  - **Training session**/guidance for agency-wide line of business teams
  - **Facilitation** of logic modeling process upon request
  - **Review and recommendations** for logic models to ensure incorporation of evidence-based practice

- ➢ Identification of outputs and short-term outcomes from logic models for **performance indicators** across portfolio.

- ➢ Development of **reliable and valid data collection instruments** based on performance indicators from the LOBs.

Life-Cycle Sources of Data to Inform Evidence-Based Decisions

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Process Documentation
Charting the Path

From Concept...

Through Actualization

Building a workforce pipeline for students engaged in NASA mission-related research, education and space exploration

Nationally brand NASA's student opportunities	STEM workforce development processes

| Recruit, retain and develop	Select, place and mentor	Workforce entry	Longitudinal study
Mentors, Funding Source Coordinators, Broker-Facilitator Corps and Students	Mentors, Funding Source Managers/Coordinators, Center Panels and Students	Funding Source Managers/Coordinators, Human Capital Staff	Office of Education Performance Measurement System Staff, Alumni Pool

Key OSSI Partners: OSSI Business Management Organization, OSSI Broker-Facilitator Corps, NASA Education Offices (HQ/Center), NASA Office of Human Capital Management (HQ/Center), NASA Office of Diversity and Equal Opportunity (HQ/Center), OSSI System Administrator

Key Student Advocate: NASA Student Ambassadors

Theoretical Frameworks incorporated within the Data Capture Matrix

Logic Model

Process & Replicability Indices

Cross-Project Documentation & Assessment

Action Research

Indicator-Defined

Why

Where & $$$

What

When

How

Use of process documentation to inform evidence-based decisions:

Is it scalable?
Is it sustainable?
Is it replicable?
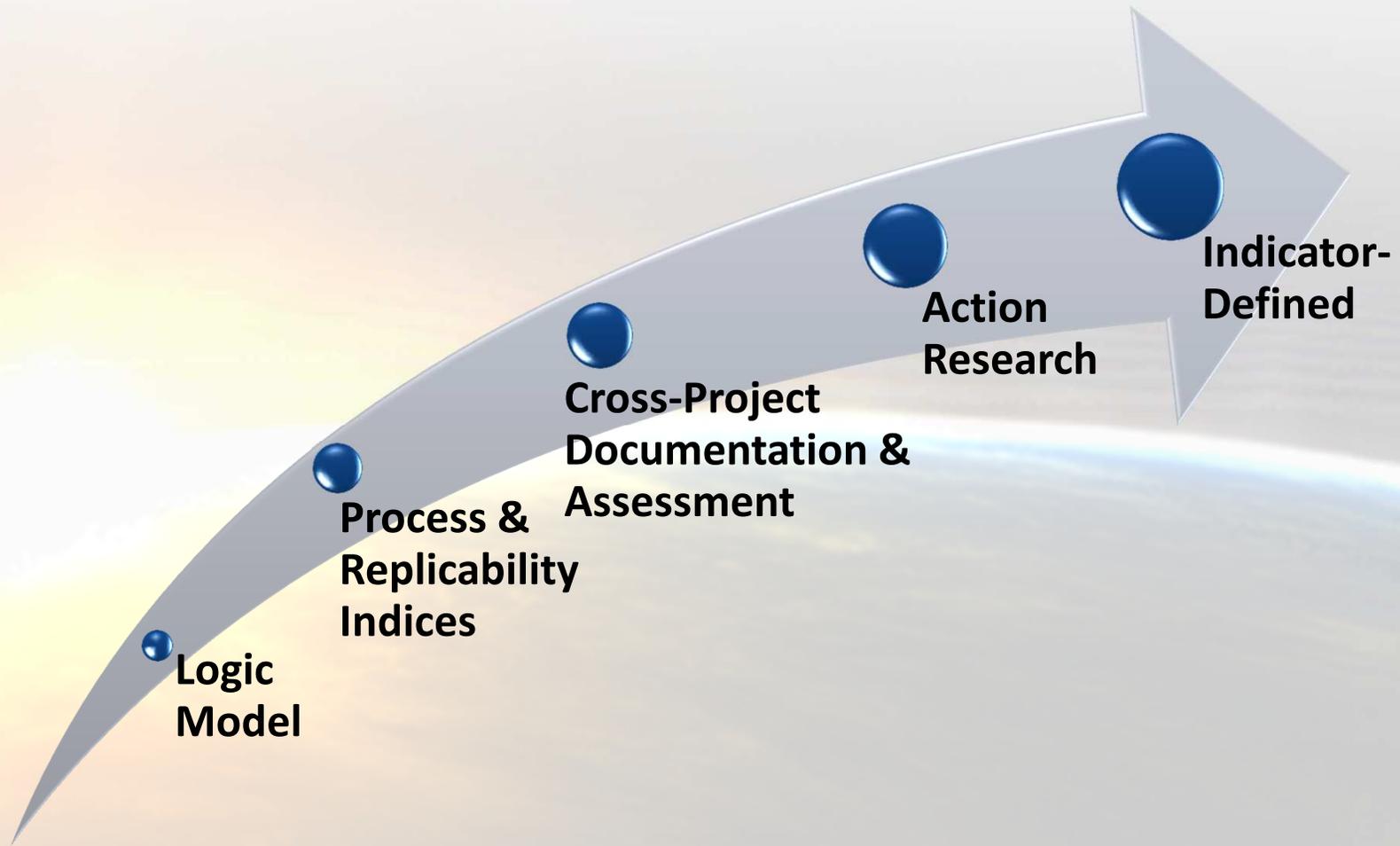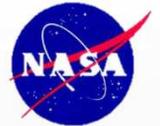
Life-Cycle Sources of Data
to Inform Evidence-Based Decisions

Performance   Process   **Scalable**

Measurement   +   Documentation   =   **Sustainable**

and Evaluation   **Replicable**

Performance Measurement: Sources for Current Concerns

Gugiu, P.C., & Rodriguez-Campos, L. (2007). Semi-structured interview protocol for constructing logic models. *Evaluation and Program Planning, 30*(4), 339-350.

Mausolff, C., & Spence, C. (2008). Performance measurement and program effectiveness: A structural equation modeling approach. *International Journal of Public Administration, 31*(6), 595-615.

Newton, X.A., Poon, R.C., Nunes, N.L., & Stone, E.M. (2013). Research on teacher education programs: Logic model approach. *Evaluation and Program Planning, 36*(1), 88-96.

Samuels, M., & Ryan K. (2010). Grounding evaluations in culture. *American Journal of Evaluation, 32*(2), 183-198.

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