

A word cloud featuring various terms related to innovation, science, and sustainability. The words are arranged in a dense, overlapping manner. The largest and most prominent words are 'Sustainability' at the top right, 'Innovation' in the center, and 'Science' on the left. Other significant words include 'Systems Thinking', 'Transdisciplinary', 'Collaboration', 'Transformative', 'Pathfinding', 'Leapfrogging', 'Problem-solving', 'Open Source Innovation', 'EPA', 'Environment', 'Solution Oriented', 'Integrated', 'Responsive', 'Challenge', 'Dialogue', 'Research', 'Inspiration', 'Creativity', 'Catalytic', 'Relevant', 'Invention', 'Timeliness', 'Bold', 'Change', 'Groundbreaking', 'Empowering', 'Communication', and 'Dialogue'. The colors range from dark red and purple to gold and brown.

Sustainability

Science

Systems Thinking

Innovation

Transdisciplinary

Collaboration

Transformative

Pathfinding

Leapfrogging

Problem-solving

Open Source Innovation

EPA

Environment

Solution Oriented

Integrated

Responsive

Challenge

Dialogue

Research

Inspiration

Creativity

Catalytic

Relevant

Invention

Timeliness

Bold

Change

Groundbreaking

Empowering

Communication

Dialogue



# ORD Innovation

*Presentation to the Science Advisory Board  
March 23, 2011*

*Peter Preuss  
Chief Innovation Officer  
EPA Office of Research and Development*

## What is innovation?

“Innovation is the profitable use of ideas”

“The intersection of invention and insight, leading to the creation of social and economic value”

*- U.S. National Innovation initiative*

“The development of new ideas and their economic application as new products or processes”

*- U.K. Department of Trade and Industry*

“Therefore, think of invention as the laying of an egg, innovation as the laying, incubation and hatching”

*- Gordon Graham*



## President Obama and Administrator Jackson on Innovation

## So Where are We?

**Sustainability**

Visible

Solution Oriented

Responsive

*Timeliness*

*Catalytic*

***Innovative***

Integrated → Systems Thinking

Integrity

**Trans-disciplinary**

**Relevant**

***Path Forward lays out ambitious directions  
and expectations for ORD research programs!***

# Innovation in ORD

How can innovation advance EPA's mission?

“Innovation transforms the useful seeds of invention into **[sustainable]** solutions valued above every existing alternative – that are then widely adopted **[to protect the environment and human health]**.”

*(adapted from innovation definition by Braden Kelley, founder of Business Strategy Innovation)*

Today we will highlight three ORD innovation activities

- Pathfinder Innovation Projects
- Tools for Collaboration
- Open Innovation

## Concerns from scientists

Ideas are indiscriminately killed, railroaded, or corralled

It all depends on the person in charge

Too caught up in day-to-day activities

Too much paperwork, too many approvals needed

Every idea can be stopped at too many points in the hierarchy

We find ourselves in wrong roles but are unable to change

*. . . list from recently hired high-tech staff at NOKIA*

## Concerns voiced by leaders and managers

We only allow certain people to think

Rules, titles, hierarchy

Pressure of day-to-day activities

Inability to create an innovative culture

Too much focus on the short-term

Too much energy spent fighting within our own organization

*. . . Senior bankers in Singapore*

# Pathfinder Innovation Projects

**Internal ORD competition** - Seed funding for innovative research

**Streamlined Process** - 10 weeks!

- 117 applications and over 300 applicants
- Diverse teams that included EPA program and regional staff
- Three external panels (27 reviewers) - *AA/ORD selections based on external reviews*
- Award announcement, 12 projects - January 31, 2011

## Comments from Pathfinder Panelists:

“This program is what leadership is about . . . “ - *Ken Olden*

“Congratulations to the team. Build the culture of innovation across the Agency.” - *Paul Gilman*

“A wonderful cross-cut of entrepreneurs with vision and ideas”  
- *Ken Geiser*

“The PIPs are a great excuse to begin a dialogue in the Agency about thinking outside the box. The data coming out of this reflects a certain “pent-upness” ; folks want to get out of their ruts.” - *Elisabeth Graffy*

# Pathfinder Innovation Projects

## Status

- Investigators have submitted project plans
- Exploring creative communications strategies
- Getting feedback on how to improve Pathfinder competition (Ideascale platform)
- Managing the valuable ideas in projects not selected

## Exciting Projects that Support EPA's Research Priorities

### Examples:

- Innovative biological treatment of drinking water contaminants
- Intentional design of nanomaterials to facilitate decomposition
- Applying cutting-edge genomics to assessment of chemical mixtures and of bacteria in water distribution systems
- New approaches to environmental monitoring using hyperspectral imaging on the International Space Station

# Tools to Increase ORD Collaboration

**Open Government Initiative** - to increase transparency, participation and collaboration

- ORD working to apply these principles to research
- Will increase collaboration within ORD; with EPA programs and regions; with external parties

## Current Activities

- Currently using *IdeaScale* , a collaboration platform for electronic conversations, to get feedback and input on research priorities and planning
- Continuously exploring new platforms and new applications for existing ones
- Soliciting input from internal and external groups on how to collaborate





## The U.S. Department of Defense New Idea Portal

A Part of the [DoDTechipedia Suite of Services](#)

Search:



### Propose an Idea

Funding decisions fast: DoD's new idea portal

The U.S. Department of Defense (DoD) is looking for a few really good ideas—concepts that have the potential to advance our military's missions. This program focuses on the development of leading edge, research-oriented technology culminating in the assembly of a pre-acquisition prototype or multiple prototypes suitable for field testing.

DefenseSolutions.gov is a portal through which innovative companies, entrepreneurs, and research organizations can offer potential solutions to the DoD needs. Although anyone can submit an idea, this portal, and the team behind it, primarily are designed to encourage companies to participate that have never considered doing business with the DoD. Government organizations, laboratories, institutions, and personnel are ineligible.

Use this portal to submit your ideas and get an initial response in less than 30 days. To begin the submission process for a current theme, click on the theme below, or join our e-mail list and we will notify you when other topics are added.

Our process depends on direct communication with you when you submit an attractive idea in an area needing a solution.

 [Click here to see how your intellectual property rights remain intact.](#)

**YOUR IDEAS  
ARE  
PROTECTED**

### Find Out More

Different ways to do business with DoD

DefenseSolutions.gov is a portal through which innovative companies, entrepreneurs, and research organizations can offer potential solutions to the Department of Defense. This portal, and the team behind it, are designed to encourage companies that have never considered doing business with DoD to participate.

Our process depends on direct communication with you when you submit an idea that is attractive in an area where we need a solution. The review process is continuous to avoid internal delays in decisions and review. [More »](#)

MORE ABOUT  
OTHER DoD RESOURCES

### NI/DoD CIO

Industry Outreach and Partnership



# Join the Dialogue





new idea

## Got feedback for the Geospatial Platform?



## Categories

All Ideas

**Common Data, Services and Applications**

Shared Infrastructure

Geospatial Segment Architecture

Governance

Portfolio Management

Other Ideas

## Social Web



17 likes. Sign Up to see what your friends like.

## Common Data, Services and Applications : Browse Popular Ideas

The Platform will deliver trusted geospatial data, services, and applications that are valuable to multiple agencies or customers to meet their business requirements. These common services will be registered and discoverable through the Platform. Please provide your ideas and comments on how we can improve this component of the Geospatial Platform Roadmap.

Recent (13) **Popular (13)** Hot (2)

I agree

COMMON DATA, SERVICES AND APPLICATIONS »

### Specify Open Standards

**34**  
votes

The Roadmap for the Geospatial Platform states it "will be established as a service-oriented architecture based upon common, secure, interoperable ... more »

I disagree

3 comments

Submitted by [Jeff Harrison](#) 1 month ago

I agree

COMMON DATA, SERVICES AND APPLICATIONS »

### Identify Funding Sources to Support Proposed Activities

**28**  
votes

Related governance efforts, strategic and business planning, and system and applications development all have a price tag and must be funded ... more »

I disagree

4 comments

Submitted by [William Burgess](#) 28 days ago

I agree

COMMON DATA, SERVICES AND APPLICATIONS »

### Specify full support the use of OSS COTS, rather than just COTS

**25**  
votes

From the plan: "Effective commercial off-the-shelf (COTS) systems and contractual business support operations are acquired more efficiently ... more »

I disagree

5 comments

Submitted by [Samuel James](#) 2 months ago

I agree

COMMON DATA, SERVICES AND APPLICATIONS »

### Utilize existing & grow new capability vertically for best ROI

**22**

# Ideas for Seattle

On behalf of Mayor Mike McGinn, welcome to Ideas for Seattle. The strength of our city comes from our talented citizens. We need your input so that we can work together to make Seattle a better place for all of us. Join in the conversation. [Sign up today.](#)

## City

[Sign in](#)

Welcome to Ideas For Seattle. Here you can contribute your ideas for the future of our city. You can also vote on existing ideas submitted by your fellow citizens.

To get started, simply choose a category from the list on the right. Then search to see if your idea has already been submitted. If it hasn't, you can then submit it for others to discuss or vote on.

### My idea is...

[top](#) [hot](#) [new](#) **accepted ideas** 4 [completed](#) 7

349  
votes

[vote](#)

### Upgraded internet infrastructure

The city should invest heavily in the availability of truly hi-speed internet connectivity throughout the city. As one of the worlds technology leaders, our city should be among the leaders in providing top of the line infrastructure for connecting to the internet.

This could come in many forms,... [more](#)

by [dandean](#) in [Internet Infrastructure](#) | [8 comments](#)

Status: **planned**

Exploring options for fiber-to-the home was something Mayor McGinn ran his campaign on, and continues to be a priority.

 [April Thomas](#)  
admin

21  
votes

[vote](#)

### More police downtown

I have not felt safe in downtown fow a long time, it is past time to clean up the crime. The police should run the streets not the thugs.

by [mndcrm](#) in [Public Safety](#) | [7 comments](#)

Status: **started**

10 votes left!

[What happens if I run out?](#)

 [City activity feed](#)

 [Need Help?](#)

### Categories

[All Ideas](#)

[Arts/Culture/Nightlife](#) (53)

[Budget/Government](#) (60)

[Education](#) (22)

[Gov 2.0](#) (51)

[Homelessness/Social Services](#) (40)

[Housing](#) (33)

[Internet Infrastructure](#) (16)

[Jobs/Labor/Green Jobs](#) (34)

[Neighborhoods](#) (53)

[Other](#) (93)

[Parks and Recreation](#) (67)



## How does it work?



Users submit their ideas.



Our community discusses and votes for ideas.



The best ideas bubble up to the top.

## Welcome to the SHCRP

The goal of the Sustainable and Healthy Communities Research Program is to develop solutions to environmental problems that are ecologically, economically, and socially sustainable over many generations. Our approach is transdisciplinary and depends on innovation and systems thinking in order to avoid unintended consequences. We are currently proposing to focus on projects at the community and regional scales, and that consider the physical and biological environment, human health, land stewardship, and environmental justice.

In this community, you can **submit** ideas, **vote** on existing ideas, or **add comments**.

To **submit** an idea, please click the new idea button below. You will then be asked to add a title and choose a category for the new idea. You will also have the option to add **tags** to the idea. To **vote** on an idea, simply click the up or down thumb to the left of the idea title/description. And to **add a comment**, click in the box below the idea.

If you would like to see all ideas created with a specific tag, you can click on the word or phrase via the tagcloud in the left navigation area under "**What we're discussing**". You can also view ideas sorted by **Categories** from the left navigation area. To return to this page, click the **All Ideas** link.

## Categories

Problem Statement/ Definition  
 Criteria/Tenets  
 Program Organization  
 Logo

## Browse Popular Ideas








PROBLEM STATEMENT/ DEFINITION »

3

### Proposed Problem Statement (b)

Sustainability will be operationally defined for each project, but must include the

# Open Source Innovation

Research strategies are changing in both public and private sector organizations -- from NASA, DOD to Proctor & Gamble, Eli Lilly

## **OSTP leading change in Federal Government**

- America Competes Act, OMB Directives, President's Strategy for American Innovation

## **Open Innovation Examples:**

- NASA: Forecasting solar flare events
- Oil Spill Recovery Institute: Separation of frozen oil from water
- Rockefeller Foundation: Solar water treatment; rainwater harvesting

# Next Steps on Open Innovation

**Host Challenges** - we are finalizing an agreement that will allow us to hold our own open source innovation challenges

**Identify Challenges** - work with ORD national program directors and EPA Program Offices and Regions to identify challenges of highest importance

**Training** - on how to write challenges to maximize likelihood of success

**Create links with other innovators**

**Coordinate with EPA's Science and Technology Policy Council**

**Create an environmental pavilion "sponsored" by EPA** - where others can post challenges

**Potential for Inter-Agency environmental pavilion?**- exchange information; look for solutions across Agencies

# ORD's Innovation Infrastructure

Support the inherent talents of ORD scientists and engineers in creative problem-solving

Champion the value of innovation to advance EPA mission  
– *as a tool for our reorientation around sustainability*

Create “signature projects” that demonstrate innovative problem-solving approaches

Encourage collaboration with external parties to help solve environmental problems

Look at issues from different perspectives  
– *leapfrog ideas, systems thinking, transdisciplinary research*

**Thank You** Innovation

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Integrated Transdisciplinary

Open Source Innovation