

A large, stylized green chevron pointing right, located on the left side of the slide, behind the title text.

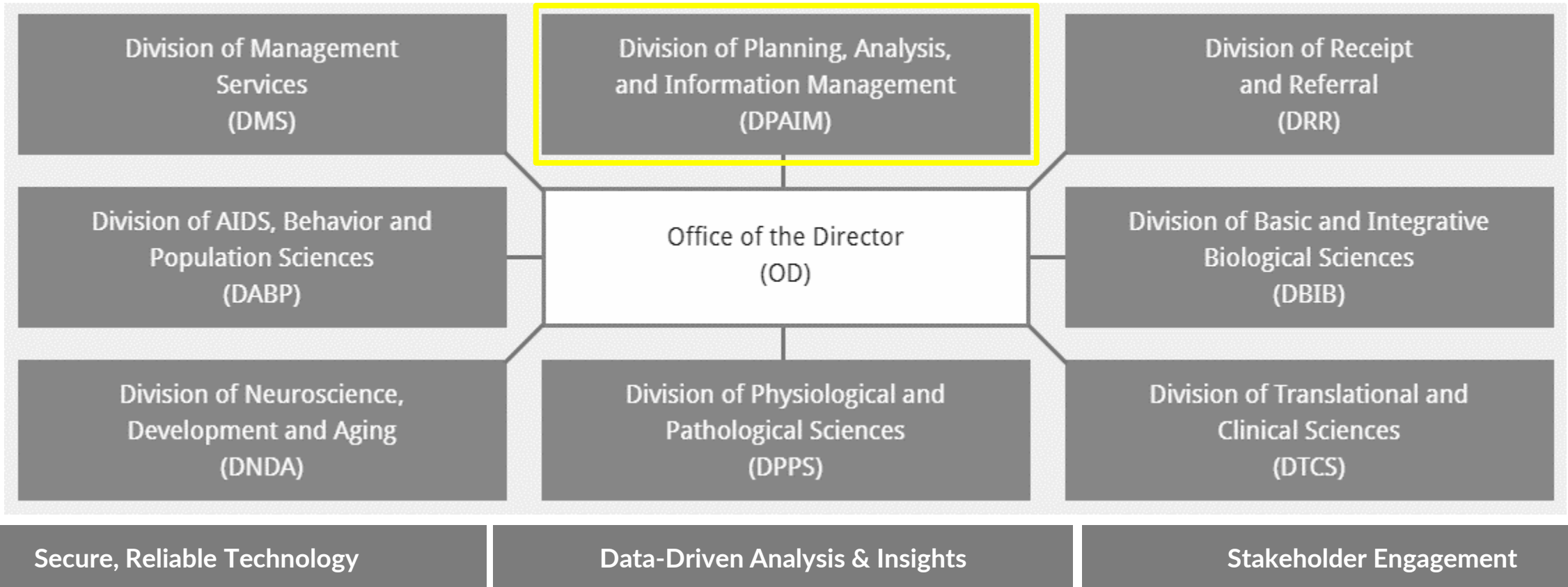
Peek Under the Hood: CSR's Data Analytics and Technology Support

CSR Advisory Council

September 19, 2022

Dipak Bhattacharyya, Ph.D.

In the grand scheme of things...

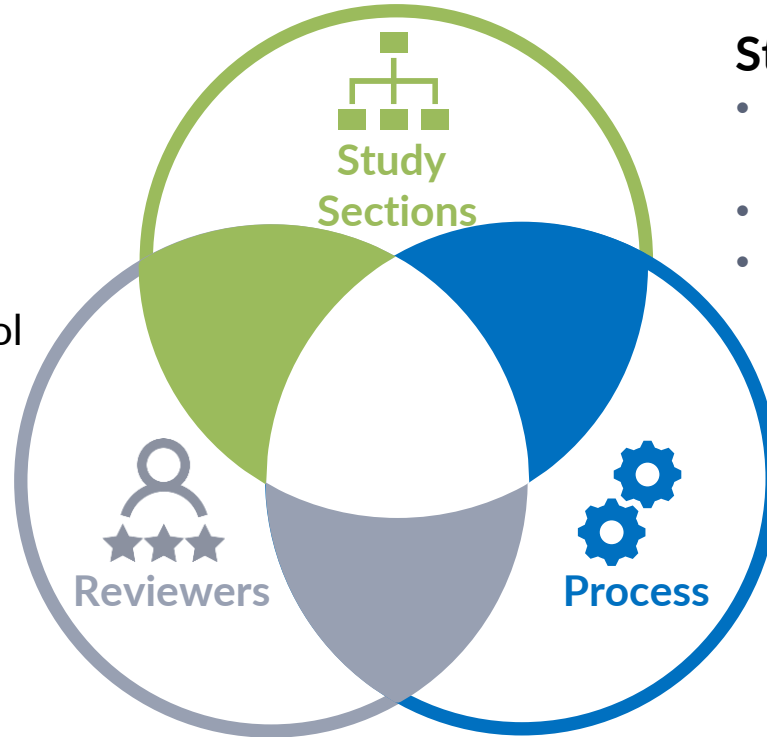


Critical partner for peer review mission and operations

CSR's framework drives DPAIM's purpose

Reviewers

- Reviewer Training
- Broaden/Diversify Reviewer Pool
- Incentivizing Service
- Reviewer Evaluation



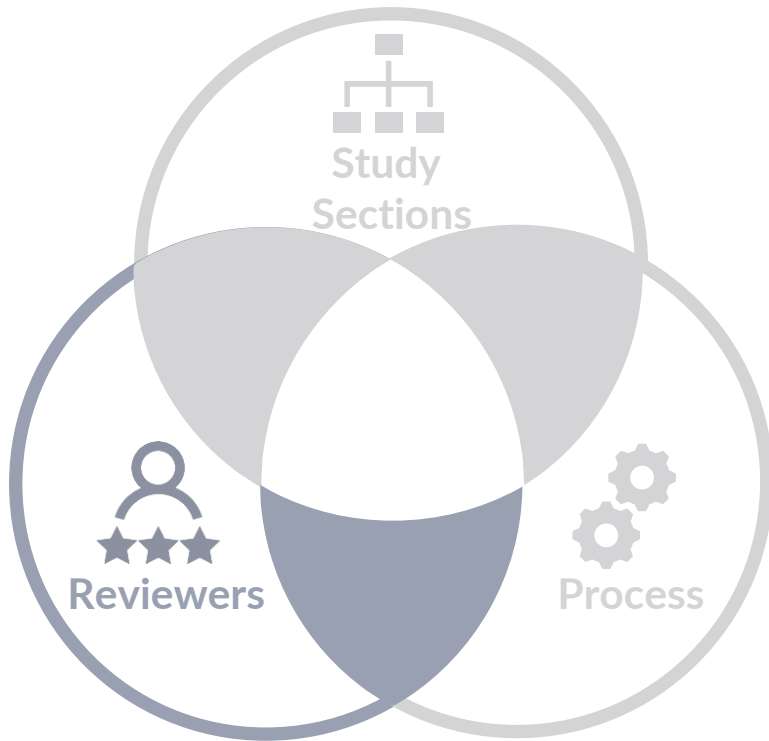
Study Sections

- Scientific Scope (relevance, adapting to emerging areas, not perpetuating stale science)
- Output (identification of meritorious science)
- Size Appropriate for Competition

Process

- Confidentiality/Integrity
- Fairness/Bias Mitigation
- Assignment/Referral of Applications
- Review Criteria and Scoring System

DPAIM Support: Reviewers



Reviewers

- Reviewer Training
 - *Bias Awareness and Mitigation module*
 - *Integrity module*
- Broaden/Diversify Reviewer Pool
 - *Reviewer Finder*
 - *Reasonable review via Reviewer Dashboard to avoid undue influence*
- Incentivizing service
 - *ECR Program*
- Reviewer Evaluation
 - *Preliminary research on Reviewer Network Analysis*

Multi-media, Interactive Bias Training for Reviewers, SROs

Launched Aug 2021 – prior to Fall 2021 meetings



Learning Objectives

We hope this training will:

1. Make you aware of potential sources of bias in peer review.
2. Provide you some tools to intervene if and when, you think you see bias in review.
3. Make you aware of the challenges of study section meetings. Study section meetings are busy and each application review only takes 10 to 15 minutes. It can go by fast.



Select the picture to watch this scenario. While watching, try to identify potential sources of bias.



Developed all Bias Training modules:

- **Video production**
- Tracking and monitoring
- Analytics for user progress and completion
- Secure login



~13,000
reviewers completed bias training

New Version - Review Integrity Training



Furthermore, the fact that Dr. Jensen disclosed the seminar invitation to the SRO allowed the NIH to put together some pieces of a puzzle.



- Upgraded to new platform – adding additional security
- Interactive
- Tracking and monitoring/analytics
- Automated communication to reviewers with generated link to access



Is the reviewer doing anything that could constitute a breach in integrity?

Please select Yes or No. Then select submit to continue.



Dr. Joanna Nowak

☐ Yes

☐ No

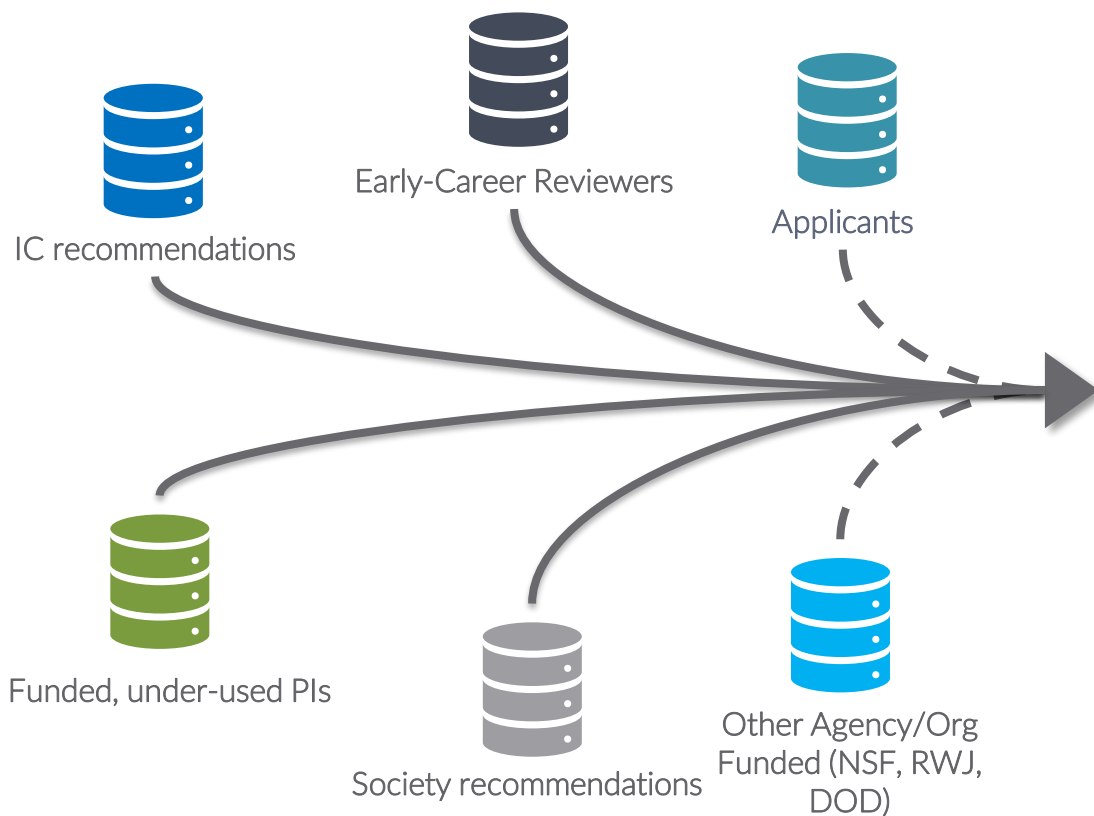
Submit



~700

reviewers completed integrity training

Reviewer Finder



Multiple Data Sources

Reviewer Pools

NIH Center for Scientific Review

Reviewer Finder

Hi Rashid Shah | [Feedback](#) | **Updated daily**

Search All Reviewer Pools | [Clear Search](#) | ☐ Advanced Search

Enter Search Terms (Profile ID, email, last name, expertise, study section, R15)

[Search Reviewers](#)

Reviewer Pools

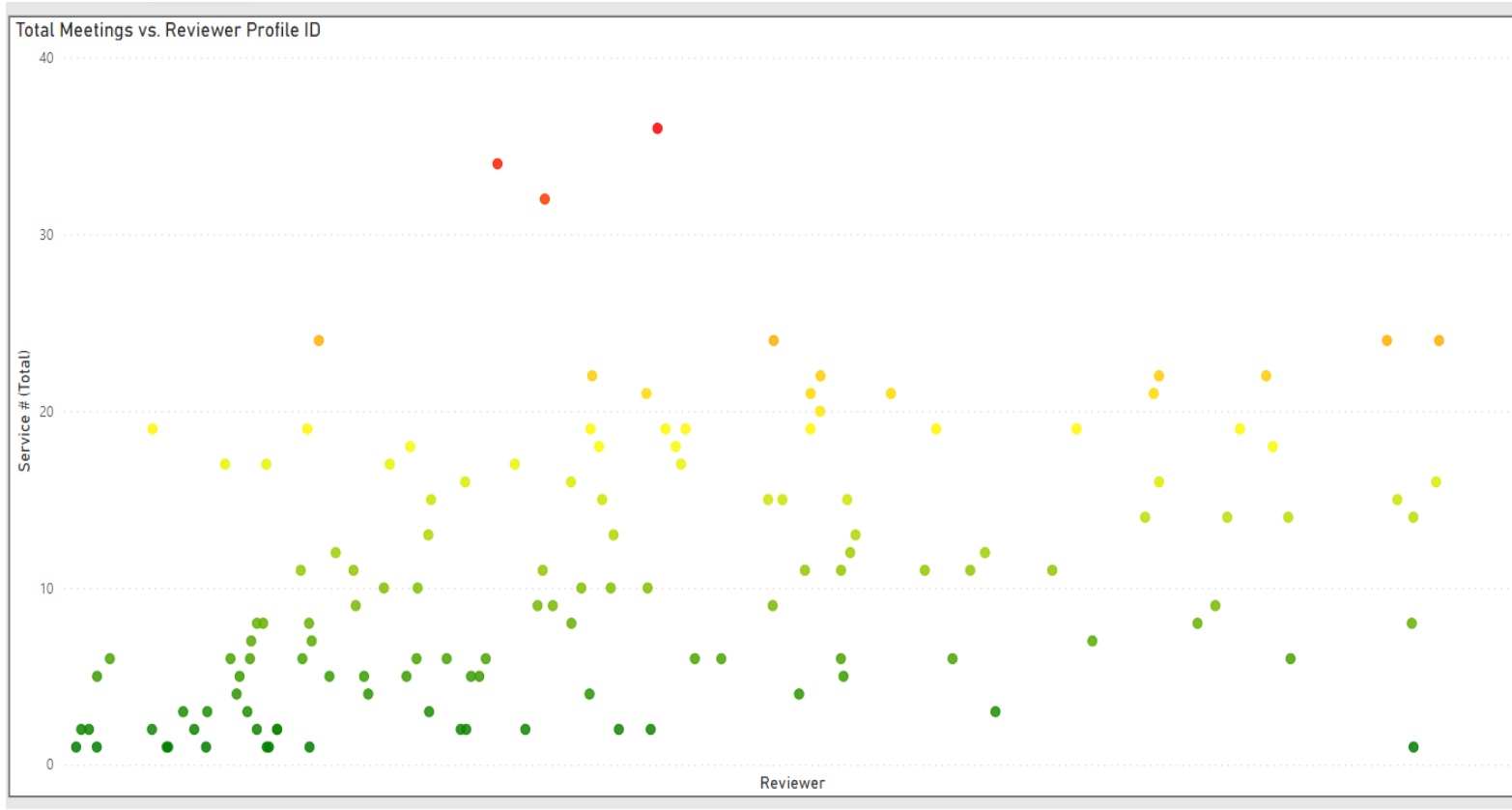
- > [All Pools \(Main\). \(36310\)](#)
- > [All Pools \(Advanced\). \(36310\)](#)
- > [Approved ECR. \(1084\)](#)
- > [Society Recommendations. \(423\)](#)
- > [IC Recommendations. \(863\)](#)
- > [Funded PI. \(5085\)](#)
- > [NIH Applicants. \(18835\)](#)
- > [Small Business. \(10013\)](#)
- > [Grantees - non-NIH sources. \(11041\)](#)

Welcome to Reviewer Finder

This tool pulls information on potential reviewers from multiple sources. Their presence in this database is not a seal of approval. **Check QVR for a DNU flag** before recruiting anyone from these sources. You should also use your own judgement in considering whether these scientists have adequate and appropriate expertise. Prior NIH funding is not a requirement for review service.

One interface – user-friendly for SROs

Reasonable Review Service via Reviewer Dashboard



- Displays report to assist SROs as they consider which reviewers to recruit, in keeping with a need to avoid undue influence.
- Collected and curated 12 years of review history, 32K reviewers
- Developed algorithm to identify and display usage status on-demand

Early Career Reviewer Database



[Home](#) > [For Reviewers](#) > [Become a Reviewer](#)

Early Career Reviewer (ECR) Program

The program aims to help early career scientists become more competitive as grant applicants through first-hand experience with peer review and to enrich and diversify CSR's pool of trained reviewers.

[Benefits of ECR](#)

[Qualifications for ECR](#)

[Apply to ECR](#)

[ECR Training](#)

[ECR Webinars](#)

ECR Qualifications



Employment

You have at least 1 year of experience as a fulltime faculty member or researcher in a similar role. Post-doctoral fellows are not eligible.

You must be an Assistant Professor or in an equivalent role. Because the program is focused on early career scientists, Associate Professors are not eligible.

Research

You show evidence of an active, independent research program. Examples include publications, presentations, institutional research support, patents, acting as supervisor of student projects.

Grant & Review History

You have not served on an NIH study section in any capacity aside from as a mail reviewer. (Mail reviews do not include participation in the meeting.)

You have not held an R01 or R01-equivalent (R35, R37, RF1, R23, R29, DP1, DP2, DP5, U01, RL1) grant in the PD/PI role

You must have submitted a grant proposal, in the PI/PD role, to the NIH and received the associated summary statement.

- Implemented the system for external community
- Can enroll/apply as ECR
- Automated validations for eligibility criteria (NIH data)
- Eligible ECRs immediately available to use by SROs
- Matches ECRs to study sections for SROs to select (even if the ECR does not make a request)
- Tracks ECR recruitment to panels over time

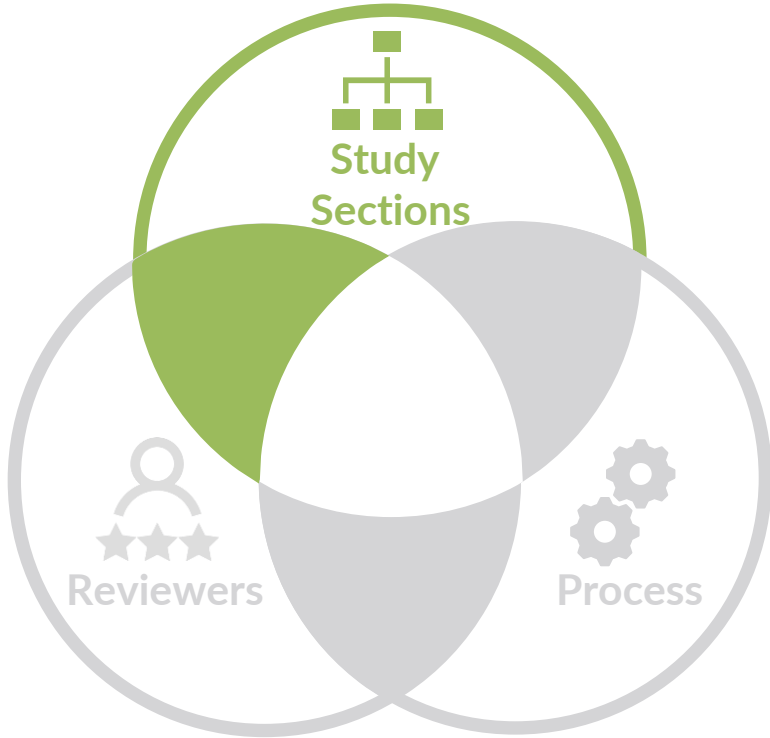
Conducting Preliminary Research: Network Analysis



Artificial intelligence/machine learning approaches to analyze connections among applicants/reviewers to flag potential unidentified conflicts-of-interest.



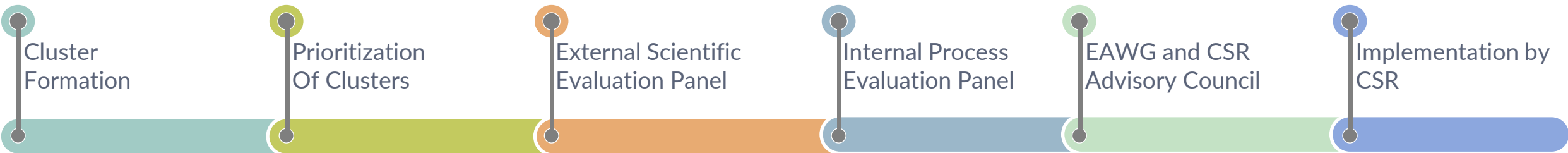
DPAIM Support: Study Sections



Study Sections

- ENQUIRE Support
- eSlate- System for annual nomination slates for standing panels

ENQUIRE Analyses



Provide data and analytics:

- Word clouds for current study sections
- ESI application numbers and success rate
- Bibliometric analyses
- Scoring trends

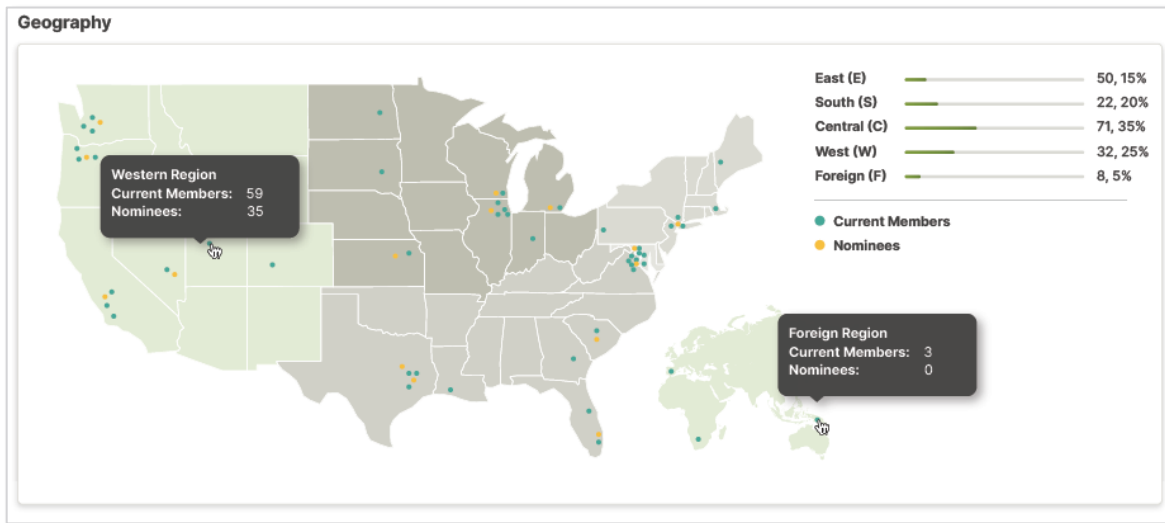
The screenshot shows the 'CSR ENQUIRE' website. At the top is the NIH logo. Below it is a dark blue header with the text 'CSR ENQUIRE' and an illustration of two people in lab coats. The main content area is white and features the title 'Brain Disorders Clinical Translational' in large, bold, black font. Below this is the subtitle 'For External Committee' in a smaller, bold, black font. There are five links listed in blue text: 'Bibliometrics, Early Stage Investigators, and Workload Trends', 'SRG Word Clouds', 'Descriptions and Topical Bullets', 'Scientific Guidelines', and 'Cluster 3 Orientation Slides'.

eSlate- System for Annual Nomination Slates for Standing Panels



eSlate

- Ensure compliance with NIH and CSR policies
- Automated workflow for vetting at multiple levels
 - Workflows for approvals
 - Internal messaging
 - IC recommendations
- Enables insights on member demographics and expertise



NIH eSlate Byrnes, Noni

Dashboard

Your Active Queue (5) [+ Create New Slate](#)

Year	Division	Branch	Study Section	Regular/Supplemental	Date Added	
2022	DPPS	EMNR	NMHD	Regular	02/17/2022	RESUBMISSION
2022	DPPS	DKUS	XNDA	Supplemental	02/15/2022	RESUBMISSION
2022	DNDA	EMNR	AUD	Regular	02/10/2022	RESUBMISSION
2022	DABP	EMNR	LCBM	Regular	02/05/2022	
2022	DTCS	EMNR	EMNR	Supplemental	02/01/2022	

Slate Filters

Year Division Branch Study Section Regular/Supplemental Filter

Year	Division	Branch	Study Section	Regular/Supplemental	Status
2022	DNDA	EMNR	NMHD	Regular	SRO Chief DMA DD CMO OD DIR Jun 3 Jun 6 Jun 9 Jun 20 Jun 27 Jun 29 TBD
2022	DBIB	DKUS	XNDA	Regular	SRO Chief DMA DD CMO OD DIR Jun 27 Jun 28 Jun 29 TBD TBD TBD TBD
2022	DPPS	EMNR	NMHD	Regular	SRO Chief DMA DD CMO OD DIR Jun 3 TBD TBD TBD TBD TBD TBD
2022	ONDA	BCMB	AUD	Regular	SRO Chief DMA DD CMO OD DIR Jun 3 Jun 6 Jun 9 Jun 20 Jun 27 Jun 29 TBD
2022	DABP	CB	LCBM	Supplemental	SRO Chief DMA DD CMO OD DIR Jun 3 Jun 6 Jun 9 Jun 20 Jun 27 Jun 29 TBD
2022	DNDA	MDCN	MTE	Regular	SRO Chief DMA DD CMO OD DIR Jun 29 Jun 28 Jun 29 TBD TBD TBD TBD
2022	DBIB	BDDP	MSFA	Regular	SRO Chief DMA DD CMO OD DIR Jun 27 Jun 28 Jun 29 TBD TBD TBD TBD
2022	DPPS	CB	MRAB	Regular	SRO Chief DMA DD CMO OD DIR Jun 28 Jun 27 Jun 28 Jun 29 TBD TBD TBD

DPAIM Support: Process



Process

- Confidentiality/Integrity
 - *Dashboards relevant to peer review*
- Fairness/bias mitigation
 - *Anonymization check for Transformative R01s*
- Assignment/Referral of Applications
 - *Assisted Referral Tool - automating receipt and referral processes*
 - *Science similarity tool*
- **Supporting distributed workforce**
- **Engagement** – holding onto our talented team

Dashboards: Decision-making, Changing behavior and Raising awareness



Executive Dashboards

CSR Director's Dashboard: Allow CSR Director to:

- Monitor workload /hiring trends
- Help employees maintain work-life balance
- Assist in recruiting and retention

Peer Review Staff Dashboards

Reviewer Dashboard

- Monitor and diversify our panels

Meeting Dashboard

- Centralized overview of meeting metrics, displaying important information about the meeting(s) for SROs and staff
- Identifies potential problems early so they can be addressed well in advance of the meeting
- Effective tool for supervisory oversight

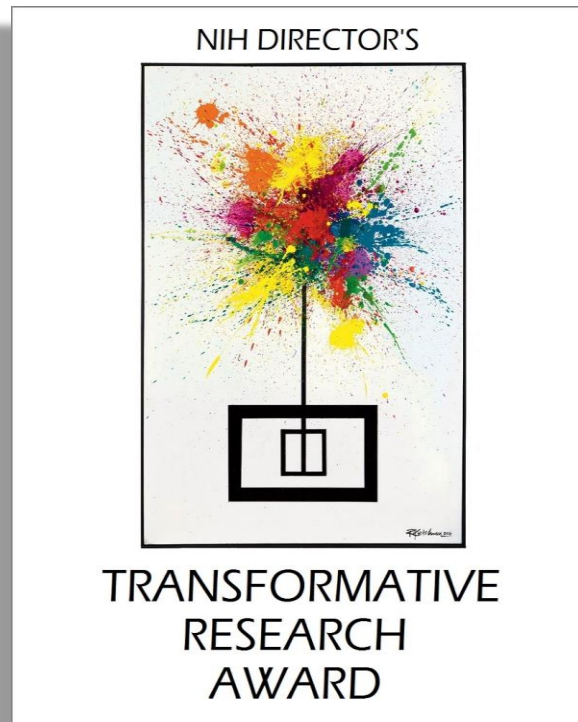
Dyad (reviewers from the same university)

- The dashboards allow monitoring for dyads - ensures diversity of opinion

High-Risk High-Reward Research Program: Transformative Research Award



The TRA program is exploring a partially-blinded review process, where ideas and feasibility are to be evaluated before person and place are considered.



- The sections of the application evaluated in the initial stages cannot have identifying information.
- Collaboration with the Common Fund High Risk, High Reward (tR01) program
- TRA Anonymization Check, an online tool that allows applicants to verify that their specific aims and research strategy sections do not contain identifying information.

Assisted Referral Tool as a Platform



- Applicants, referral staff, and branch chiefs are using ART to facilitate the identification of potential study sections for assignments
- Particularly useful for NIH staff for those rare difficult-to-assign applications
- More useful to staff than Matchmaker in [NIH RePORTER](#)
- This tool taps into the universe of applications submitted to the NIH, not only funded grants, and it returns only active study sections, not defunct ones



Science Similarity Tool



- Alleviates mundane tasks so Receipt & Referral staff can focus on tasks requiring thought, decision-making skills, and experience.
- Reduces effort spent identifying overlapping applications by flagging applications that may require in-depth analysis.
- Increased the identification of duplicates by 40%

Science Similarity Scorer (SSS)

☒ Accession Number ☐ Application ID

Submit

Enter a grant Accession number/Application ID in each of the boxes above to assess how similar those grants are to each other. To compare one or more application to multiple applications, enter the numbers separated by a comma in either/both of the above boxes.

4713649	Influence of Social Media, Social Networks, and Information on Vaccine Acceptance Among Black and Latino Individuals	4713649	Influence of Social Media, Social Networks, and Information on Knowledge About Vaccines Among Black and Latino Individuals	0.000
4713649	Influence of Social Media, Social Networks, and Information on Vaccine Acceptance Among Black and Latino Individuals	4853391	Discover and characterize genes, enhancers, and variants associated with endosomal trafficking in Alzheimer's disease	0.885
4713649	Influence of Social Media, Social Networks, and Information on Vaccine Acceptance Among Black and Latino Individuals	4814952	Early molecular events in neurodegeneration	0.885
4713649	Influence of Social Media, Social Networks, and Information on Vaccine Acceptance Among Black and Latino Individuals	4883768	Identifiable plant allelic microevolution patch for pain management	0.887
4713649	Influence of Social Media, Social Networks, and Information on Vaccine Acceptance Among Black and Latino Individuals	4887582	The impact of tobacco marketing on the age of initiation of cigar tobacco products in the USA	0.815

0
Exactly similar

0.25
Very similar

0.50
Somewhat similar

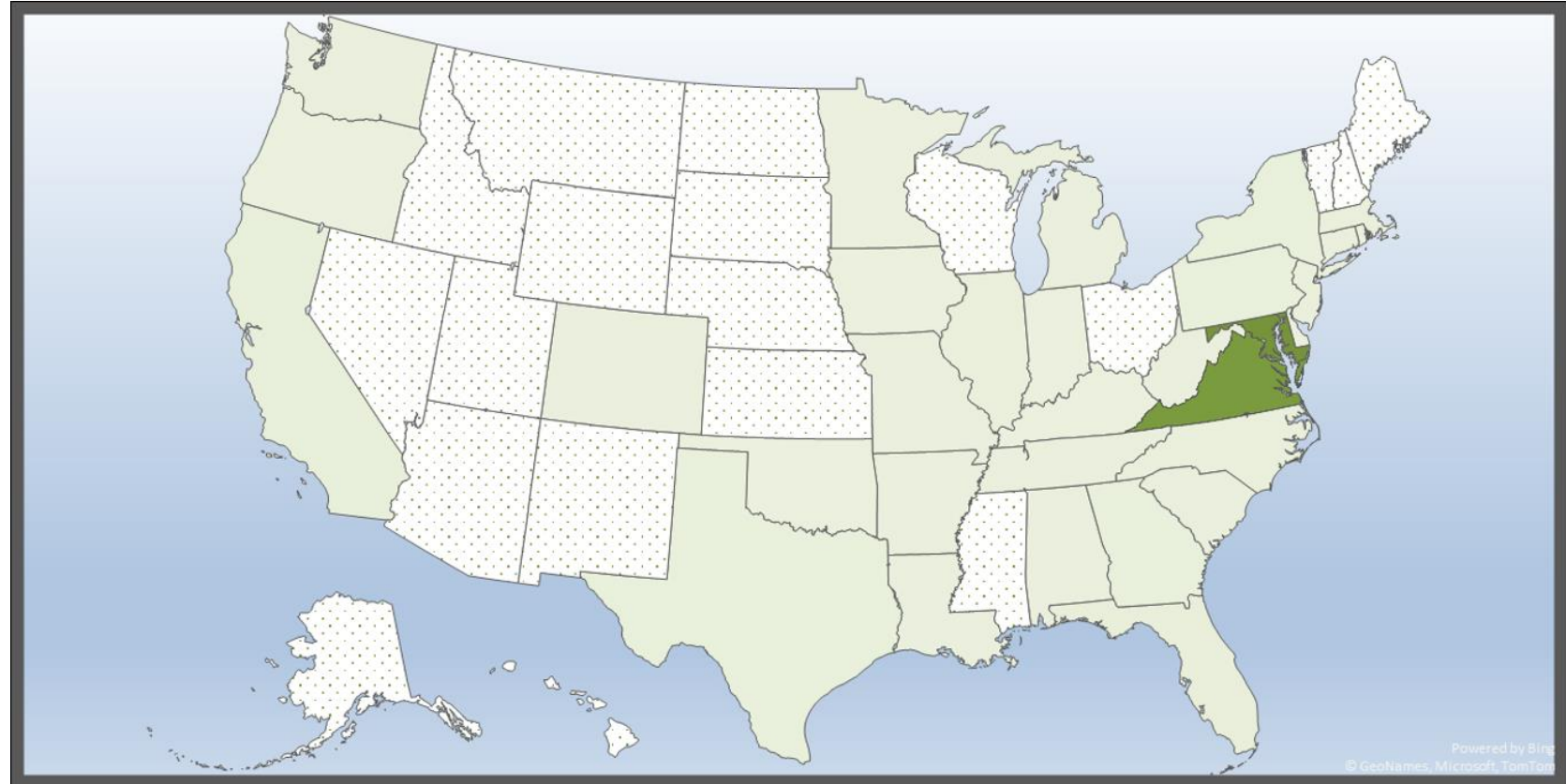
0.75
Somewhat dissimilar

1
Distinct

Supporting a Distributed Workforce



- **Video Assisted Meeting** – virtual review meetings (1,253 meetings in 2021) **also conducted** review & advisory council meetings for NCATS, NIDA, OFACP, and NIDCD
- **Virtual capabilities** - connecting the distributed workforce with secure and reliable technology for effective collaboration
- **Hybrid workplace best practices** – engagement and awareness ensuring digital literacy, secure and modern infrastructure, on-demand IT support, remote handholding



Train must keep running – efficiently, securely – support for CSR’s people, systems and operations



DPAIM demonstrated foresight to assess and procure best-of-breed technology and allowed CSR to continue peer review uninterrupted

Foresight

Established Zoom as platform of choice months before pandemic :

- Attained FedRAMP certification
- Acquired licenses
- Quickly trained staff

Effectiveness

- CSR immediately moved from in-person to virtual review meetings
- *No meetings were canceled*
- All meetings successfully held in virtual format



All this happens due to our very talented and engaged staff... it's not just the technology, it's the people



Questions?