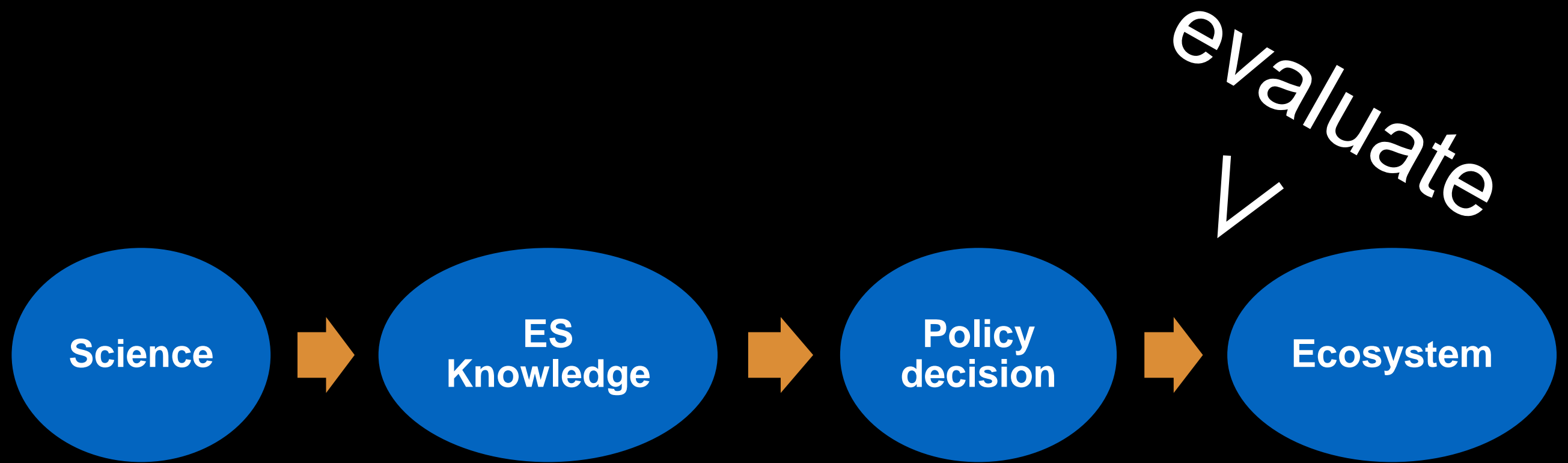


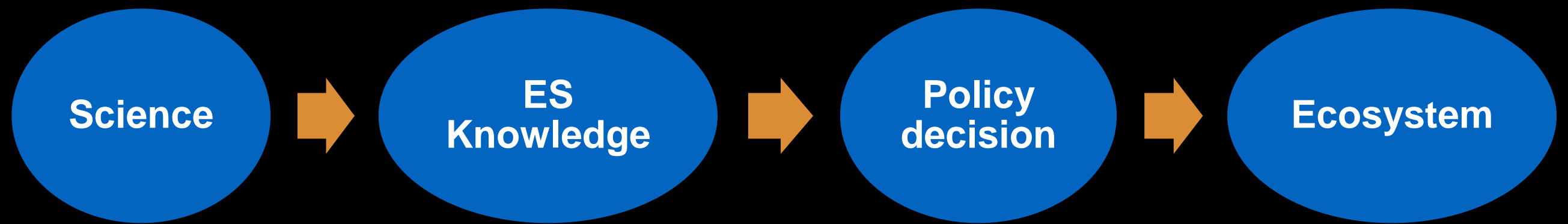


# The Impact of Ecosystem Services on Decisions

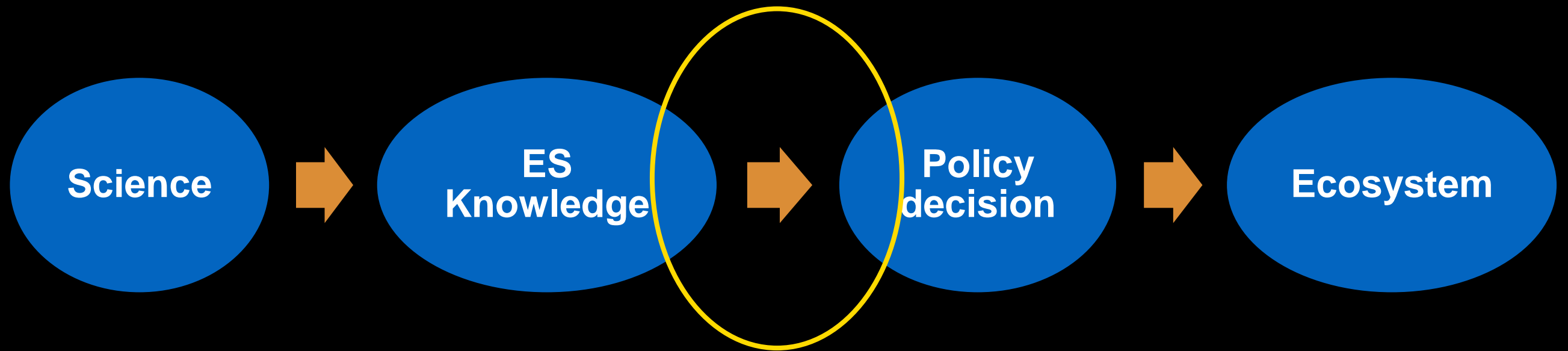


COMPASS  
Stephen Posner





# The Valley of Death





# Embedding ecosystem services in coastal planning leads to better outcomes for people and nature

Katie K. Arkema<sup>a,b,1</sup>, Gregory M. Verutes<sup>a</sup>, Spencer A. Wood<sup>a,b</sup>, Maritza Canto<sup>c</sup>, Amy Rosenthal<sup>d,2</sup>, Mary Ruckelshaus<sup>a,b</sup>, Gregor Jessica M. Silver<sup>a,b</sup>, Robert Griffin<sup>a</sup>, and Anne D. Guerri<sup>a,b</sup>

<sup>a</sup>The Natural Capital Project, Stanford University, Stanford, CA 94305-5020; <sup>b</sup>School WA 98195; <sup>c</sup>Coastal Zone Management Authority and Institute, Belize City, Belize

Edited by Jane Lubchenco, Oregon State University, Corvallis, OR, and approved

VALUING  
ECOSYSTEM  
SERVICES

TOWARD BETTER ENVIRONMENTAL DECISION-MAKING

## REPORT

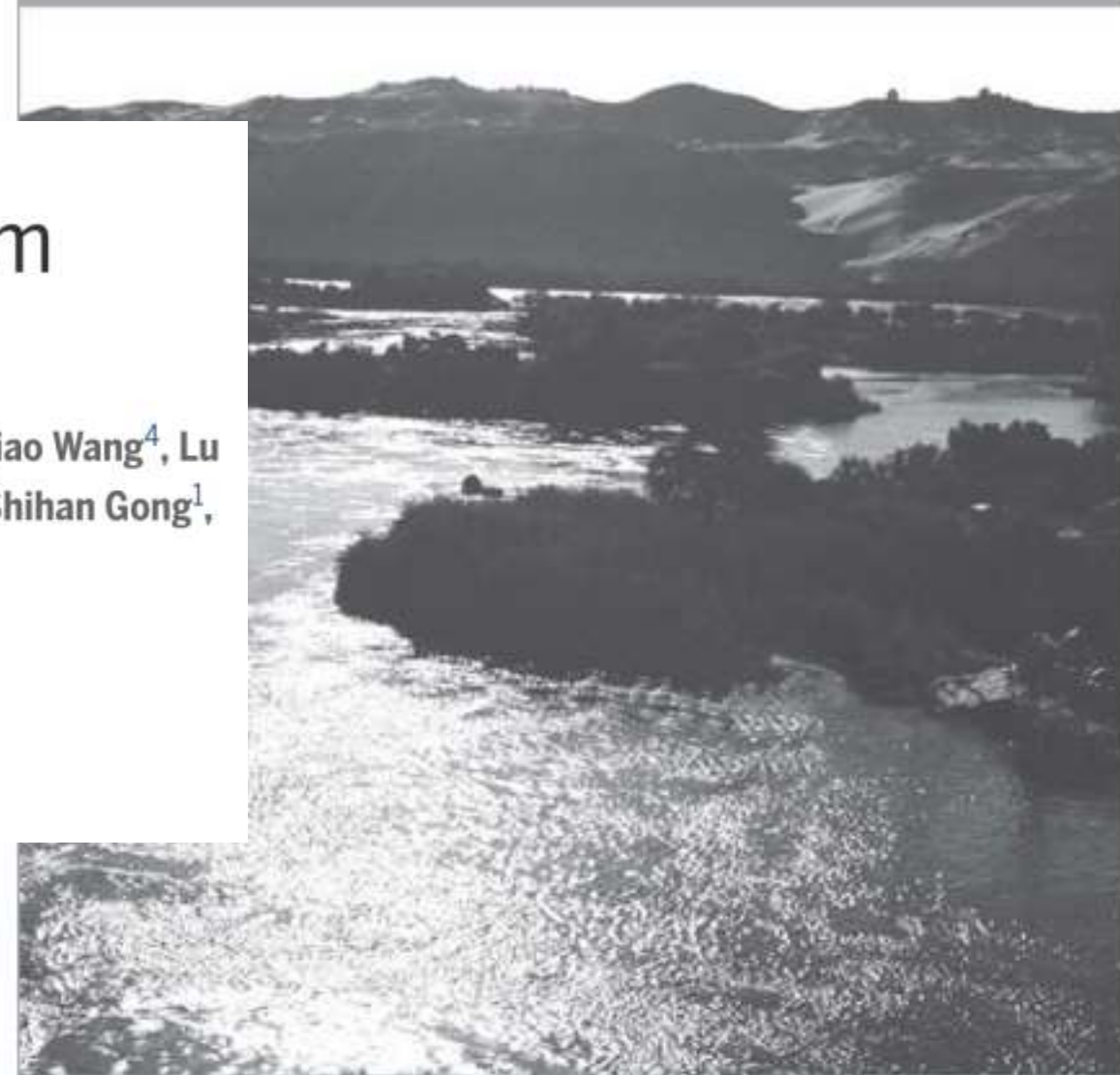
### Improvements in ecosystem services from investments in natural capital

Zhiyun Ouyang<sup>1,\*</sup>, Hua Zheng<sup>1</sup>, Yi Xiao<sup>1</sup>, Stephen Polasky<sup>2</sup>, Jianguo Liu<sup>3</sup>, Weihua Xu<sup>1</sup>, Qiao Wang<sup>4</sup>, Lu Zhang<sup>1</sup>, Yang Xiao<sup>1</sup>, Enming Rao<sup>1</sup>, Ling Jiang<sup>1</sup>, Fei Lu<sup>1</sup>, Xiaoke Wang<sup>1</sup>, Guangbin Yang<sup>5</sup>, Shihan Gong<sup>1</sup>, Bingfang Wu<sup>6</sup>, Yuan Zeng<sup>6</sup>, Wu Yang<sup>7</sup>, Gretchen C. Daily<sup>8,\*</sup>

+ Author Affiliations

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Science 17 Jun 2016:  
Vol. 352, Issue 6292, pp. 1455-1459  
DOI: 10.1126/science.aaf2295



NATIONAL RESEARCH COUNCIL  
OF THE NATIONAL ACADEMIES





October 7, 2015

M-16-01

**MEMORANDUM FOR EXECUTIVE DEPARTMENTS AND AGENCIES**

**FROM:**

Shaun Donovan, Director  
Office of Management and Budget

Christina Goldfuss, Managing Director  
Council on Environmental Quality

John Holdren, Director  
Office of Science and Technology Policy

**SUBJECT:** Incorporating Ecosystem Services into Federal Decision Making

“An ecosystem services approach can

- 1) more completely inform planning and decisions,
  - 2) preserve and enhance the benefits provided by ecosystems to society,
  - 3) reduce the likelihood of unintended consequences, and,
  - 4) where monetization is appropriate and feasible, promote cost efficiencies and increase returns on investment.”
- The memo







Evaluate impact

Synthesize the evidence

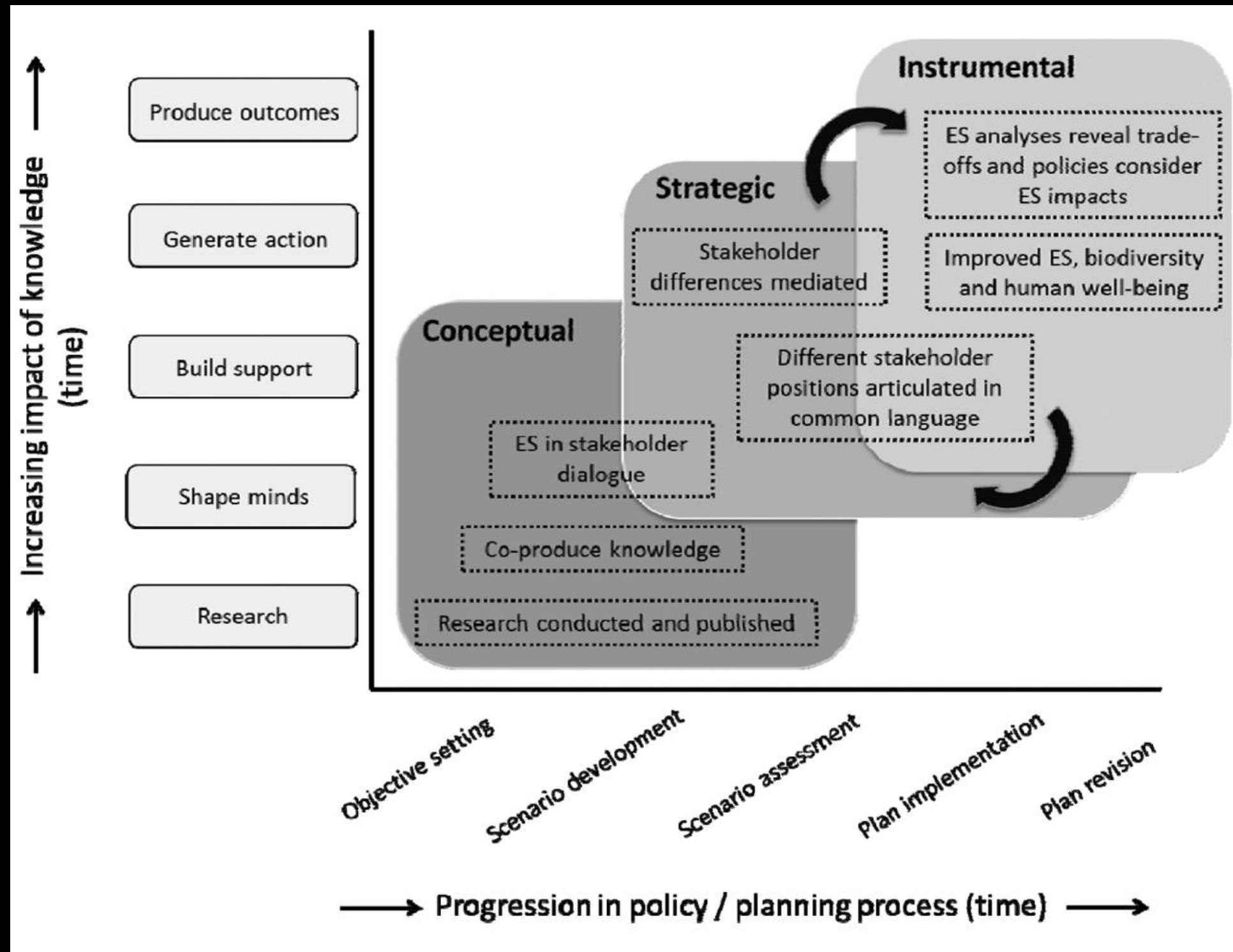
Facilitate communication

Evaluate impact





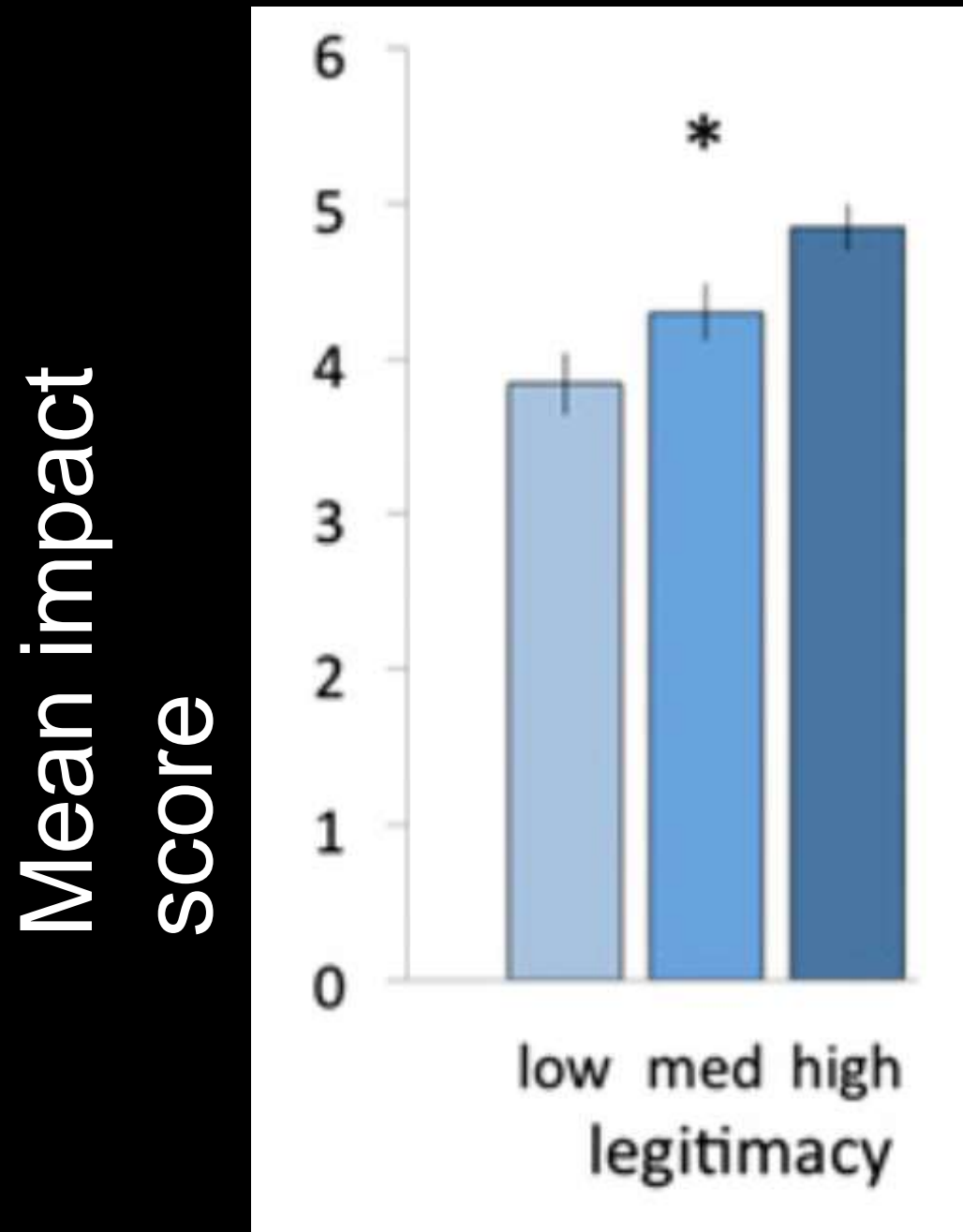
# ES knowledge is used **conceptually** first



McKenzie, E., S. Posner, et al. 2014. *Understanding the use of ecosystem service knowledge in decision making: lessons from international experiences of spatial planning*. Environment and Planning C: Government and Policy, 32: 320-340.



# More legitimate ES knowledge, more impact



Posner, S., E. McKenzie, T. Ricketts. 2016. *Policy Impacts of Ecosystem Services Knowledge*. Proceedings of the National Academy of Sciences, 113 (7): 1760-1765.

# ES knowledge impacts decision-makers



## Increased

- *understanding* of ES
- *perception* of ES as relevant to their work
- *belief* that ES information useful for decisions

Posner, S., C. Getz, T. Ricketts. 2016. *Evaluating the Impact of Ecosystem Services Assessments on Decision-Makers*. Environmental Science & Policy, 64: 30-37.



Synthesize the  
evidence



**Science Policy Roundtable**  
**Ecosystem Services in Federal Decision-Making**

March 9th and 10th, 2016

Resources For the Future | Washington, DC



Does integrating ecosystem services  
make a difference?



“We see less litigation following our decisions, integrated outcome-based performance, and greater financial leverage for our investments in restoration.”

Workshop participant

“Investments are shifted spatially to represent ES, compared to previously or to cases without ES information.

Direct ES measurements show that supplies are maintained or improved.”

- Workshop participant

# Integrating Ecosystem Services into Decisions Can...

foster collaboration by aligning objectives and facilitating partnerships that build trust.

reduce conflict among stakeholders.

increase efficiency in restoration projects, allowing projects that improve ecosystems to move ahead and meet regulatory requirements with less cost than alternatives.

identify direct beneficiaries of management actions.

make trade-offs transparent by providing clarity for decision makers about potential social, ecological, and economic impacts.

estimate monetary and non-monetary values to incorporate info about services and values that do not have direct market values.



Facilitate  
communication





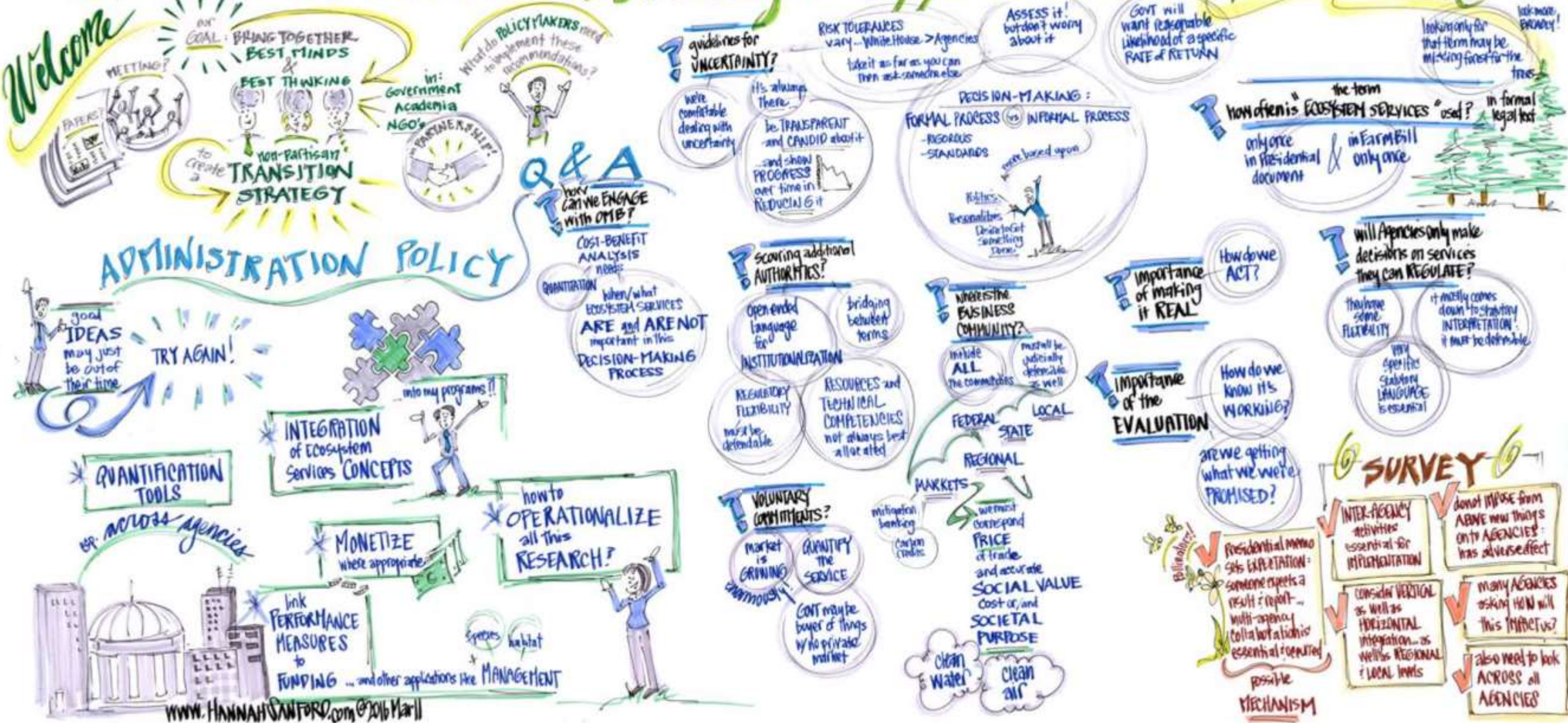


## **Ecosystem Services Strategic Opportunities Roundtable**

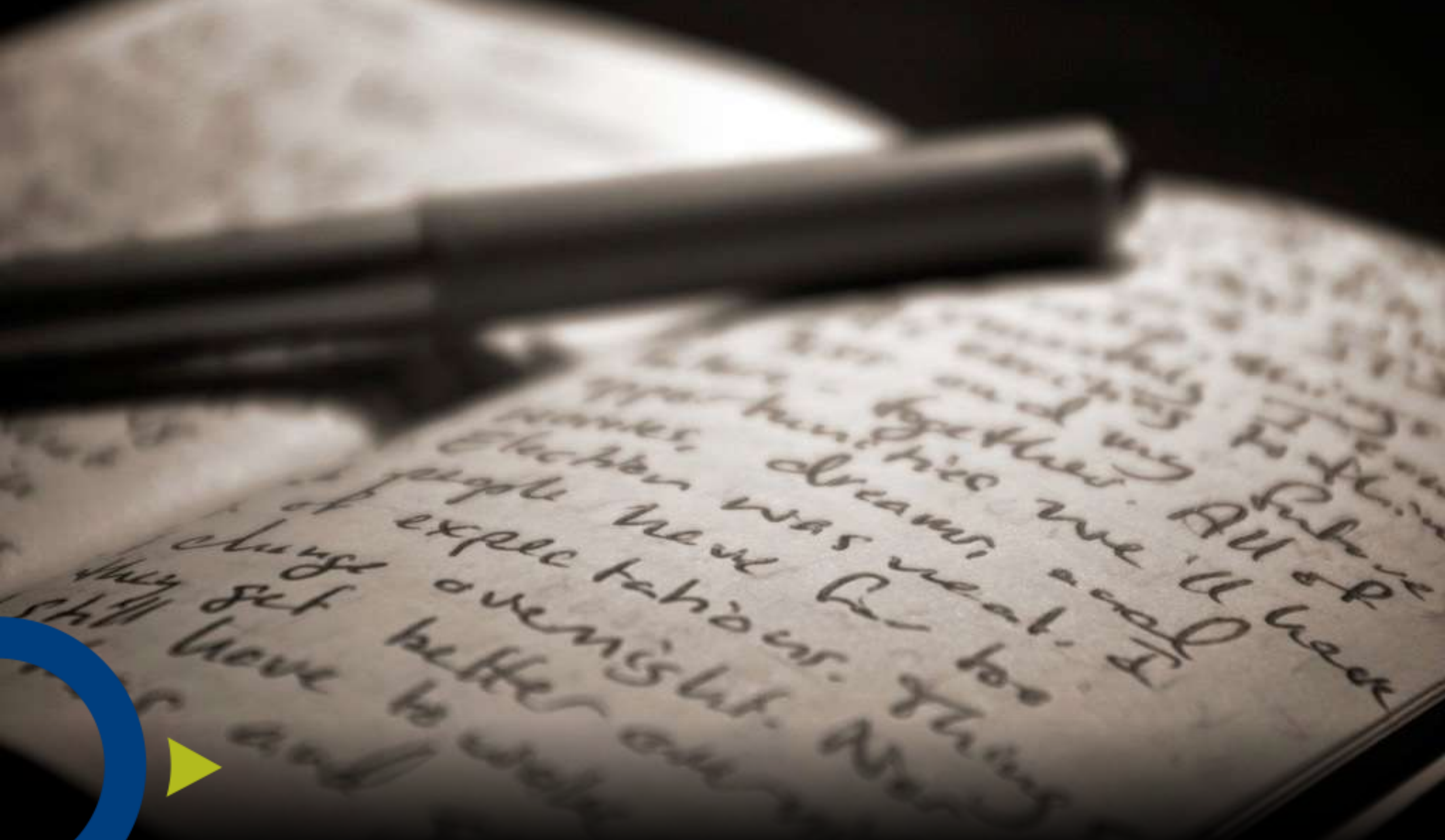
Woodrow Wilson International Center for Scholars, One Woodrow Wilson Plaza, 1300 Pennsylvania Ave., NW, Washington DC 20004-3027  
6<sup>th</sup> Floor Board Room, Friday, March 11, 2016



# ECOSYSTEM SERVICES Strategic Opportunities Roundtable







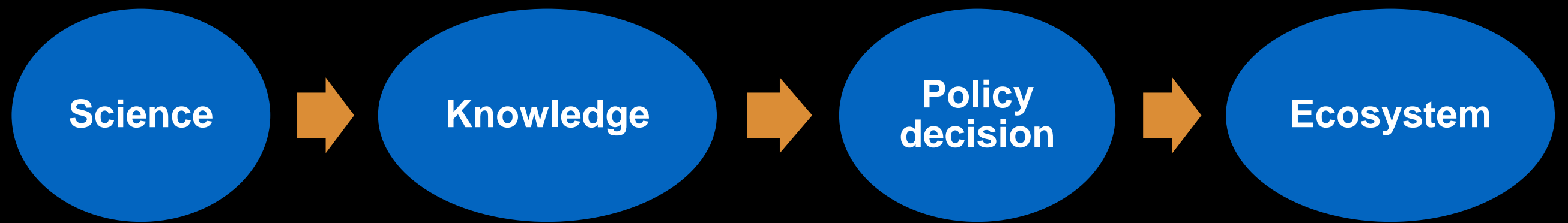
# The Impact of Ecosystem Services

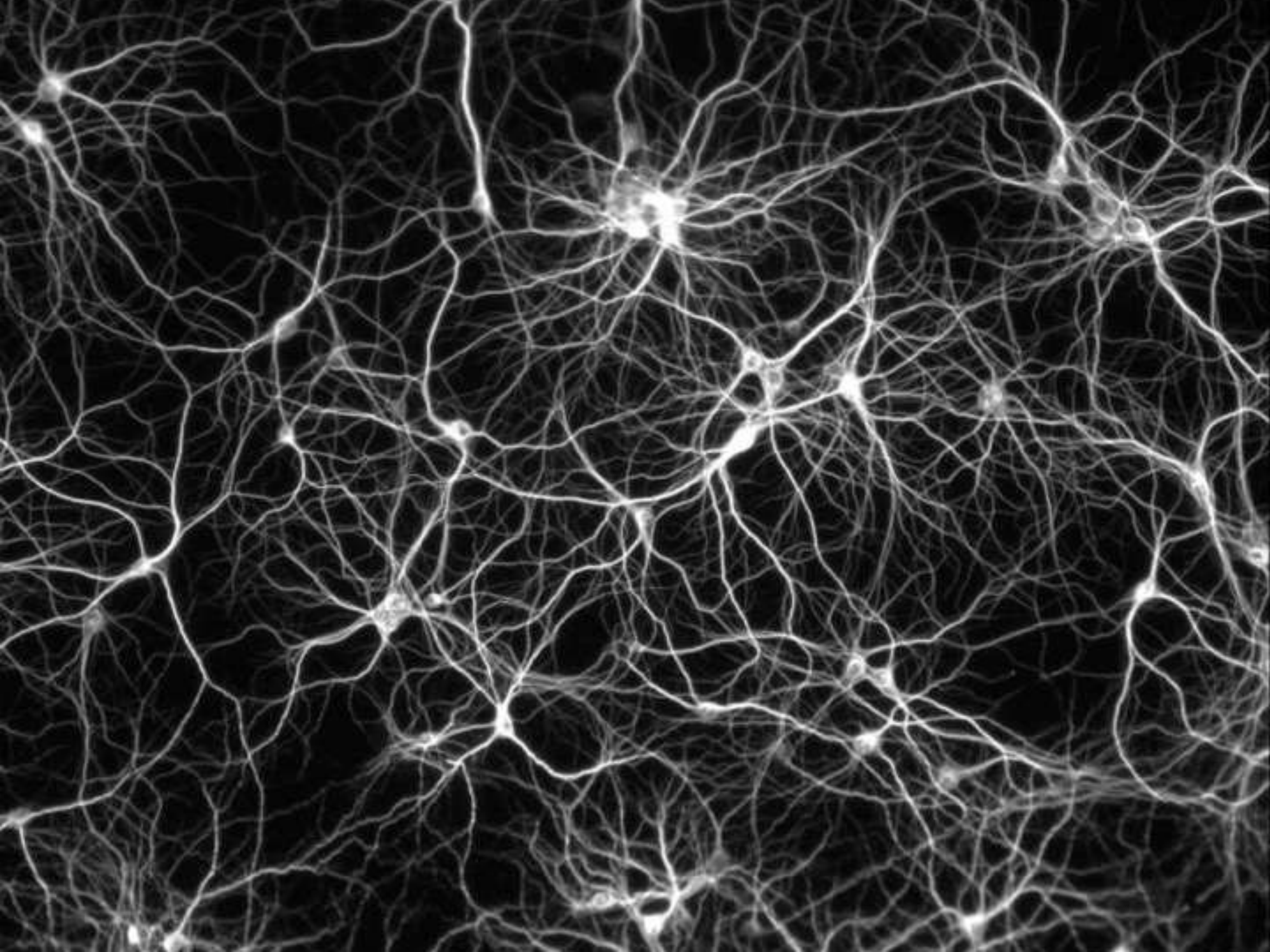
“ I read the presidential memo before I came and I thought [our agency] was an outlier. Now I see we are part of the balance – we are not an outlier, [our agency] is mainstream.

I will take this message to my colleagues... I have a different view of what I do every day.”

- Workshop participant









# Thank you



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The University of Vermont