EPA
United States
Environmental Protection
Agency

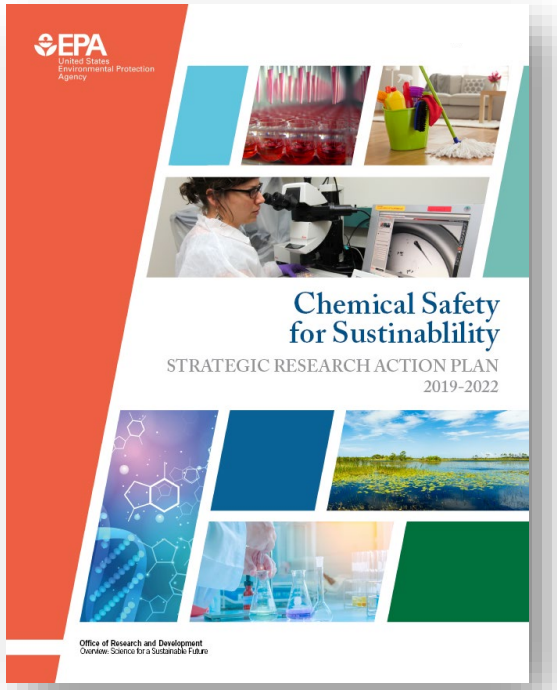
Moving from the StRAPs to Implementation by ORD Investigators

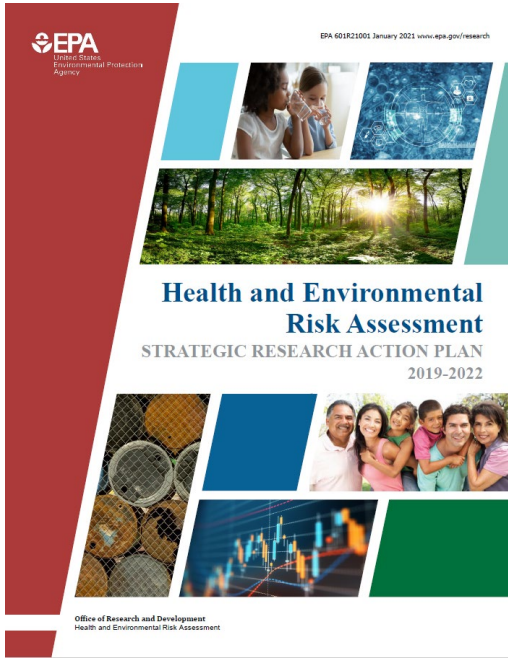
Jill Franzosa, PhD

Office of Research and Development
Center for Computational Toxicology and Exposure

Disclaimer: The views expressed in this presentation are those of the author and do not necessarily reflect the views or policies of the US EPA.

2019 – 2022 Strategic Research Action Plans





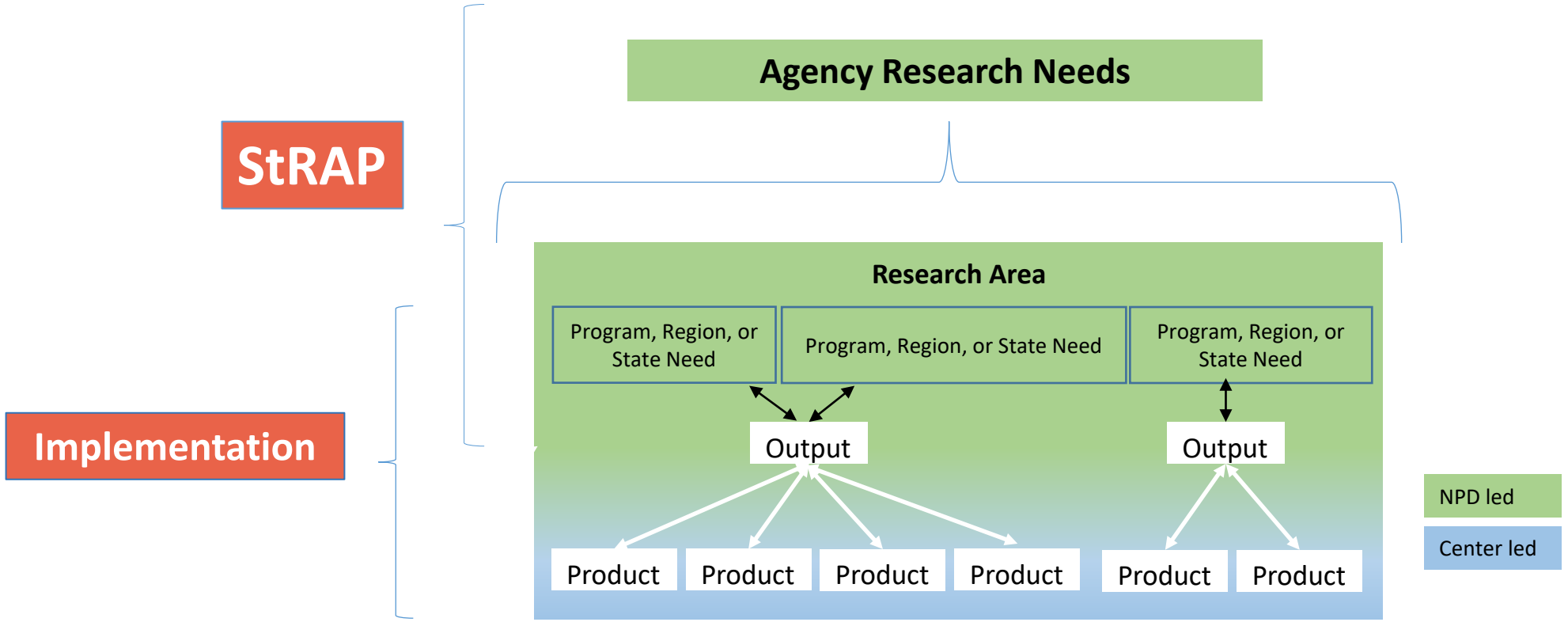
- StRAPs finalized and published on EPA internet
- Focused on defining national program structure and identifying specific outputs to meet the needs of partners
- Informed design and planning of research activities to fulfill the outputs

https://www.epa.gov/research/strategic-research-action-plans-2019-2022

StRAP Implementation

Output is a body of work that addresses partner needs through delivery of one or more products

Products can be peer-reviewed journal articles, models, databases, software, or methods



Research Area Coordination Team (RACT)

Objective

- Expand involvement of partners
- Improve understanding what is needed
- Ensure proposed products are what is needed by partners

Who

- Program Office representative(s)
- Regional Representative(s)
- State Representative
- NPD Representative
- ORD Scientists

Outcome

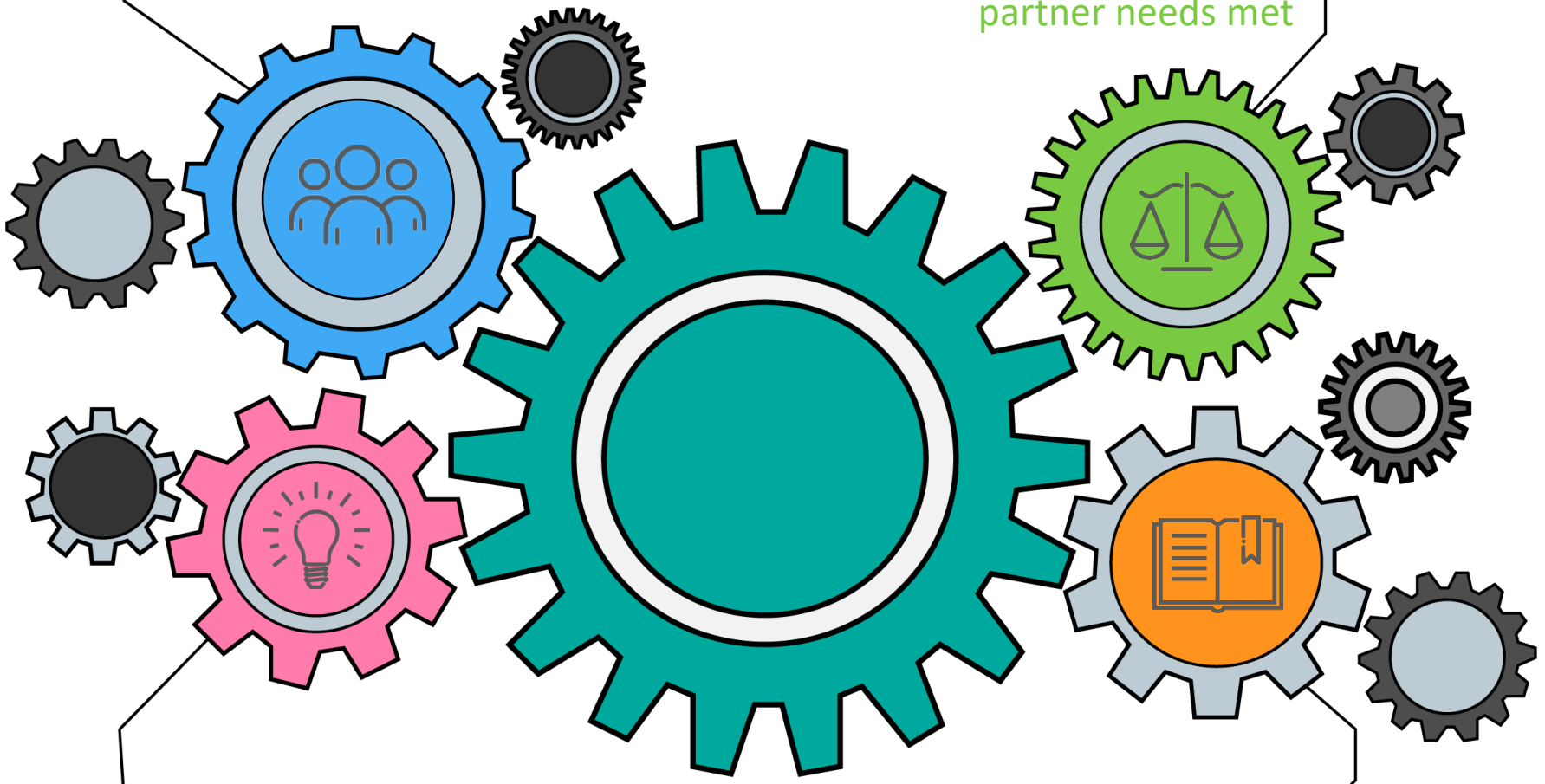
- Products responsive to outputs
- By-in from partners
- Collaboration with partners

Purpose: Define the products that ORD will develop to meet the objectives of the outputs

The Process for RACTs

Meet weekly/biweekly basis from April - September

Balanced product proposals with ORDs capacity to ensure partner needs met



Developed ideas for products to meet the outputs

Delivered Research Area Descriptions for products

Delivery of Research Area Descriptions

Program/Regional/State Needs:

- *How this research will be applied to meet the needs of EPA programs/regions, states, tribes, and/or other partners*
- *Key statutes and/or regulatory issues that the research will support*

Output :

Output Description:

- *What information is needed by the program, region, state, or tribal partner(s)*
- *How the products build on each other to form the Output*
- *Description of how the partner will use the Output*

EPA Program/Regional or State/Tribal Partner(s)

Product:

Brief Description and Research Use:

- *Description of research and how it will be used by the partner to address their identified regulatory, policy, and/or other need(s).*

EPA Program/Regional or State/Tribal Partner(s)

RACT Output Leads and Product Leads

- Output Leads
  - Nominated by Center management
  - Provide scientific leadership
  - Coordinate and communicate with Product Leads
  - Include representation from across ORD Centers
- Product Leads
  - Develop research products and components to fulfill objectives of the output
  - Lead and coordinate product research teams
  - Include representation from across ORD Centers

CSS Example: Translating Partner Needs to Outputs

PARTNER NEED	RESEARCH AREAS	OUTPUTS WITH DNT PRODUCTS
Developmental neurotoxicity (DNT): DNT is an important risk assessment endpoint for chemical assessments. However, currently available in vivo methods are costly and do not fully represent important mechanisms and pathways. Therefore, there is a need for alternative approaches for evaluating DNT, including valid in vitro methods and modeling approaches. (OCSPP; OLEM; OCHP) 	**HTT**	Develop, evaluate, apply, and interpret a developmental neurotoxicity (DNT) battery of assays to reduce uncertainties in chemical safety evaluations
	AOP	Develop and conduct strategic in vitro and in vivo studies for high-priority AOPs to help establish validity of NAMs approaches, support predictive model development, and reduce vertebrate animal testing through in vivo testing refinements for decision-relevant endpoints
	VTM	Integrate and evaluate phenotypic responses in human cell based in vitro and virtual tissue model systems to predict chemical hazard during growth and development
	VTM	Develop and apply in silico agent-based and computational models to evaluate the effects of chemicals on biological pathways critical for lifestage endpoints

CSS Example: Developing products to fulfill the Output

OUTPUT	PRODUCTS	
HTT: Develop, evaluate, apply, and interpret a developmental neurotoxicity (DNT) battery of assays to reduce uncertainties in chemical safety evaluations		Behavioral screen for developmental neurotoxicity in zebrafish
		Evaluation of a battery of in vitro DNT NAMs
		Expanded chemical space for developmental DNT NAMs
		Tools for translation and accessibility of DNT NAMs

What We Developed

Topic	Research Areas	Outputs	Products
Chemical Evaluation	High-Throughput Toxicology (HTT)	8	36
	Rapid Exposure Modeling and Dosimetry (REMD)	8	50
	Emerging Materials and Technologies (EMT)	2	13
Complex Systems Science	Adverse Outcome Pathways (AOP)	8	42
	Virtual Tissue Modeling (VTM)	3	16
	Ecotoxicological Assessment and Modeling (ETAM)	10	34
Solutions-Based Translation and Knowledge Delivery	Chemical Safety Analytics (CSA)	4	24
	Informatics, Synthesis, and Integration (ISI)	5	29

EPA United States Environmental Protection Agency

Thank you!
Comments/Questions.