Navigating Research Transitions with Structure and Strategy

NOAA's Oceanic and Atmospheric Research (OAR) Weather Program Office (WPO)

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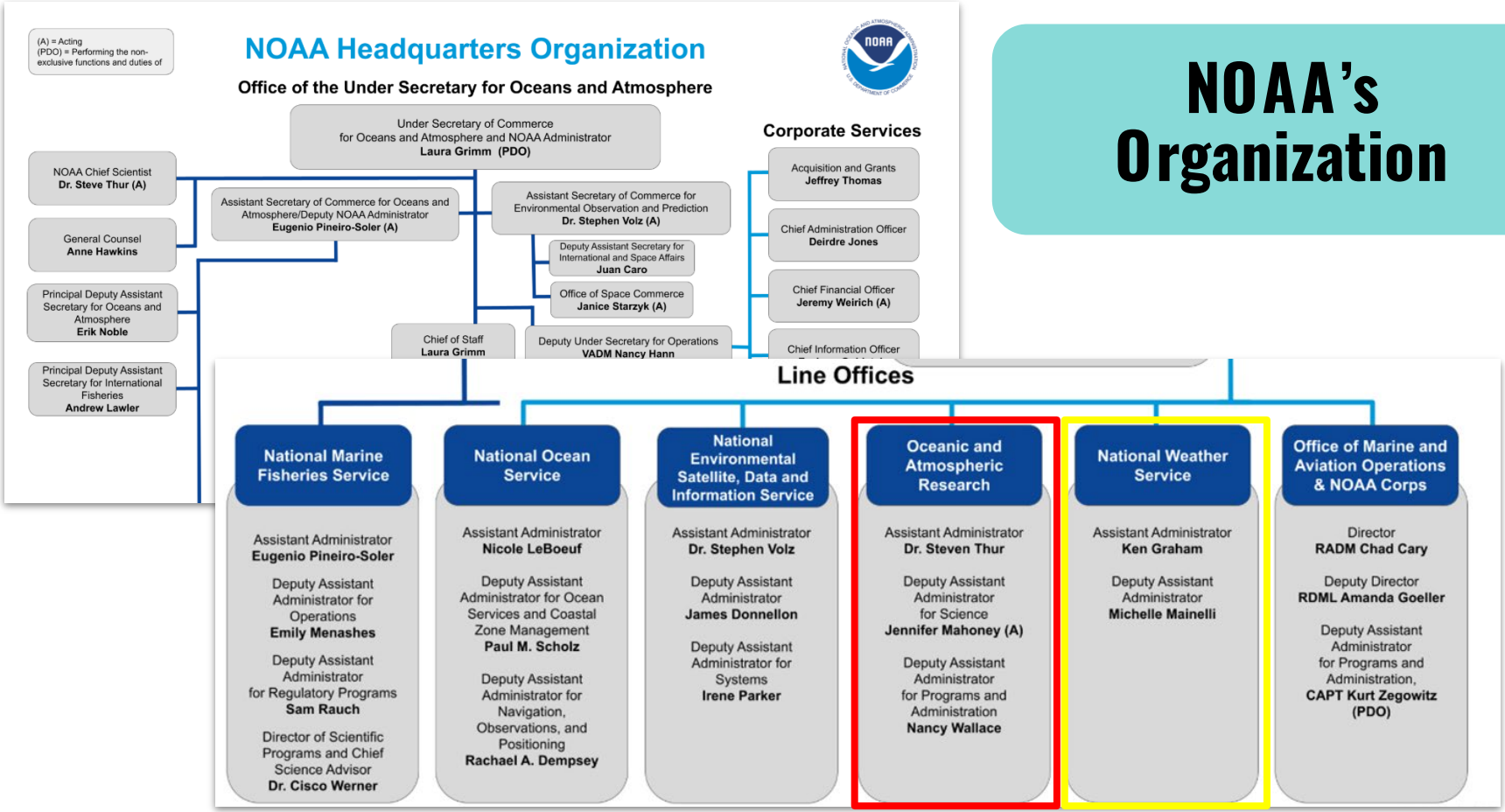
NOAA's Organization



Portfolio Analysis and Research Transitions (PART) Program

Every program's success is PART of our mission.

Our program

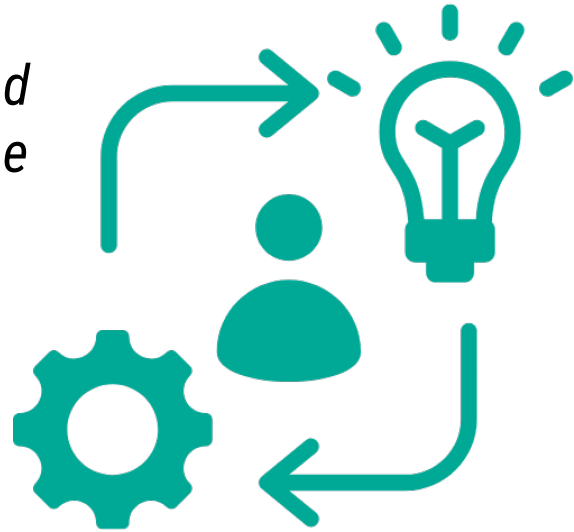
We **streamline research transitions** by providing tailored support, office-wide **project monitoring**, and **data-driven portfolio insights**. As a **liaison with NWS**, we foster coordination, address challenges, and drive decision-making while **promoting open science** to ensure WPO-funded research is accessible and beneficial for practitioners and the public.

Our role

We enable the success of WPO's research portfolio by supporting research transitions, fostering internal coordination, and delivering data-driven portfolio insights that **drive WPO's strategic research priorities.**

W hat does it mean to *transition* research?

*Transitioning research requires **coordination**, **planning**, and **sharing of knowledge** and other research outputs from one group to another and vice versa.*

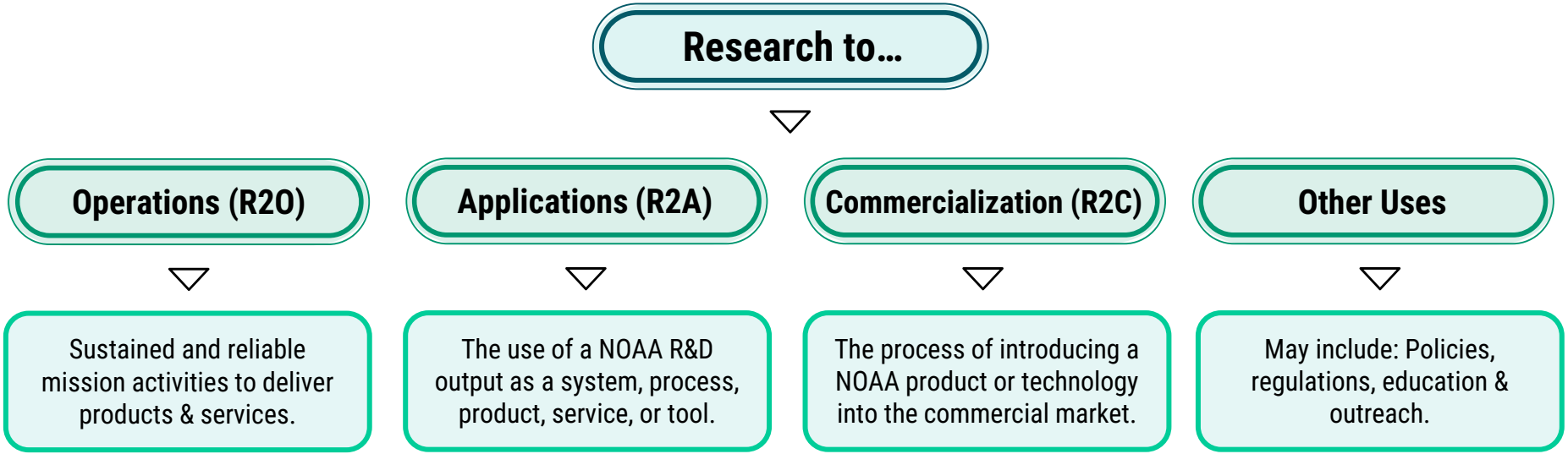


We refer to this as the Research Transitions (R2X) process in NOAA.

A successful transition is marked by more than just transferring a *thing* to practitioners; it requires ensuring it is integrated and used.

W hat is NOAA's Research Transition (R2X) Process?

Overview: *The transfer of a research and development (R&D) output to an operation, application, commercial product or service, or other uses. —* NAO 216-105B



W hy is *transitioning* research important for NOAA?

Meeting NOAA's Mission: NOAA's ability to meet its mission through the delivery of continually improved products and services relies on the conversion of the best available R&D into operation and application products.

Exchange of Operational and R&D Needs: This process creates exciting collaboration opportunities between researchers and practitioners, enabling the sharing of operational and R&D needs/constraints, thereby amplifying the impact of the research.

How can you make your research *more useful* to practitioners?

Coordination between researchers & practitioners: Partnering with potential end users *EARLY* ensures that research outputs are not only theoretically sound, but also practically applicable and beneficial to practitioners. This early engagement helps ensure research outputs are ***useful, usable, and eventually put into practice.***

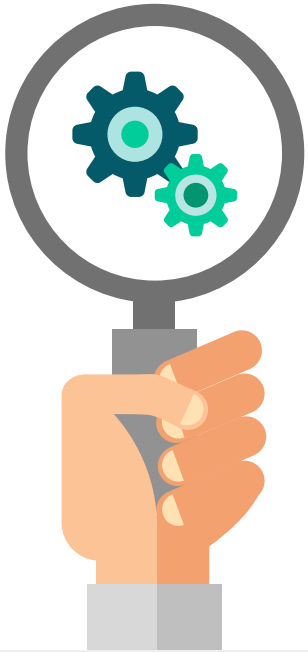
How Do We Assess Transition Readiness?

Use Readiness Levels!

What are Readiness Levels?

A systematic project metric/measurement system that supports assessments of the maturity of R&D projects from research to:

- Operations
- Applications
- Commercial Products or Services
- Other Uses

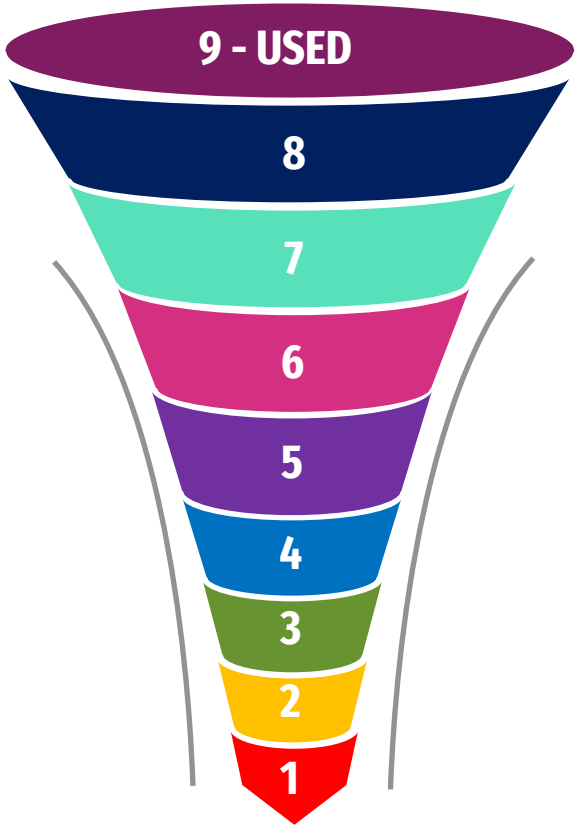


Why do we use Readiness Levels?

- Assess Maturity
- Compare Maturity Across Projects
- Meet NOAA's Mission
- Support Cross-Disciplinary Understanding

Should we involve PIs with Readiness Levels? *Yes and No!*

NOAA Readiness Levels



Transition Plan

RL 8: Finalization in Actual Environment
All components are finalized. It's working in the user's environment, documentation and training are complete.

RL 7: Demonstration in Relevant Environment
A working prototype or version of your output has been evaluated and functioning well in a real-world setting.

RL 6: Demonstration in Test Environment
A working prototype or version of your output has been evaluated and demonstrated in a lab setting.

RL 5: Validation in Relevant Environment
Testing and refinement are underway in environments similar to where it might eventually be used.

RL 4: Validation in Lab or Equivalent
Your hypothesis, product, or method has been tested successfully in a lab or experimental setting.

RL 3: Proof-of-concept
You've tested your idea in a small or simplified way—just enough to show it *could* work.

RL 2: Applied Research
You now have a specific problem or applied research question.

RL 1: Basic Research
Your project is exploring an idea or theory.

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How Do We Document a Transition?

Overview: *The transition process is about collaborating and building trusted relationships between researchers and practitioners. An* ***outcome*** *of that collaboration is a transition plan.*

Build Trusted Relationships between Researchers & Practitioners Early

Establish Collaboration Roles, Responsibilities, and Expectations

Co-Develop a Transition Plan to Outline a Feasible Transition Pathway

W hat Are Transition Plans?

✅ A Vision Document

✅ A Roadmap for the project to help keep it on track and improve chances of success.

✅ A living document to be amended with increasing detail as the project matures, intended to evolve with the R&D.

[Example Transition Plans]
[Transition Plan Templates]

❌ A binding contract.

❌ Must have funds allocated for transition.

Challenges W hen Transitioning Research

Tracking Impact of Research once it is Operational

Understanding Cost of Transitions with Operations and Maintenance

Transition Plans Must Be able to Change as the Project Evolves

Overemphasis on Tech Transfer vs. Knowledge Transfer

Hard to Find Time to Collaborate with Operational Partners

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Continuous Work to Refine the Transition Process

Engage end users earlier in the transition process.

Make the transition process more iterative, flexible, & agile.

Optimize transition plan development to reduce burden for all.

Explore transition opportunities both inside and outside NOAA.

Portfolio Analysis and Research Transitions (PART) Program

We act as the primary liaison with NWS Office of Science and Technology Integration (OSTI), support WPO Programs in coordinating Points of contact, and assist with resolving challenges in the transition process

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Example - Best Practices for Transition Planning

W PO/STI Best Practices in Action

Three TP Phases
Transition plans will be categorized into three phases based on their R&D Lifecycle.

TPs Evolve as RLs Evolve
Transition Plan detail and NWS engagement will increase as the R&D Lifecycle and RLs increase.

1

Succinct TPs for Lower RLs
TPs can evolve as the R&D evolves.

Example 1

2

NOAA Subject Matter Experts
Reducing NWS burden for lower RLs.

Example 2

3

Modular Umbrella Plans
Combining relevant R&D into single plan.

Example 3

PART

PORTFOLIO ANALYSIS & RESEARCH TRANSITIONS

THANK YOU! QUESTIONS

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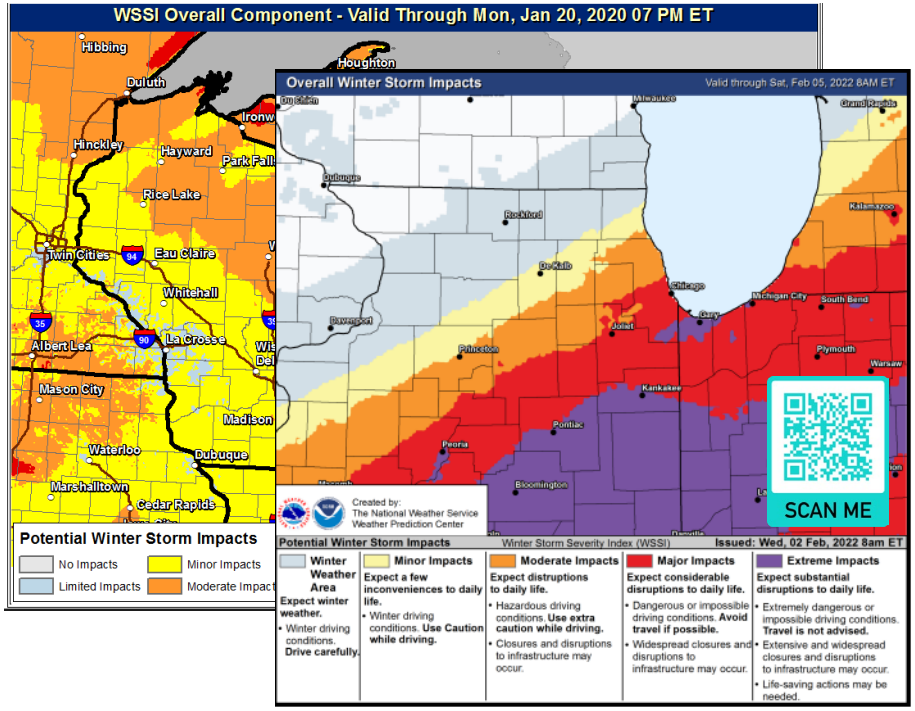
Social Science Transitions Pt. 1 - Knowledge Transfer

Project Goal: Improve the display and delivery of impact-based winter storm forecast information through the WPC's Winter Storm Severity Index (WSSI).

Focus Groups	Surveys	Core Partners

Funded: Nurture Nature Center (Hogan Carr et al. 2022)

Funded By: WPO Joint Technology Transfer Initiative



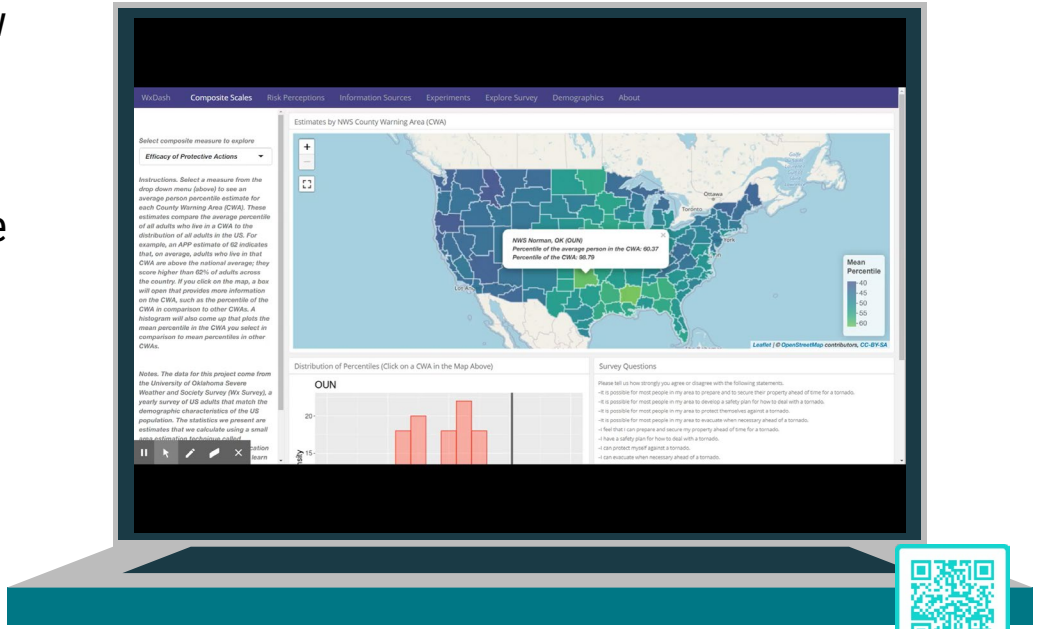
Social Science Transitions Pt. 2 - Know ledge, Data, & Tech Transfer

Project Goal: Collect longitudinal data on how the public receives, comprehends, and responds to severe, tropical, and winter weather forecasts and warnings. It also includes an interactive resource (known as the WxDashboard) for viewing the survey data.

Surveys	***Testbed***	***Public***

INSTITUTE FOR PUBLIC POLICY RESEARCH & ANALYSIS
The UNIVERSITY of OKLAHOMA

Funded: University of Oklahoma (Ripberger et al. 2021)
Funded By: WPO Joint Technology Transfer Initiative



https://crcm.shinyapps.io/WxDash/

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