IEEE PES Subcommittee on Big Data & Analytics for Power Systems

Big Data Webinar Working Group Report

2022 IEEE PES-GM
Denver, CO

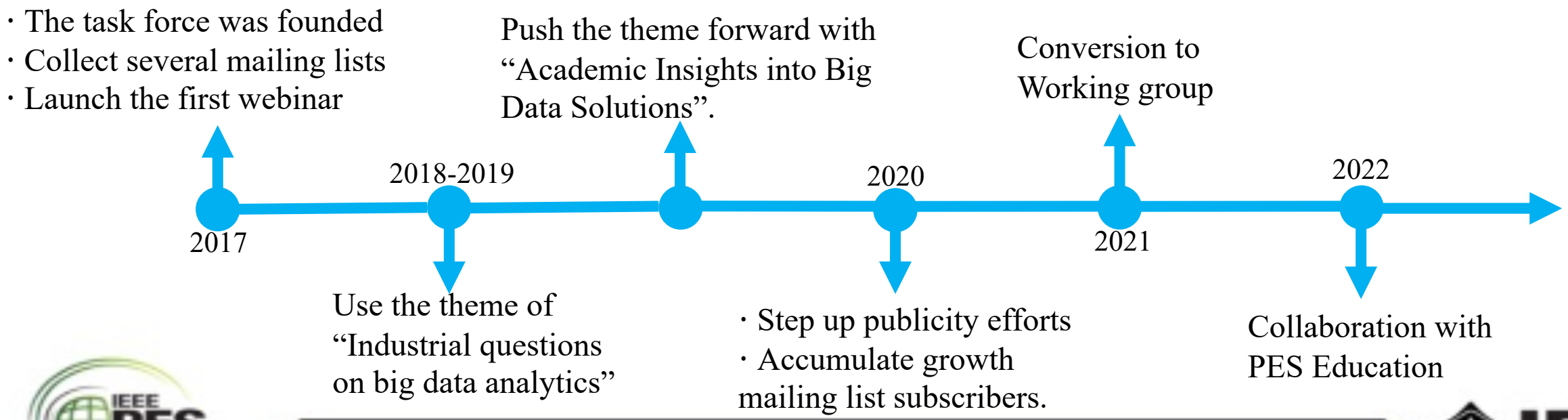
- Presenter: Qiushi Cui, Yang Weng, Zhuoheng Wang

Introduction-Summary of the Past Work

The original goal:

- Bring together leaders and luminaries.
- Improve the analytical methods in power system operations.
- Share innovations with professionals and educate students.

Summary of the past work:

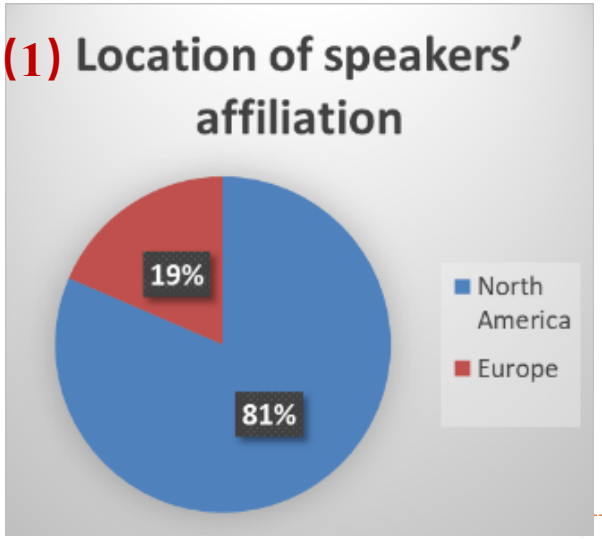


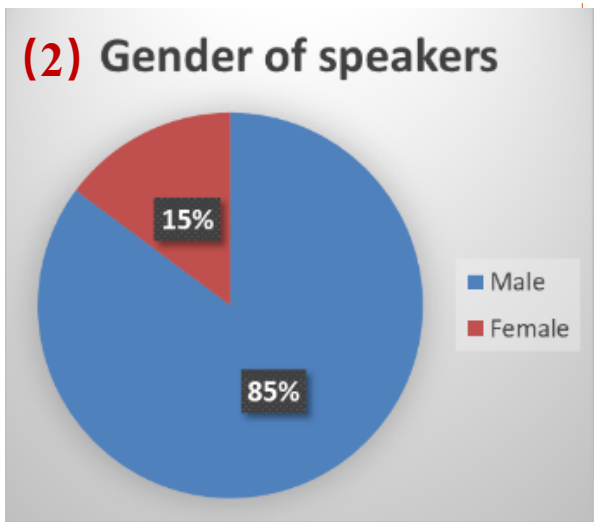
Current Status of the Task Force

By far, 27 webinars were successfully organized.

27 webinars are viewed from

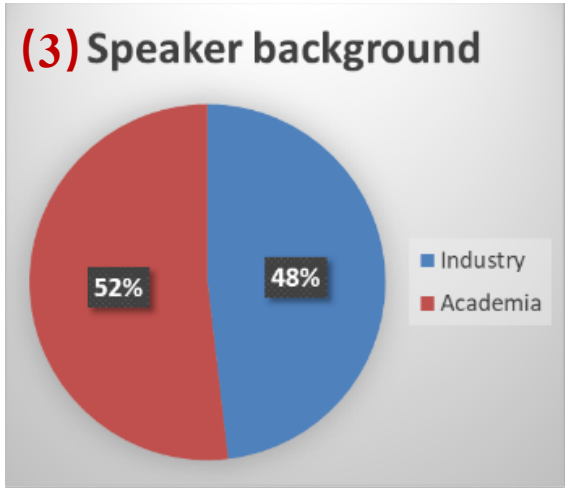
- (1) Location of speakers' affiliation
- (2) Gender of speakers
- (3) Speaker background
- (4) Age of speakers
- (5) Highest degree of speakers

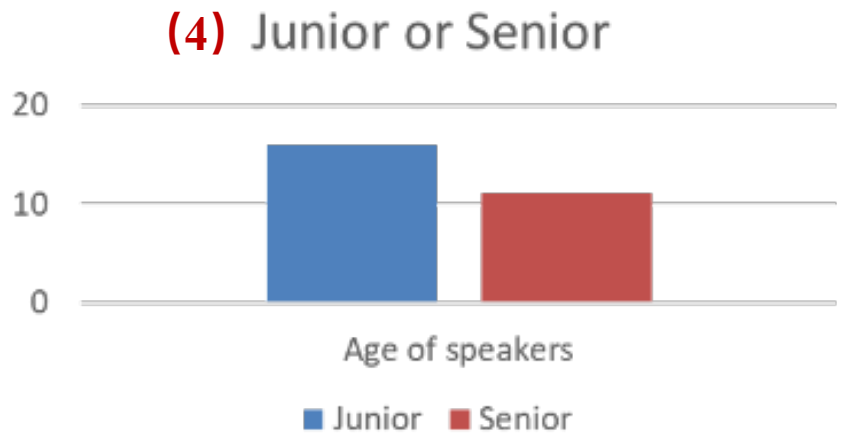


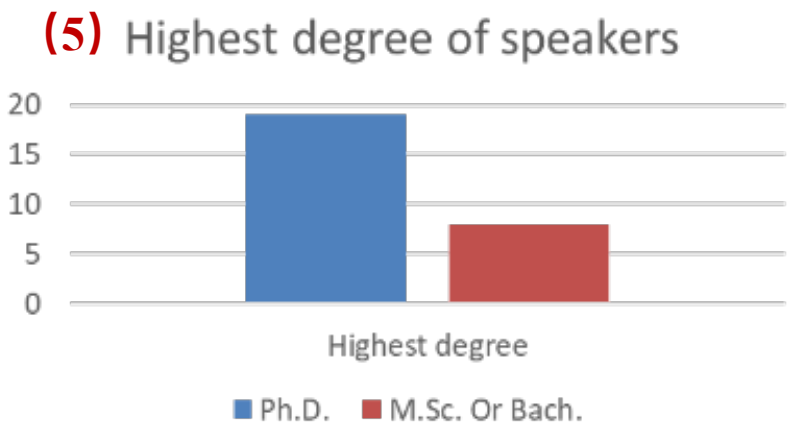


Analysis:
Non-North America and female speakers are playing an active role in our organized webinars.

Current Status of the Task Force







Analysis:
Achieve a balance on speakers from industry and academia.

Analysis:
Junior and senior researchers and engineers are both active in the field.

Analysis:
The speakers with Ph.D. degree are more than two times of the ones with Master's degree.

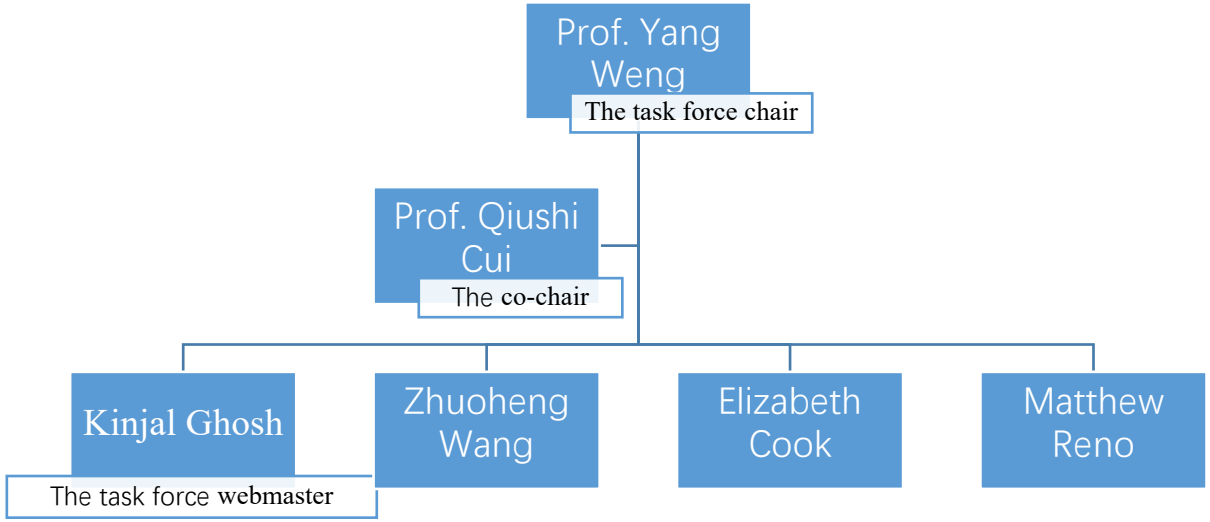
The number of online audience:

more than 50 people each time since December 2019

336 audience in April 2020

Current Status of the Working Group

Staff:



The subscription webpage:

· Upcoming webinars are presented and the past webinars are well documented.

· Provide the title, date, speaker bio and the abstract.

· Provide as well slides, open source code(if any), webinar videos and an offline Q&A section.

Latest webinar:

1.Learning and control in power distribution grids

17 March 23, 2022

🎤Steven Low

Provided data and papers about EV charging.

2. Distributed Optimization, Prediction, and Privacy Presevation in Power Grids

17 March 14, 2022

🎤Anuradha Annaswamy

Papers are frequently cited.

3. The Increasing Data Streams in Power Grid Operation

17 January 24, 2022

🎤Anjan Bose

Provided research papers.

4. Low Voltage Data Analytics: Roadblocks, Challenges, and Future Opportunities

17 October 20, 2021

🎤Peter Grindrod and Stephen Haben

Large audience numbers and high page views.

IEEE PES Power & Energy Society

IEEE

Innovative Ways to Recruit Speakers

(1) Promise a webpage for each speakers, create links for the speaker's personal website, and list his/her publications.

(2) Help the speakers collect associated statistics for funding application.

(3) Provide a support letter for the speaker's proposal, educational impact and global sustainability

(4) Advocate for the speakers on their future competition, tutorial, papers, etc.

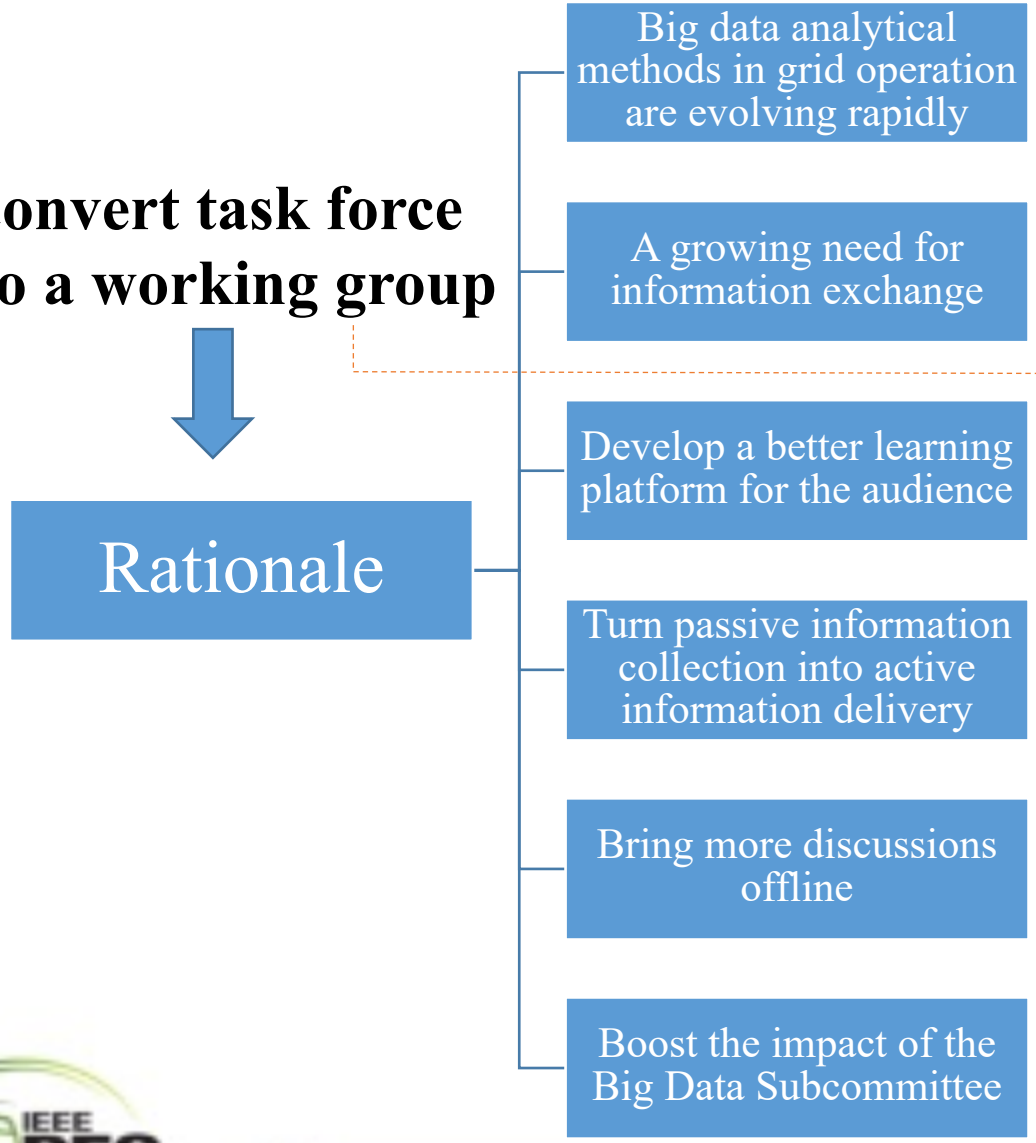
Achievement:

Our webinars have gained the popularity among the audience and were noticed by the IEEE PES officers.

To leverage innovative ways to recruit speakers

Rationale Behind the Elevation Request

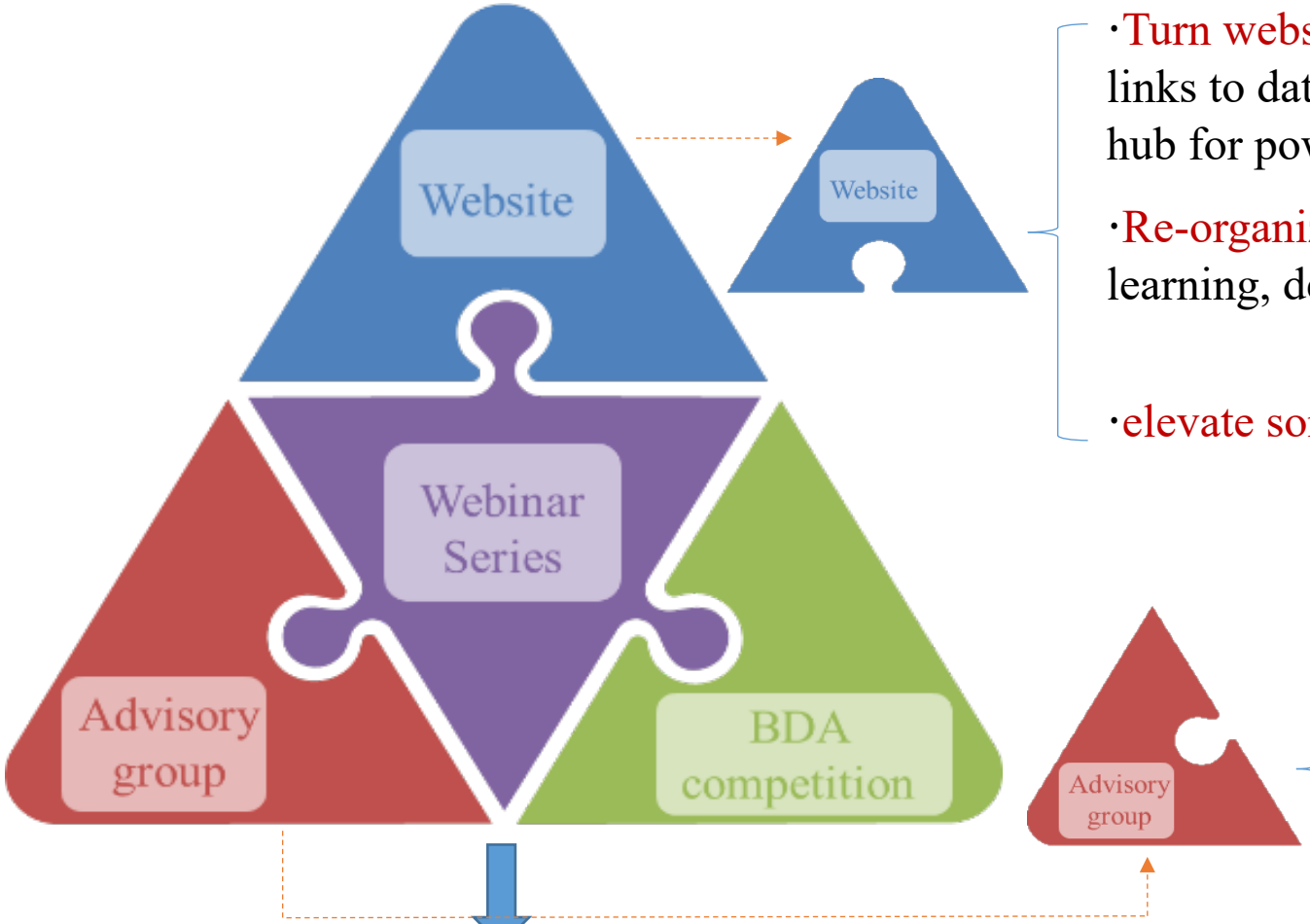
convert task force to a working group



Successful stories:

Power System Communications and Cybersecurity Committee move its S8 task force to a working group to develop a cybersecurity standard

Future Work Triangle



·Turn website group into an educational group.→provides some links to data analytics basics from various website → an educational hub for power engineers and students

·Re-organize the current talks into different topics, e.g., (un)supervised learning, deep learning, semi-supervised learning, reinforcement learning

·elevate some talks to advanced topics.

·Offline activities like Q&A will be thriving. → periodically collect questions for our speakers to answer

·Writing white papers and publishing educational papers.→ highlight the observation that our subcommittee finds

To form a sustainable mechanism

Organization Activities and Target Outlook

- What we are proud of ?

  The assistance of data-power-based competitions.Currently,We are sponsoring the RTE international competition(Prof. Weng's group – 2nd place last year).

- what can we do ?

a) In order to sustain the learning environment,We turn passive learning into active learning.

b) Based on the RTE competition,We organize related webinars and tutorials.

c) We have different subarea topics for all by-products(philosophy, webpage, code).

- What will we do?

a) We create resource pages for students to learn data scientists' work to help power grid operations.

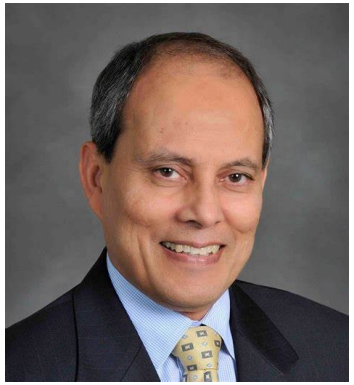
b) We let power engineers know more related opportunities to broaden their career view.

c) We reversely contact data-power companies to support the competitions we are proposing.

Preparation For The Asian BDA Tutorials

The preparation work:

1. **Select well-known universities from countries in the Asia-Pacific region (China, Japan, South Korea, Australia, New Zealand, Singapore, etc.).**
2. **Connect with well-known professors and scholars in related fields of these universities.**
3. **Professors and scholars give lectures on the direction of big data and energy research.**



Saifur Rahman
IEEE President
Research Interests:
Alternate energy;Smart grid
Uncertainty evaluation;
Environmental impacts

We plan to invite IEEE President Saifur Rahman to be our opening speaker, kicking off the first Asian-Pacific BDA tutorial.