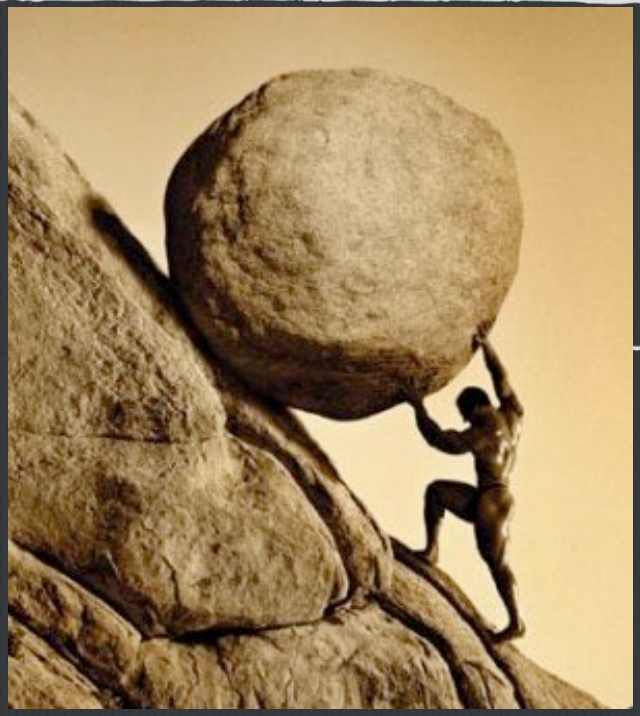
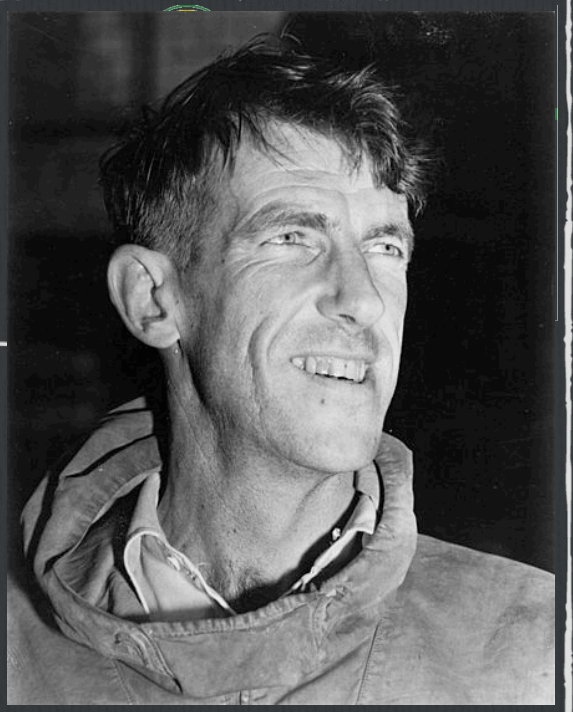


Sisyphus or Sir Edmund?



A Retrospective on Data Sharing

Homeland Security
Science and Technology

Erin Kenneally

Dept of Homeland Security
Cyber Security Division

Impact
Cyber Trust

The (non-Oxford) Debate

Q1. Has data sharing improved over the past 3-5 yrs? By what measures?

[Pre: Yes= ____ No=_____ On Fence=_____]

Q2. Will Sir Edmund (improvements)/Sisyphus (deficiencies) advance in the next 1-5 yrs? Why?

[Post: Yes=____ No=____ On Fence=____]

Motivating Questions

- What are the minimum components of sustainable data sharing?

- Are there good models of data sharing that get some element(s) right?
- Is a single model for data sharing desirable? Realistic?
- What should the public sector be doing to incentivize data sharing?
- Is sharing primarily a carrot/stick problem?
  - How to measure the ROI and effectiveness of data sharing?
  - Can data sharing (if done right) = competitive advantage?
  - Does data sharing need to be a legal and fiduciary responsibility?

Information Marketplace for Policy and Analysis of Cyber-risk & Trust (IMPACT) Objective

- Coordinate, enhance and develop advanced data and information sharing tools, datasets, technologies, models, methodologies and infrastructure to strengthen the capabilities of national and international cyber risk R&D.
- These data sharing components are intended to be broadly available as national and international resources
- To bridge the gap between producers of cyber-risk-relevant ground truth data, academic and industrial researchers, cyber security technology developers, and decision makers
- In order to inform policy and analysis of cyber-risk and trust.

Whatcha Got For Me?

- Internet survey, hitlist, history and census datasets (USC)

- Internet outage datasets (USC)
- IDTK datasets (CAIDA)
- Packet captures (Natl Collegiate Defense Competition) (PCH)
- Malware passive DNS data daily feed (GaTech)
- Access to Internet Atlas (UW)
- US Long-haul Infrastructure Topology (UW)
- Two datasets carved from the DARPA 2009 scalable network monitoring program: attack stream from a target viewpoint and an attack stream from the viewpoint of the attacking botnet (CSU)

Strategic Vision

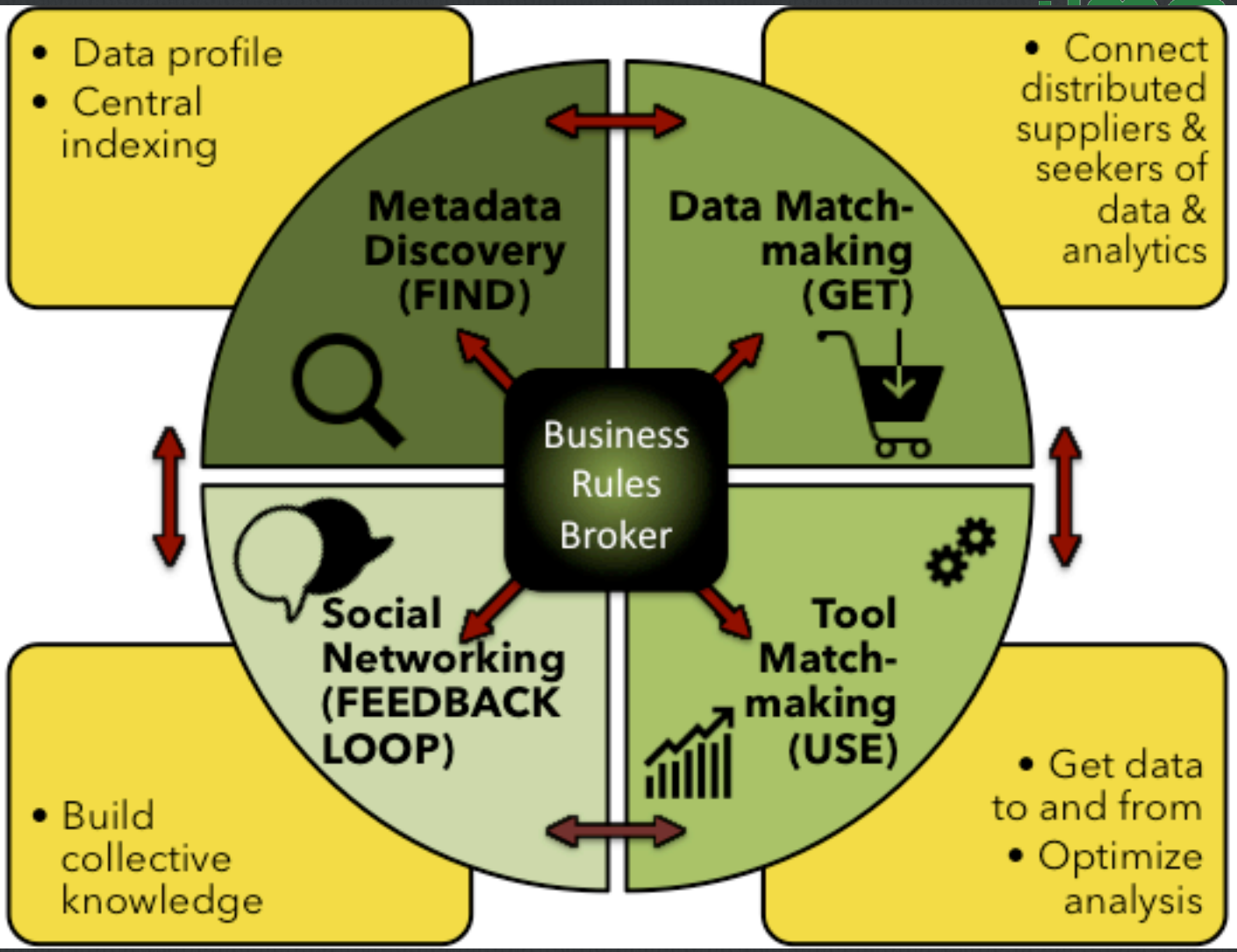
- Name reflects an evolved implementation of the program's goals:

  - Marketplace - A more open platform to connect and socialize data supply & demand;

  - Policy and Analysis - Research infrastructure driven by and for real world issues; and

  - Cyber-risk & Trust - Beyond just "defense" and "threats, an approach to sharing that views information as a critical infrastructure itself.

IMPACT STRATEGIC FOUNDATION :



RESEARCH REQUIREMENT INPUTS

Departmental Inputs

White House and NSS

Interagency Collaboration

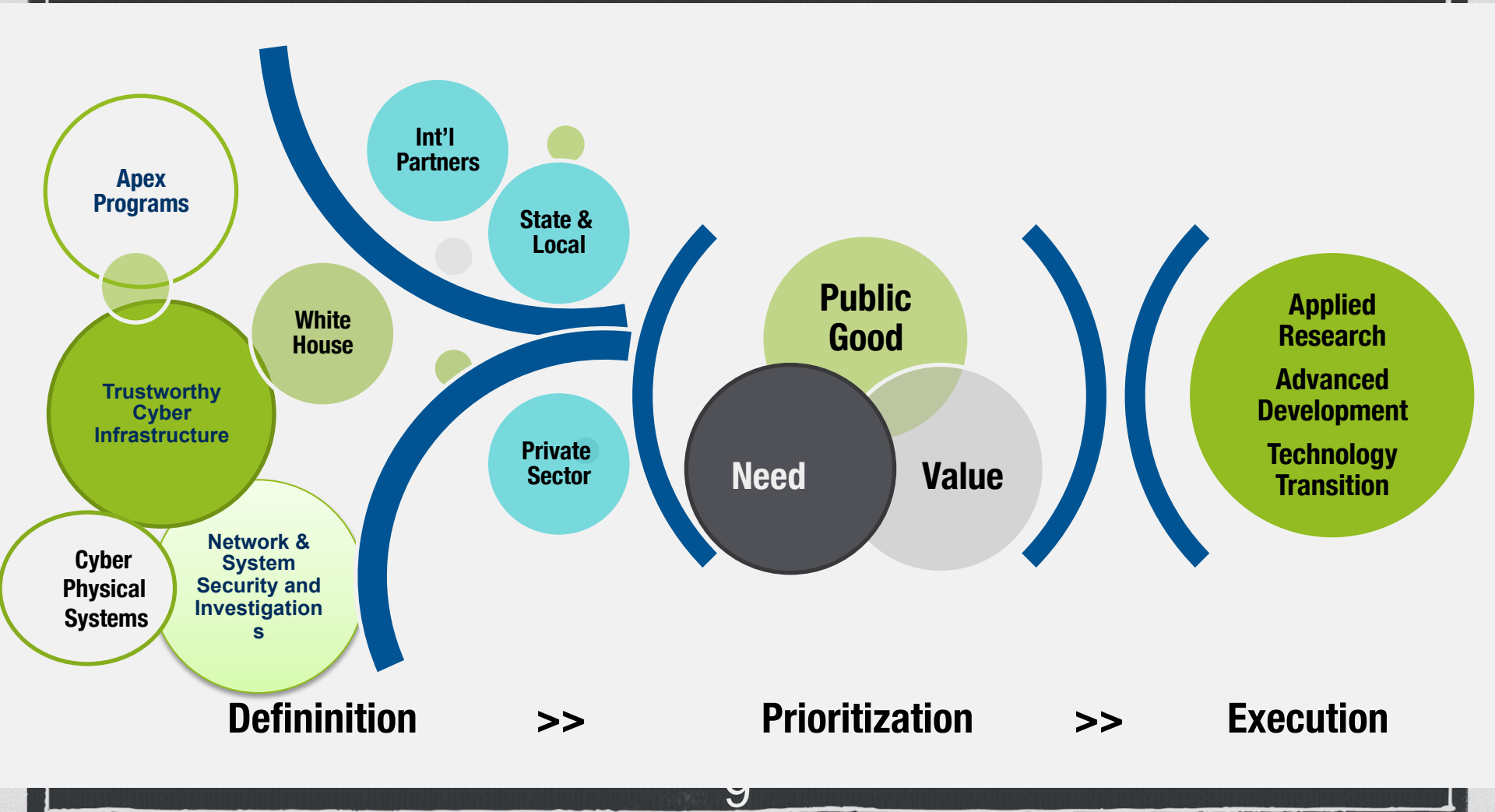
State and Local

Cyber Security Division

Critical Infrastructure Sectors (Private Sector)

International Partners

DHS S&T IMPACT Program - How Can We Help?



Your Turn to Share....

Data Marketplace Survey

http://www.surveygizmo.com/s3/1811299/Data-Analytics-Marketplace

15. What research questions or topics motivated your search for data? (check all that apply) *

- [ ] Peering relationships
- [ ] Internet economics
- [ ] Routing simulation
- [ ] Network security
- [ ] Complex networks
- [ ] System security
- [ ] Other
- [ ] Other

7. If you provide data to others, what type of data do you provide? *
Choose all that apply

- [ ] Address Space Allocation
- [ ] BGP Routing
- [ ] Blackhole Address Space
- [ ] DNS
- [ ] Infrastructure
- [ ] IDS and Firewall
- [ ] Internet Topology
- [ ] IP Packet Headers
- [ ] Performance & Quality Measurements
- [ ] Traffic Flow
- [ ] Sinkhole
- [ ] Synthetically Generated
- [ ] Unsolicited Bulk Email
- [ ] Not Applicable (I don't provide data to others)
- [ ] Other

. What is lacking with respect to your ability/desire to share data? *

	0 stars= not lacking; 5 stars= most lacking
Data exchange standards	✖ ★ ★ ★ ★ ★
Technical infrastructure (support & maintenance)	✖ ★ ★ ★ ★ ★
Administration (dataset curation & management)	✖ ★ ★ ★ ★ ★
Community coordination (e.g., feedback loop between data providers and seekers)	✖ ★ ★ ★ ★ ★
Data governance (standard rules and procedures for sharing data)	✖ ★ ★ ★ ★ ★
Legal assistance (knowledgeable advisement, accessible advisement)	✖ ★ ★ ★ ★ ★
Not Applicable (my ability/desire to share data is not lacking)	✖ ★ ★ ★ ★ ★
Enter another option	✖ ★ ★ ★ ★ ★

19. What are good examples of data sharing efforts that get some element(s) right? (e.g., SIE, Ren-ISAC, APWG, CsirtGadgets.org, SIE, CAIDA, CRAWDAD, Other) *

- [ ] SIE
- [ ] REN-ISAC
- [ ] APWG
- [ ] CSIRTGadgets.org
- [ ] CAIDA
- [ ] CRAWDAD
- [ ] Other
- [ ] Other
- [ ] Other

20. In general, what is lacking with respect to a scalable (widespread, multiparty) ability/desire to share data? *

(check all that apply)

- [ ] Data exchange standards
- [ ] Data administration capabilities (curation, management)
- [ ] Technical infrastructure (support and maintenance)
- [ ] Community coordination
- [ ] Data governance
- [ ] Legal assistance
- [ ] Other

- [ ] Other

21. Do you think there is a need for a data exchange marketplace where data providers and seekers can go to list and acquire data and analytical tools? *

Strongly Disagree	Disagree	Agree	Strongly Agree	No Opinion
○	○	○	○	○

22. If you agree/strongly agree to the previous question, what are the elements of that marketplace that you believe are needed

	0 stars= not needed; 5 stars= definitely needed
Comprehensive, centralized metadata catalog of available datasets	
Social networking platform for data Providers, Consumers, and domain knowledge experts (technical, ethical, legal/policy)	
Standardized policies and procedures for finding and requesting datasets from federation of Providers	
Library of standardized templates and methodology for identifying and evaluating risks, intended utility, and applying disclosure controls on published dataset	
Centralized interface for standardized search and communications	
Centralized interface for requesting data from federated and/or trusted network of data providers	
Centralized interface to matchmaking analysis requests and responses	
Tools for analysis	
Tools for data management	
Feedback loop/reputation indicator for datasets available for exchange	
Enter another option	

23. Would you be willing to pay (money, data, other resource) for data in an marketplace exchange? *

- [ ] No
- [ ] Membership fees
- [ ] Subscription fees
- [ ] Individual dataset fees
- [ ] Sponsorship fees
- [ ] Data
- [ ] Other

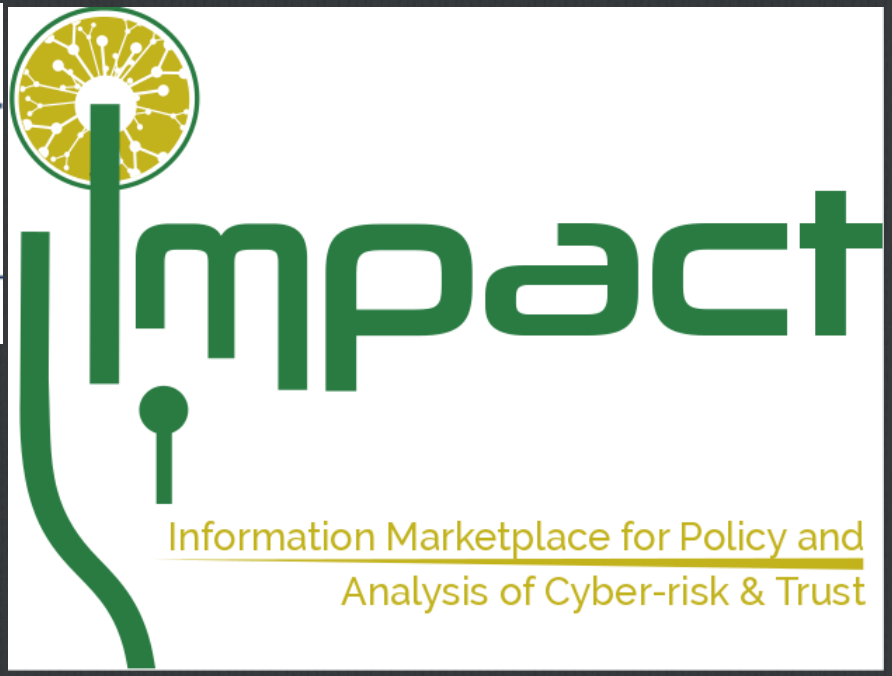
IMPACT

R DATA

V

WE WANT YOU!

Erin.Kenneally@hq.dhs.gov



www.impactcybertrust.org

Help Us Improve Data Sharing:
http://www.surveygizmo.com/s3/1811299/Data-Analytics-Marketplace