NOAA Science & Technology:
Accelerating Innovation in the 21st Century

Introduction

NOAA's strategies in emerging science and technology (S&T) presently address six Focus Areas, with the goal of producing transformative advancements in the quality and timeliness of NOAA's products and services across our mission areas. These Focus Areas are:

1. **Artificial Intelligence (AI)**
2. **Uncrewed Systems (UxS)**
3. **'Omics**
4. **Cloud**
5. **Data**
6. **Citizen Science**

By taking a coordinated approach in addressing these Focus Areas, NOAA can promote organizational and operational efficiencies and maintain its role as a world leader in providing environmental data and earth science. NOAA's overarching budget priorities include:

1. **Wx and Water** - Regaining world leadership in weather, water, and ocean prediction
2. **Blue Economy** - Increasing the sustainable economic contributions of our oceans
3. **Space Innovation** - Leveraging new architectures and partnerships for satellite data

Synergies

Each of these S&T Focus Areas has goals and objectives designed to promote coordination across NOAA in order to effectively accelerate the organization's next-generation earth science capabilities and help map a clear path for advancing NOAA's mission. The S&T goals and objectives can be organized into the following categories:

1. **Teaming** - Create NOAA cross-line office teams
2. **Workforce** - Improve staff skills and attract new talent
3. **Partnerships** - Expand opportunities to work with external partners
4. **Innovation** - Create an environment where people are free to experiment
5. **R2O** - Develop a faster process for moving from research to operations
6. **Operations** - Integrate the S&T strategies into NOAA operations
7. **Data** - Improve data quality, access, and dissemination
8. **ROI** - Optimize the return on NOAA's investment either internally, externally, or both
9. **Governance** - Provide enterprise services and information regarding how to obtain these services

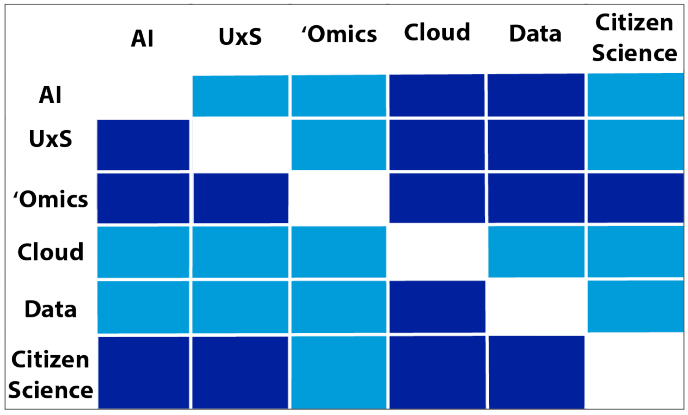
These categories are ranked according to the frequency of their occurrence in the S&T Focus Areas. Prioritizing the highest-ranked goals—especially Teaming and Workforce—will help NOAA progress more rapidly in its Focus Areas.

Interdependencies

The Focus Areas are closely interrelated and dependent upon one another. For example, Data and Cloud enable the other four, 'Omics is enabled by UxS and AI, and UxS is enabled by AI. The following diagram shows the S&T synergy, with each S&T Focus Area highlighted in blue.

NOAA has evolved such that all aspects of the organization are interconnected. We are finding cross-NOAA value-add from data collected, above and beyond its original intended use. The NOAA Science Council, guided by the S&T mission, will modernize NOAA's business strategy to stay relevant in a fast-changing environment. In 2002, Vice Admiral Lautenbacher started the initiative of One NOAA. In 2020, Rear Admiral Gallaudet and the NOAA Science Council will further drive the synergies toward the One NOAA mission.

NOAA S&T Focus Area Interdependencies



Light blue indicates that the Focus Area in the left column **supports** the Focus Area in the top row.

Dark blue indicates that the Focus Area in the left column **is supported by** the Focus Area in the top row.

NOAA S&T Focus Areas, Goals, and Synergies

Focus Area	Goal	Synergy
Artificial Intelligence (AI)	1. Establish efficient organizational structures and processes to advance AI across NOAA	Teaming
	2. Advance AI research and innovation in support of NOAA's mission	Innovation
	3. Accelerate the transition of AI research to applications	R2O
	4. Strengthen and expand AI partnerships	Partnerships
	5. Promote AI proficiency in the workforce	Workforce
Uncrewed Systems (UxS)	1. Coordinate and support UxS operations at an enterprise level	Operations
	2. Expand UxS applications across NOAA's mission portfolio	Teaming
	3. Accelerate transition of UxS research to applications	R2O
	4. Strengthen and expand UxS partnerships	Partnerships
	5. Promote workforce proficiency in UxS use and operations	Workforce
'Omics	1. Enhance infrastructure to meet the analytical demands of 'Omics data	Data
	2. Execute 'Omics research targeted to support and advance the American Blue Economy	ROI
	3. Accelerate transition of 'Omics research to applications	R2O
	4. Expand partnerships to advance 'Omics research and applications across the agency	Teaming
	5. Promote workforce proficiency in 'Omics	Workforce
Cloud	1. Enable innovation through rapid adoption of Cloud-based services	Innovation
	2. Drive smart migration to the Cloud	Operations
	3. Ensure secure and broad access to Cloud services	ROI
	4. Provide effective governance for Cloud shared services	Governance
	5. Empower a Cloud-ready workforce	Workforce
Data	1. Align Data management leadership roles across the organization	Data
	2. Govern and manage Data strategically to most effectively steward the US taxpayers' investment	ROI
	3. Share Data as openly and widely as possible to promote maximum utilization of NOAA Data	Teaming
	4. Promote Data innovation and quality improvements to facilitate science and support Data-driven decision-making	Innovation
	5. Engage stakeholders and leverage partnerships to maximize the value of NOAA Data to the Nation	Partnerships
Citizen Science	1. Coordinate and support Citizen Science efforts across NOAA	Teaming
	2. Expand integration of Citizen Science into agency	Operations
	3. Promote Citizen Science data quality at NOAA	Data
	4. Strengthen partnerships to advance Citizen Science	Partnerships
	5. Increase proficiency for appropriately using Citizen Science within the workforce	Workforce