## Open Meeting Minutes October 31, 2019 09:00AM to 12:00PM

Georgetown University, Lohrfink Auditorium, Rafik B. Hariri Building, 3700 O St NW, Washington, DC 20057

The Defense Innovation Board (DIB) is a federal advisory committee within the Department of Defense (DoD) operating pursuant to the Federal Advisory Committee Act of 1972, the Government in Sunshine Act of 1976, and other appropriate federal regulations. The DIB meets quarterly and held its thirteen public session on October 31, 2019 from 09:00AM to 12:00PM in the auditorium of the Georgetown University, Washington, DC.

DIB Members (voting) (12)

Daniela Rus Eric Schmidt Jen Pahlka

Kurt Delbene (dial-in) Michael Mcquade Milo Medin

Milo Medin Richard Murray Mark Sirangelo

Neil deGrasse Tyson (dial-in) Missy Cummings (dial-in) Adam Grant (dial-in) Danny Hillis (dial-in) DIB Staff Support (non-voting) (8)

Mr. Joshua Marcuse, Executive Director Collen Laughlin, Designated Federal Officer

Ms. Schuyler Moore Ms. Courtney Greenley Mr. Aaron Schumacher Ms. Chenny Zhang Ms. Erin Bugg

Ms. Colleen Laughlin

Mr. Ben Bain Ms. Jaelin Lespier Ms. Destiny Okonkwo Ms. Michelle Arbec

Public Commenters (20)

Erick Lenderman

John Price

Eric Van Hoose

Gordon Nall

Donald Lane

Alfredo Diaz

Aaron Barruga

Thomas Creely

Heerak Kim

Natividad Fernandez-Sola

Ron Garnett

Angel Smith

Elaine Thompson

Manna Theodatau

Steve Lauver

Stevie Greenway

Col Brown

Heerak Christian Kim

Stuart Wagner

Guru Nagaraja

## **PUBLIC MEETING OVERVIEW**

- 1. Preview DIB's 6 current projects
- 2. Receive updates from Workforce, Behavior, & Culture (WBC) Subcommittee
  - a. Deliberate and vote on Workforce Now
  - b. Deliberate and vote on Campaign for an AI Ready Force
  - c. Receive an update on upcoming work on the DoD innovation ecosystem, large-scale training, and leveraging tech talent in the Reserves.
- 3. Receive updates from Science & Technology (S&T) Subcommittee
  - a. Deliberate and vote on Fully-Networked Command, Control, and Communications
  - b. Deliberate and vote on Zero-Trust Architecture
  - c. Deliberate and vote on Software Acquisition and Practices Source code
  - d. Deliberate and vote on AI Ethics Principles
  - e. Receive update on upcoming work on Bio-Technology, Microelectronics, and Verified Trust Environment.
- 4. Receive a DoD "Implementation Update" on past DIB recommendations
- 5. Hear comments from the public.

## PUBLIC MEETING SESSION

# (please see attached transcript for detailed comments)

## 0930-0940 Opening Remarks

- o Administration & Compliance Designated Federal Officer
  - The DFO (Collen Laughlin) opened the proceedings with welcome remarks and thank you to the host organization, and a reminder about FACA and the Sunshine Act.
- o Introduction & Agenda Review Executive Director
  - o The Executive Director (Joshua Marcuse) introduced the board members and provides an overview of the agenda.
- Opening Remarks Board Chair
  - o The Chair (Dr. Eric Schmidt) started the meeting with brief remarks, including DIB's 6 projects, and hand off to Jen Pahlka for the WBC update.

## Workforce, Behavior, and Culture (WBC) Subcommittee Update

## 0940-1000 Workforce Now

- o Jen Pahlka kicks off WBC portion.
  - Jen Pahlka, WBC Co-Chair reiterated WBC's charter mission and emphasize the current talent management crisis for technical talent, and focus of the subcommittee's effort around its project, "Workforce Now."
  - o Jen provided highlights of Workforce Now findings and proposed recommendations and lead Board members to deliberate the issue.
  - Once deliberations were exhausted, the Chair moved to vote on Workforce Now
  - o The Workforce Now recommendation passed with all in favor

## 1000-1015 Campaign for an AI Ready Force

- Led by Jen Pahlka and Michael McQuade
- O After the vote, Jen emphasized the importance specifically for an AI Ready force, and introduce the findings and recommendations on Campaign for an AI Ready Force. Jen and Adam Grant will shared observations and recommendations on workforce-related issues, to include the NSCAI AI workforce model. Jen noted an AI Ready force requires more than just human capital, and welcome Michael McQuade to comment.
  - Michael McQuade addressed non-talent related aspects of the Campaign for an AI Ready Force, and on behalf of Jen then opened the discussion for members to deliberate.
  - o Chair moved to vote on Campaign for an AI Ready Force
  - o The AI Ready Force vote passed with all in favor.
- Jen Pahlka preview upcoming WBC efforts. She will then close out the WBC subcommittee update.

### Science and Technology (S&T) Subcommittee Update

## 1015-1025 Fully-Networked Command, Control, and Communications

- o Richard Murray kicks off S&T portion and provided an update on the S&T subcommittee along with input from Michael McQuade, and Milo Medin.
  - o Richard Murray will acknowledge the S&T committee's heavy workload on four things FNC3, Zero Trust, SWAP and AI Ethics Principles.
  - Richard Murray hands off to Milo Medin and Mark Sirangelo, who will present Fully-Networked Command, Control, and Communications (FNC3) summary and recommendations.
- Milo Medin and Mark Sirangelo sequentially led the discussion on FNC3 focusing on two parts organizational silos and understanding the art of the possible. After presenting other board members were deliberated; after deliberations, the Chair moved to vote.
- o The FNC3 vote passed with all in favor.

#### 1025-1040 Zero Trust Architecture

- o The Chair asked Richard Murray to continue and present the Zero Trust Architecture update and recommendations, and then invite members to deliberate.
- Richard Murray provided an overview of Zero Trust Architecture stating that it assumes
  that the network perimeter is porous and that the network can be compromised. He talked
  about Zero Trust is a least privilege access model. Deliberations from board members
  included comments and questions from the Chair, Milo Medin, Daniela Rus, Kurt
  Delbene, and Danny Hillis.
- o Chair moved to vote on Zero Trust Architecture.
- o Zero Trust Architecture passed with all in favor.
- o The Chair then asked Richard Murray to continue the S&T update.

## 1040-1050 Software Acquisition Reform: Feedback

 Richard Murray then introduce S&T subcommittee re-look of its previous SWAP recommendation on source-code (recommendation D1) and present clarification, and welcome members to deliberate.

- o Chair will move to vote on revised SWAP recommendation.
- o Revised SWAP recommendation passed with all in favor.
- The chair then asked Richard Murray to continue with the S&T update.

## 1050-1120 AI Ethics Principles Project (AIPP)

- Led by Michael McQuade
- o Michael McQuade provided background and summary of the AI Ethics Principles effort (slides displayed) and present proposed principles for members to deliberate.
- Deliberations swirled around the "off switch question" mainly between Danny Hillis, Richard Murray, Michael McQuade, Milo Medina, Daniela Rus, Jen Palhka and the Chair. Technical difficulties did make the deliberation challenging.
- Once deliberations were exhausted, the Chair moved to vote on the AI Ethics Principles.
- o AI Ethics Principles passed with all in favor

## 1120-1125 S&T Future Work

- o Richard Murray led
- Richard Murray briefly previewed upcoming efforts, biotechnology, microelectronics supply chain, and verified trust environment and closed out the S&T subcommittee update.

## 1125-1140 Update: Department Implementation of Recommendations

- o Joshua Marcuse led, with input from Jeffrey Boleng (SWAP)
- o Josh Marcuse briefed the members on current Department Implementation of selected DIB recommendation, and invite Jeff Boleng to provide a SWAP implementation update.
- Jeff Boleng talked about emphasizing the importance of software in our acquisition system and in our weapons systems. He described the SWAP report lines of effort and recommendations dealing with a new software pathway and the establishment of a new color of money.

## 1140-1155 Public Comments (2 Minutes Per Presenter)

- o Josh Marcuse led
- Josh Marcuse prompted the public comment period. Josh noted presenters have up to two
  minutes, and Board members are not permitted to respond to questions or
  comments. Josh was the moderator. Board members listened, but Board members will
  not respond to comments or questions.
  - Josh Marcuse announced the end of the public comment period, gave a quick recap of the meeting, provided brief direction for audience, invited the public to attend the winter meeting, and turn to the Chair for final comments.

Josh Marcuse	- Moderated	Public	Comments	(2 minutes	per	presenter)
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## **PUBLIC COMMENTS**

Erik Lenderman

How can the Defense Innovation Board assist with the PTSD crisis for Active Duty and

Veterans?

#### John Price

Concerning AI How will combat China's ability to collect and aggregate more data concerning"

#### Eric Van Hoose

How are we protecting entrepreneurs for china's backdoor investment control of IP?

#### Gordon Nall

Will the changes to contacts be focused on new contacts & leave existing contacts unchanged? Or will the changes be applied across all contacts?

#### Donald Lane

Has anyone on the defense innovation board thought about combining multiple disruptive technologies to create advanced software tools for software engineers and data analysts? (Ex. Quantum algorithms like Boltzmann's equations could be generated through a quantum cloud computing service like MS Azure Quantum Simulator, IBM Watson Cloud, Google Quantum cloud, Honeywell Quantum Cloud Computing, Rigetti Quantum Cloud). Results could assist software developers in fuzz testing software much faster and eliminate coding errors or software bugs. Then have an A.I. application assisting software test engineers to automate test and evaluation procedures. Including but not limited to Mixed Reality/Augmented/Virtual Reality interfaces to allow software developers and data analysts to view that finalized data or code in a 3d clustering application utilizing an object oriented view. Some of the software testing applications are ran through web based interfaces as well that could easily be accessed by a software developer and data analyst through a browser utilizing MR/AR/VR device platforms.

#### Alfredo Diaz

Intelligence is an essential analysis for any nation?

#### Aaron Barruga

The DOD has established several public facing innovation hubs to spur private-public relations regarding defense-tech advancement; however, there are arguments that this is merely "innovation theater" and that the DOD is great at defense, but woefully naive to how startups actually function. What does the DOD need to change about the SBIR/OTA process to truly embrace agile, fail fast, and other lean technology development models? Thank you.

#### Thomas Creely

The U.S. Naval War College's Ethics and Emerging Military Technology (EEMT) Graduate Certificate Program has accepted ten students for the 2019-2020 academic year. The students are researching AI and Biotechnology specific ethical challenges in decision making, AI and ethics education, human enhancement, and China's AI and Bio development. Some of the projects are from the Joint Artificial Intelligence Center and National Security Commission on AI, as well as other agencies.

## Kim Heerak

President Donald Trump pulling US Military out of Syria seems to be the right decision for the

security of the United States of America, especially in light of America's senseless loss in the region for a protracted stay that demoralizes the US Military and alienates US citizen from supporting the US Military in the Middle East. Why is it that so many generals in CNN seem to take an extremist position of staying in Syria and the Middle East? Do US military officers and retired military personnel personally profiteer through "contracting" work in the region, thereby creating a "Conflict of Interest" situation to the detriment of US security as a nation and US interest in the Middle East?

#### Natividad Fernandez

Defense innovation interoperable with the European allies, mainly in cyber?

#### Ron Garnett

What is DoD doing to align proven private sector innovation to mission critical operational requirements and fast track their adaption using rapid prototyping challenges in conjunction with end-users?

## **Angel Smith**

Thanks to the DIB for their work on AI Ethics. Training for DOD forces and partners with tech on building an AI ready force.

## Elaine Thompson

I support a digital pathology effort using AI to diagnose cancer. One of our biggest challenges has been access to secure cloud to do computations on healthcare data. Is the DIB planning any recommendations to make the ATO process more nimble and less burdensome?

#### Manna Theodotau

Culture change at scale suggest the board and subcomitties engage DOD universities such as DAU to help co-develop, pilot, articulate recommendations and scale out implementation across the DOD.

#### Steve Lauver

Time for bold actions is now. Existential threat is more insidious mormally need a crisis for bold action. Recommend call it an experiment to fix term and conditions, clear OKRs. Harvest time savings and have people automate their jobs.

#### Stevie Greenway

We have created a successful prototype using the ZWRP consortium. Our prototype, the authoritative data environment (ADE 3.0) is to place PZZ data in a IL2 environment commercial cloud. Our architecture is \$20million cheaper than any other architecture out there, but due to a funding shortfall we are unable to move forward to a production environment.

#### Col Brown

What makes AI different?

## Heerak Christian-Kim

USA AI disadvantage vis-a-vis China's AI is causing US allies to lose confidence in United

States to protect them. Thus, they are opting for nuclear detterence by arming themselves with nuclear bombs as in South Korea, Japan and Turkey.

Stuart Wagner

Exited by the boards work. Hoping to get better tooling.

Guru Nagaraja

Speak to AI facial recognition. What approaches can be adopted to avoid racial bias? Thank you.

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## 1155-1200 Closing Remarks

Led by Eric Schmidt and Joshua Marcuse, Colleen Laughlin adjourned

Dr. Schmidt made closing comments and Mr. Marcuse concluded the meeting with concurrence from the DFO.

**END OF PUBLIC SESSION** 

#### **ADJOURNMENT**

Mr. Marcuse, with the concurrence of the DFO, adjourned the DIB's October 31, 2019 public meeting session at 12:00 PM.

I hereby certify, to the best of my knowledge, the foregoing minutes are accurate and complete.

Eric Schmidt, Ph.D.

Chairman, Defense Innovation Board

Attachment (1) – Meeting Attendees

Attachment (2) - Transcript Public Meeting Dated October 31, 2019

# **ATTACHMENT (1)**

# **MEETING ATTENDEES: 477 Total**

335 in-person RSVPs, with 142 more tuning in via livestream

1	,
Greenley	Courtney
Trimble	Kathy
Wagner	Stuart
Moore	Schuyler
Doubleday	Justin
Bennett	Justice
Calabrese	Matthew
Tajha	Chappellet-Lanier
Coleman	Michael
Barbagallo	Christopher
Ensor	David
Karlen	Robert
Carew	Diana
Lenderman	Erik
Bushnell	Maddie
Jenkins	Thomas
Mariani	Joe
Roehrich	Gregory
Jordan	Alexiaa
Olson	Hans
Chrousos	Phaedra
Sisson	Melanie
Carter	Kevin
McKoy	Jer
Shannon	Greg
Grant	Meyer
Tegtmeyer	Matthew
Kelsen	Michael
Kotelnicki	Oliver
Paul	Gleger

Morgan	Timothy
Nelson	Tom
Harris	Melissa
Theuer	William
Ledford	Michael
Saab	Hanan
Jones	Regan
Scott	Tim
Clauser	Michael
Cope	Maryam
Lee	Hoonjoo
Goobic	Adam
Zegers	Brendan
Odlum	Geoff
Tarver	Myke
Larson	Joseph
Amin	Nischal
Lankford	Eric
Jacox	Madison
Knothe	Garrett
Black	Stacey
Walker	David
Ben	Renda
Richardson	Jacqueline
Mullins	Donna
Benson	Marguerite
Norlander	Arne
McCain	Scott
SRINIVASAN	SARAYU
Bramhall	Elizabeth
Ash	Cory
Yves	Costa Netto
Kuntzman	Allison

Wendt	Vern
Conti	Matthew
Smith	Melissa
Garnett	Ron
Olszewski	Leah
Abramovitz	Norman
Ryan	David
Stone	John
Price	john
Newman	Robert
Sciupac	Maia
Kyle	Johnson
Jesaitis	Vince
Frohman	Scott
Belcher	Angelica
Butchart	Rose
Calloway	Korey
Patel	Nirav
Smith	Angel
Marion	Dan
Schuman	Joseph
Wakim	Elee
MILLER	JAMES
Addington	Matt
Lamb	Jason
Brooks-Woodruff	Diane
Branstetter	Kristina
Van Hoose	Eric
Alderman	Karen
Nall	Gordon
Johnston	Glen
Araz	Sevan
Corrigan	Jack

Rudolph	Michael
Lee	Shaun
Lee	Steven
Schlickenmaier	William
Peckham	Mandy
Kelsey	Bryan
Davis	Demetrius
Giordani	Nicoletta
Jenkins	Claude
Raheja	Pramod
Conti	Matthew
kothari	kunal
Lane	Donald
Parker	Mary
Zisbrod	May
Atkinson	Michele
Yellin	Megan
Hitzig	Morgan
Moore	Kelly
Navarro	Samuel
Uhland	Christopher
Hayford	Scott
Gilmer	Graham
Gilman	Nathaniel
NAGARAJA	GURUDATHA
siedlecki	katarzyna
Thomas	Jeremy
Guerra	Gus
Snead	Sara
Pansky	Michael
Edward	Sujey
Deignan	Maura
Laban	Tanya

Benson Christopher Armijo Jeff Seaver David Noreiga Katie Deskins Morgan Thompson Elaine Nathan Hintz Olah Joseph Mosier Russell
Seaver David  Noreiga Katie  Deskins Morgan  Thompson Elaine  Nathan Hintz  Olah Joseph
Noreiga Katie  Deskins Morgan  Thompson Elaine  Nathan Hintz  Olah Joseph
Deskins Morgan Thompson Elaine Nathan Hintz Olah Joseph
Thompson Elaine  Nathan Hintz  Olah Joseph
Nathan Hintz Olah Joseph
Olah Joseph
Mosier Russell
1111
Alford Matthew
Antonio Francisco
Levy Zachary
Rutherford Michael
Martin Bink
BLAIS ROCCO
Fury Jay
Albritton Robert
Freedman Tracy
Sim Seungbae
Drolet Edward
Ghosh Juhi
Ben Goldsmith
Dr. Kris Namboodiri
Glaiel Firas
leszcynska Joana
GREENWAY STEVIE
Harbert Tam
Hickok Thomas
Williams Nicole
Daniels Joe
Thomson Grace
Lochan Christian
Basola Paul

Sanderson	Adam
Reger	Bernard
Buchter	Richard
Beahon	Michael
Schwartz Drobnis	Ann
Korman	Hayley
Mark	MacCarthy
Nasif	Alexandra
Heller	Eric
Steve	Birnbaum
Riedy	Thomas
Martinez	Cindy
Cook	Tim
mckeel	kevin
Mann	Katharine
Novotny	Jan
Lenhard	April
Yellin	Megan
Trimble	Kathy
Simon	David
Kathawalla	Tanveer
Grider	Casey
Prachi	Vakharia
SR	Raj
Sarin	Sanjiv
Chris	Benson
Nunez	Diego
Kobza	Robert
Baranowski	Patrick
Narloch	Andrew
aaronson	susan
Barber	Gregory
Park	Shirley

Bagge	Daniel
Ballard	Kyle
Stallings	Joseph
Linda	Reece
Teague	Thomas
Robin	O'Luanaigh
Menon	Kailas
Richards	Arie
Toms	George
Grant	Philip
Shen	Olivia
Kirk	Katherine
Greg	Shannon
Freeh	Justin
Roberts	Kim
Goertner	Frank
Theodotou	Marina
Anthony	Pezzano
Young	Jeff
Kroman	Beth
Milich	Andrew
McEwen	Sean
Romani	Marco
Lemus	Carlos
Lesnewich	John
Dube	Brandon
Fiere	Morgan
Dodd	Matthew
Bang	Young
Sedova	Katerina
McCune	Travis
Conti	Matthew
Zeng	Xiaojing

Lim	Amy
Lynch	Justin
SYED	WASIF
Barnes	Robin
dawson	karen
Creel	Aaron
Thomas	Kimberly
Tungesvik	Jessica
LITTLECHILD	GARETH
DiEuliis	Diane
Noah	Jacobsen
Baker	Sean
Duderstadt	John
Mohr	John
Pasho	Brad
Plewniak	James
Boudreaux	Benjamin
Whatcott	Elizabeth
fraile	steven
Belen	Bianco
Johns	Bethany
Sutton	Rhonda
Soliman	Sarah
Shepardson	Mark
Pillsbury	Jolie
seko	Tatsuro
Wilhelm	Logan
Sandberg	Ryan
Keithley	Chris
Chahal	Husanjot
Franz	Karen
Nita	rafaela
Erin	Gore

Perrine	Christopher
Roach	Ryan
Edmiaston	Alan
Garcia Mayor	Nicolas
Gwira	Nathan
LEE	SHAUN
Elterich	Andreas
David	Morgan
Shepard	Jack
Hajduk	Kristen
Berger	Michael
Wright	Elizabeth
Aimee	Gillette
Riley	Steven
Diaz	Alfredo
Penfield	lan
Kelly	Jack
Barruga	Aaron
Patterson	Michael
Kazil	Jacqueline
Manalo	Christian
Zoe	Stanley-Lockman
Boutte	Joe
Lambert	Bianca
Bernard	Gregory
Wajcberg	Henrique
Kosmidis	Nickolaos
Dimonte	Sarah
Hendrickson	Brian
Price	Hunter
МсСоу	Dan
Ibarra	Daniel
Schiff	David

Fletcher	Julia
Horowitz	Jonathan
Seiffert	Alla
Sanders	Michael
Teller	Maxine
Smith	Shane
Schwartz Drobnis	Ann
Zacharias	Greg
Yu	Jeffrey
McFadden	Colin
Biles	Megan
Drexler	William
Garcia Mayor	Nicolas
Tam	Harbert
Winters	Benjamin
Brande	Devin
Moore	Hunter
Miller	Nicholas
Jones	Evar
Hong	Young
Trautermann	Michael
Creely	Thomas
Hussain	Amir
Anichkina	Tatiana
BAGGE	Daniel
Ryan	Ouimette
Stickles	Brendan
LaBarca	David
Dunn	Larry
Pansky	Michael
Steve	McCain
Saint Louis	Nazario
zafar	morwari

Machalek	Simon
Kunzru	Aryaman
SONG	BINLU
Hann	Nicholas
Cuda	Rachel
Muñoz	Danielle
Resnick	Jack
Long	Drake
vergun	david
Yarber	Caroline
Kwon	Hyuk hyun
chen	yuxi
Kim	Heerak
Guzman	Ana
Haq	Sarem
Schrell	Sebastian
Ramirez	Carson
Stahl	Jason
Mead-Long	Aaron
Pesce	Nicole
Bryant	Elizabeth
Garriott	Ashton
Kabir	Kareeda
Wu	Jiaju
Mark	Reimlinger
Zuluaga	Lina
Fernandez-Sola	Natividad
liu	xueyan
Xie	Charles
Duffy	Conor
Duncan	Michael
Gan	Lin
Wilke	David

Qasim	Sacha
George	Brennan
DeMusz	Kara
Lyu	Ziwen
Forner	Clarissa
Tiedemann	Hunter
Marc	DiCroce
Downing	Gregory
Huang	Grace
Del Rosario	Audrey
Popke	Michelle
Kainen	Paul
LIU	Tianwei
Angerhofer	Maddox
Susk	Matt
Hines	Madeleine
Stickles	Brendan
Neelam	Sunny
Katsapis	Tim
Sarawgi	Krish
Williams	Lauren
Scrudder	Colton
Levine	Benjamin
Barno	Courtney
Moneta-Koehler	Liane
Glickenhaus	Carly
Cary	Kristina
Simonite	Tom
Carter	Charles
Pakanen	Aulikki
Patel	Riya
Elokda	Mohammad
Nowicki	Ashley

Beasley	Ryan
Min	Rui
Parker	Stewart
Widjaja	Daniel
Kramer	Joseph
HUSSAIN	SAM
Palmieri	Tim
Amanat	Azad
Macchetto	Thomas
Courtines	Paul-Emmanuel
McCune	Travis
Núñez	Diego
Riikonen	Ainikki
Burkley	Ethan
Yang	Jinghui
Qazafi	Moamer
Gaillard	Nancy
Chahal	Husanjot
Kotras	Diane
Brown	Jason
Montminy	Luc
Jantzen	Anand
DeGroff	Dwight
Strieb	Jacob
Tudorache	Adrian
Johns	Bethany
Permuy	Pedro Pablo
Heckman	Jory
Garnett	Ron
Edwards	Jamal
Remmel	Ryan
Tarascio	Matthew
Kaiser	Sean

Fanlo	Abby
Myers	Meghann
Levin	David
Moon	Lacy
Stone	John
simonite	t
custons	garrett
Poulin	Alex
Niezgoda	Angela
Malone	lvy
Adianto	Julie
Conti	Matthew
Regan	Damon
Weinberg	Zoe
Beinart	Matthew
Riedy	Thomas
Faradineh	Neal
Simon	Rick
Valente	Evandro
Feldman	Lee
Gertz	Bill

# ATTACHMENT (2) Transcript Public Meeting Dated October 31, 2019

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