

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22

DEFENSE INNOVATION BOARD

PUBLIC MEETING

Moderated by Dr. Marina Theodotou, DIB Executive
Officer

Friday, January 26, 2024

10:00 a.m.

Pentagon

Room 3E188

Washington, D.C. 20301

Reported by: Jean S. Tompane

JOB NO.: 6344988

1 A P P E A R A N C E S

2 List of Attendees:

3 Michael Bloomberg, Chair

4 Dr. Gilda Barabino, Board Member

5 Sue Gordon, Board Member

6 Reid Hoffman, Board Member (by videoconference)

7 Admiral Michael Mullen, Board Member (by
8 videoconference)

9 Dr. Will Roper, Board Member

10 Ryan Swann, Board Member

11 Dr. Mac Thornberry, Board Member

12 Dr. Marina Theodotou, DIB Executive Director

13 Brigadier General Frank Kelley, Guest Speaker

14 Dr. Mark Livingston, Guest Speaker (by
15 videoconference)

16 Dr. Craig Martell, Guest Speaker (by videoconference)

17 Ms. Mary Meeker, Board Member

18

19

20

21

22

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22

C O N T E N T S

PAGE

Michael Bloomberg	4, 22, 29, 50, 54, 77
Dr. Marina Theodotou	6, 76
Sue Gordon	8
Dr. Mark Livingston	12
Brigadier General Frank Kelley	16
Ryan Swann	24
Dr. Craig Martell	30, 50, 54, 61, 65, 68
Admiral Michael Mullen	49
Dr. Will Roper	58
Dr. Mac Thornberry	61
Reid Hoffman	64
Dr. Gilda Barabino	67
Mary Meeker	72

1 P R O C E E D I N G S

2 MR. BLOOMBERG: Thank you for joining
3 us. As we all know, the United States has the finest,
4 best-prepared military in the world. It ain't
5 perfect. It can always be better.

6 Hopefully, we can add something to help
7 those who devoted their lives to keeping this country
8 safe and doing an even better job and bring some
9 experience from our different backgrounds.

10 Innovation isn't the only thing about
11 new and futuristic techniques, but it's often the
12 culture that is really we should worry about.

13 And when we've had discussions like at
14 dinner last night, it was the culture really much more
15 than one kind of playing versus another one whether we
16 should shoot here or shoot there.

17 And I think successful organizations
18 are really groups of people, and our responsibilities
19 as managers is to get them to work together and get
20 them the resources they need to do their jobs and
21 discipline them if they don't. That sort of stuff.

22 And I've always thought that the

1 difference between the military and the private sector
2 isn't as great as we always complain.

3 People still worry about their careers.
4 They still worry about doing -- wanting to be
5 respected, and all of those human reinforces and human
6 relations things by just as much in the military as in
7 the private sector and maybe even more.

8 Because the private sector, you can
9 reward people a little easier than you can in the
10 military where it's very structured progression as you
11 move up. But you can fudge things in the private
12 sector with titles and where the officers and things
13 like that to incent or discipline people as you want.

14 We just got to make people more agile
15 and hopefully some of the things that we're going to
16 talk about today will do that. We have two studies
17 that we're -- we're going to have to approve.

18 DR. THEODOTOU: Yes.

19 MR. BLOOMBERG: I've talked about
20 bureaucracy --

21 Okay. Why don't you go ahead and do
22 that?

1 DR. THEODOTOU: Yes. Thank you. Thank
2 you, sir.

3 Welcome, everyone. Thank you for
4 joining us today for the Defense Innovation Board
5 public meeting. My name is Dr. Marina Theodotou. I'm
6 the executive director and designated federal officer
7 for the Defense Innovation Board.

8 Today's meeting is being live-streamed
9 and recorded to allow members of the public to attend
10 the meeting virtually now and view all of you later.

11 Thank you to the Defense Media Agency
12 for providing their expert support and the Defense
13 Innovation Board team -- to bring this event to you
14 today.

15 The board would now convene this public
16 session. First, I would like to make some procedural
17 remarks.

18 The board is discretionary, independent
19 advisory board operated under the Federal Advisory
20 Committee Act and the Government Sunshine Act.

21 Today's meeting was announced in the
22 Federal Register Notice posted on January 23rd. There

1 have been no significant changes to the meeting's
2 agenda as posted in the Federal Register Notice.

3 The public was invited to submit
4 written comments for the board members to consider.
5 We received 77 public comments in advance of today's
6 meeting which we will review during the meeting.

7 As a reminder, these are comments to
8 the board and not a question-and-answer session.
9 These comments have been posted on the Defense
10 Innovation Board website which is
11 innovation.defense.gov.

12 And now I'd like to turn it back over
13 to our chair, Mr. Bloomberg, for his remarks.

14 MR. BLOOMBERG: Glad we got that out of
15 the way -- I'll feel better --

16 We're reading two reports. Why don't
17 we jump right in? Do you want to go first, or do
18 you --

19 MS. GORDON: -- go first.

20 MR. BLOOMBERG: I knew that's exactly
21 what you were going to say.

22 MS. GORDON: Leap into the fray.

1 MR. BLOOMBERG: -- should I -- you were
2 not, I've always thought.

3 MS. GORDON: Thanks, Mike. And thanks
4 for the opportunity to talk about the board study on
5 lowering barriers to innovation.

6 First, I really do want to thank the
7 board staff and especially the experts and
8 professionals inside and outside of the department.
9 They gave us their time and insight and perspectives
10 that they shared with us as we tried to identify
11 tangible steps that could be taken to lower these
12 barriers to innovation.

13 You know, creating advantage and
14 mission outcome in a changing world requires
15 innovation in three areas. You have to have new
16 technologies and capabilities. You have to consider
17 different approaches.

18 We have to consider different
19 approaches, and you have to consider how you want to
20 get things into use, on what approaches need to
21 develop, and how you look at the procedures and
22 policies --

1 So this study really focused on this
2 last area. Because for all the strength of our
3 systems and approaches in our -- it is our install
4 base that over time has become a challenge to
5 achieving what we want.

6 Now what was most heartening about this
7 is that there was no meaningful difference amongst all
8 the experts we talked to in the -- in the outcome we
9 wanted to achieve.

10 And all of them wanted procedures,
11 processes, and processes, and allow solutions to be
12 put to use faster, easier, and more mindful of the
13 imperatives of all elements of our acquisition
14 ecosystem from the creators in the private sector to
15 the operators in the field.

16 So our goal was to identify actionable
17 recommendations that can be immediately implemented
18 that will improve real, tangible, recognizable impact
19 on how quickly, how efficiently, and how user-friendly
20 we can do these things.

21 So we had looked at seven domains of
22 innovation. From security to acquisition to

1 information technology and human capital. And I will
2 very briefly describe some of the recommendations.

3 The first started with leadership.
4 Someone has to believe that it is their responsibility
5 to actually make use happen at a relevant speed and in
6 a way that allows all to participate.

7 The second is security. Need to reform
8 how we grant access to those who have already been
9 cleared. How we allow access to SCIFs. Is it
10 DoD-wide asset so that the work that the department
11 wants to do can be engaged with all who have the
12 ability to participate.

13 We need to establish direct reciprocity
14 for any software is a service product with an
15 authority to operate amongst every cloud we have.

16 We can't afford to each time we think
17 about using it anew to spend a year getting things
18 into use. We need contracts that are mission
19 capability operated oriented and outcome-driven.

20 We have to maximize competition in
21 usury use and IP and data sharing agreements. And
22 you'll hear more about data in the next study.

1 We need to adopt industry-aligned
2 proposal processes. We can't with a square hole be
3 forcing people with a round peg to chiefs banking
4 against it, but we have to align those two things for
5 speed.

6 We need to purchase enterprise software
7 through single entities, so we get broader both
8 efficiency and effective. And we need to eliminate
9 the requirement for nontraditional vendors to prove
10 commercial viability before they can bid on the
11 process. None of these require new authority. They
12 just require action.

13 But I will say that we were not
14 cavalier in thinking that it is easy nor are we
15 dilatants in thinking that we can give up these for
16 security or repeatability or transparency or fairness
17 because that's what our system is based on. But
18 decision to achieve these areas and innovation in the
19 processes we think help innovation.

20 MR. BLOOMBERG: Is there -- never mind,
21 I'll come back to the question.

22 We have two guest speakers. Dr. Mark

1 Livingston via Zoom or whatever the -- what's the
2 Microsoft's --

3 MS. GORDON: MS Teams.

4 MR. BLOOMBERG: It doesn't work very
5 well. The people at Zoom have been desperate to get
6 their employees to come back to work. You can't make
7 this up. Literally, they've sent out a number of
8 messages internal.

9 Anyways, he's the Assistant Director of
10 Personnel Security and the Defense Counterintelligence
11 and Security Agency. Thank you for joining us, Mark.

12 And here in person, Frank Kelley,
13 retired Brigadier General. Thank you for your
14 service, and you still got to tell me what that other
15 airplane you flew was about, but I'll talk to you
16 later on about it.

17 He works in close partnership with
18 senior leaders in the Defense Department and has a lot
19 of experience so --

20 Mark, you want to start by telling us
21 what you're doing?

22 DR. LIVINGSTON: Yes, sir. So I'm with

1 DCSA. We perform four distinct national security
2 missions. We work together to protect the nation's
3 data, our critical technology, and our supply chain
4 from our adversaries.

5 We do that with four elements.
6 Personnel security, which is clearance. Industrial
7 security, which is facilities clearance. We do
8 counterintelligence and insider threat looking at
9 adversary actions against our structure. And then
10 lastly, we provide security training.

11 What I wanted to talk today is three
12 quick things. One is the reciprocity issue that's
13 been around since President Reagan. We're still
14 talking about it today. If we want to use innovation
15 or lower barriers, one of the things that we're
16 thinking about is why can't it be on your CAC card.

17 So when you go to a new unit or a new
18 IC element, you simply check-in and it's there. Right
19 now, we're spending one to three days best case, seven
20 to ten days worst case, just to get people ready to go
21 to work. And it's the same government, the same intel
22 community, so we're trying to expedite that.

1 The second point I wanted to make is
2 our investigative model. It was born in 1947. It's
3 not broke, but I think it sure needs to be fixed.
4 What I mean by that is we're using what worked in the
5 past. I think we're stuck there.

6 At one point, three or four years ago,
7 we had almost 700,000 backlogged. Today we've got it
8 to a manageable level, but we stopped innovating after
9 we got to that 200. I think we need to be more
10 aggressive.

11 And that leads to my third point, AI.
12 So if we're going to be successful in the future, I
13 think we're going to have to embrace AI, MTM in the
14 ML.

15 A smart friend of mine recently told me
16 that the internet was a game changer that spun off
17 Google, Facebook, Twitter, X, and all the other things
18 that came with it. AI is that third rail, and we need
19 embrace it.

20 I think there's an opportunity here
21 where we have background investigations across the
22 entire federal government. We do about 95 percent of

1 those. A lot of that could be automated. You're
2 still going to have to have the human element there,
3 but the bottom line is we need to be leaning forward
4 and take some risks.

5 The problem is in the government once
6 we've had a success, we tend to stop. It's kind of
7 like putting brakes on a car. Some people think it's
8 so you can stop the car, some people think so you can
9 go faster.

10 So when we talk about AI, we need to go
11 faster, and we need to be more proficient. We need to
12 be aggressive. We can't wait for a crisis to drive us
13 to act on AI.

14 And that's my pitch this morning. I've
15 got lots more I'd like to talk about, but I wanted to
16 keep it under five. This is an exciting time to be in
17 security.

18 We've done more in five years than
19 we've done in the last seventy. And I think the next
20 five are going to be even better if we are aggressive
21 with AI. I'll stop there. I know I got going there,
22 but this is good stuff. I think we're going to make

1 big changes, so I'm ready for them.

2 MR. BLOOMBERG: -- Frank, you want to
3 add some --

4 MR. KELLEY: So I'm here because Marina
5 told me to be here. And -- and I'm not sure if I'm
6 here as a vice president of DAU or for recovering
7 unmanned systems -- within the Navy or a
8 retired -- retired Marine.

9 So in my panic in terms of preparing
10 for today, I came up with three big things. Change,
11 transformation, innovation, and readiness.

12 And -- and something that I'm not quite
13 equipped to do, I tried to come up with some unifying
14 theory for all of those things. But I'm reminded
15 Drucker -- Peter Drucker, who I never met in my
16 life -- about him and jumped on for -- and I kind of
17 put together two things that they said.

18 You know, Drucker told us all about
19 culture. A culture is a thing. We don't teach people
20 how to change culture in any training I've ever had.

21 Joe Dunford said it's all about -- I
22 should say, General Dunford, it's all about decisive

1 engaged leadership. And I think if you have those two
2 ingredients, you have everything you need.

3 By the way, I remember years ago at a
4 job I had down in Orlando, Florida, I had to meet the
5 governor of Florida with a bunch of other three stars.

6 General Mullen might remember Admiral
7 Natali who was absolutely fantastic person for
8 me -- to helping me out down there. Meeting Governor
9 Crist was like which of these is not like the others
10 when it comes to something -- and that would be me. I
11 am not like all -- all the people that are super smart
12 at this table.

13 One of the things that we've done at
14 DAU is when we address change, we adopted and went to
15 school on the Kotter Leading Change model, and that
16 has worked very well for us which emphasizes the fact
17 that you start with urgency and you lead with going to
18 action which is I believe your point, ma'am.

19 That -- that you got to implement this
20 stuff, and there's six other steps in between that
21 starts with urgency and then finishes off with action.

22 On the transformation piece that we're

1 doing at DAU, again, we still use that Kotter model.
2 But John Kotter, and I would recommend somebody here
3 picking up the phone and talking to John Kotter
4 at -- at Harvard.

5 He said, "Hey, I got everything right
6 in the mid-60s with my Leading Change book, but
7 there's some things that need to be adjusted in -- in
8 the 21st century."

9 And he wrote another book called
10 "Accelerate." And what he endorses there, is -- is a
11 two-model system. Retain the hierarchy. That's the
12 stuff that keeps the lights on, keeps things, like,
13 you know, the bureaucracy functioning. That's called
14 the hierarchical side.

15 The other side is this network model.
16 And this is where you can flush out innovation at the
17 grassroots level. Give people the freedom to try and
18 experiment. And the big job for leadership there is,
19 you know, let it happen. And that led us to think
20 about innovation.

21 Now -- had an innovation ecosystem
22 model. Marina was still working at DAU at that time.

1 DAU involved on -- an effort to explore, you know, how
2 do we promote innovation. She formulated an
3 innovation competency model.

4 I also like to think about that as
5 being, like, a readiness model that we used -- been
6 employed and make sure that their organizations
7 are -- are, you know, ready for innovation.

8 But it's these two -- it's these two
9 sides. The hierarchy side and the -- and this network
10 side that helps promote -- it helps foster and also
11 promote innovation.

12 And the last thing that I want to see
13 is readiness. And General Miller as the Commandant
14 used to talk about readiness, and you need to give
15 people the opportunity. The worst time to expect to
16 get innovation out of people is when you need it.

17 When the panic button is pressed, and
18 you don't have that culture. You've -- you have never
19 experienced the raising of their end and suggesting
20 what could -- what could be next.

21 Last thing, we need to do new work, I
22 believe, with industry, and I don't mean that to

1 sound, you know, like that's an easy thing. A great
2 place to start, I think are places like NDIA, NTSA,
3 National Training Simulation Association.

4 And we just recently did -- with the
5 AUVSI. So that's the Association of Unmanned Vehicle
6 Systems International.

7 I'll tell you what, one of the things
8 that I know that it's working. We did this effort out
9 in San Diego, and it was in response to the replicator
10 effort. And we had industry, government, some
11 academia, but we had the fleet there and that was the
12 most important thing. It was third fleet out in San
13 Diego.

14 At one point, I couldn't really figure
15 out who the industry folks were, who the government
16 folks were, and unless they were in uniform, I'm not
17 so sure -- or a good haircut, I'm not so sure I
18 could've figured out who the government folks were.

19 They were all working together to think
20 about ways to actually get things like replicator into
21 action. I've seen some great evidence on the Marine
22 Corps side of the house where great leadership really,

1 really matters.

2 Brigadier General Walsh, who's the
3 commander at Marine Corps Systems Command right now,
4 has innovation. Getting out of the way of your smart
5 people is an expectation.

6 I had a chance to visit one of his
7 commands out in Camp Pendleton MCTSSA under the
8 leadership of Craig Clarkson. The guy is a running a
9 brilliant show out there, and all he did was -- out to
10 talk to his captains, lieutenants, staff sergeants,
11 and sergeants about the great work that they were
12 doing in the technical field.

13 And here's my -- here's my asset test.
14 I spent 32 years in the Marine Corps. I got a brief
15 that was highly technical, I can barely hang on, and I
16 thought I was a pretty smart guy.

17 The kid who gave me the brief,
18 brilliant. And I asked him, "What's your MOS,"
19 expecting him to be like a CABO or an intel officer.
20 He was a grunt who knew how to write code. And I
21 said, "Wow." I'm not so sure I ever would have
22 expected to see that in the Marine Corps.

1 There's a software factory that the
2 Marine Corps is tapping into today. We've got grunts
3 out in the field writing code on the fly. It's a
4 brave new world.

5 So from my perspective, just like, you
6 know, Mr. Livingston out there, I think it's a very
7 exciting time to be part of the acquisition, you know,
8 the acquisition environment and this marriage of
9 strong leadership with culture change, you know, to
10 help bring about these changes in --

11 MR. BLOOMBERG: I'm -- I started
12 reading a book, I'm only at page 200 out of 700 in the
13 book. It's called "Rules of the Game," and it is
14 about Jutland and the battle cruisers and battleships,
15 and how the British Admiralty went from sail to call.
16 And the signaling from flags to eventually teletype,
17 Morse code, and radio, and it's just fascinating.

18 They went through all of this
19 innovation stuff in real time, and there's not much
20 difference than what we're doing now. It's just what
21 the issues are. But innovation's tough and there's
22 lots of excuses why not.

1 But thank you for your service and
2 everything you've done. We have to vote on your
3 study.

4 I'm going to take a vote, and I will
5 read the names of each person, and they can vote. I
6 will vote with you incidentally just to make you
7 comfortable.

8 Mac?

9 DR. THORNBERRY: Aye.

10 MR. BLOOMBERG: Gilda?

11 DR. BARABINO: Aye.

12 MR. BLOOMBERG: Will?

13 DR. ROPER: Aye.

14 MR. BLOOMBERG: Ryan?

15 MR. SWANN: Aye.

16 MR. BLOOMBERG: Charles is not here
17 today. Mary?

18 MS. MEEKER: Aye.

19 MR. BLOOMBERG: And Mike Mullen?

20 MR. MULLEN: Aye.

21 MR. BLOOMBERG: Reid Hoffman?

22 MR. HOFFMAN: Yeah. Aye.

1 MR. BLOOMBERG: And I will vote aye as
2 well, so it's a wrap on the first study.

3 And now, Ryan, we're turning to your
4 recommendations.

5 MR. SWANN: Thank you, Mike.

6 So we set out with building a data
7 economy, DoD data economy, really to understand data
8 centrality across the department.

9 We set out with a purpose of figuring
10 out how do we accelerate the use of data in AI in our
11 systems engines kind of across the department. We had
12 over 50-plus engagements really across the department,
13 industry, academia.

14 So we definitely want to thank all of
15 the experts, all of the time, all of the incites. It
16 was really refreshing to see that there is great work
17 happening, but we have more to do. And so some of the
18 key blockers that we identify in doing this study
19 really came down to -- to a few key things.

20 One, data, and I'm going to use that
21 word kind of loosely. I'm going to say data and AI.
22 I'm going to use the word "data" loosely here. Data

1 innovation is happening in the department, but it's
2 happening in silos. It's -- it's not broad, kind of
3 broad basin. There's great work happening but -- but
4 we have to break down those silos.

5 The second is that the industry,
6 the -- the DoD industrial base tech has accelerated
7 and has really outpaced the department on a number of
8 levels, right? And so that shows us that there is
9 opportunity there. There's opportunity within our
10 basement. We really have more to do inside -- inside
11 our four walls.

12 And then the third, is that the CDAO is
13 an essential organization. It is critical that the
14 CDAO is empowered to kind of really become the DoD
15 data economy leader, and that the service level CDAOs
16 or the combatant command CDAOs are really positioned
17 in the right way.

18 Today, there are challenges around how
19 they're utilized. There's inconsistencies on how
20 they're utilized. But when we -- when we look at all
21 of this, one of the things that comes to -- that comes
22 to light, is that there is a huge opportunity.

1 There's a huge opportunity for us to unlock the value
2 of data and AI at a scale that has never been -- never
3 been seen before.

4 And so that means in order for us to do
5 that, it has to be both important and urgent, right?
6 And some of us see it that way and some of us don't.

7 And so as I'm going through some of the
8 recommendations, I encourage you to read the report.
9 I'm not going to -- it's -- it's -- I'm not going to
10 go through all of it here, but what I will say is that
11 the recommendations can kind of be categorized in
12 three kind of categories. Under people, process, and
13 technology.

14 On the process side, one of our -- one
15 of our recommendations is to include NDAA FY25
16 recommendations. That -- that creative requirement
17 for all DoD contracts to actually prioritize data
18 rights and data inner operability so that we can get
19 data out of our platforms and systems, so they can be
20 shared securely kind of across -- across the
21 enterprise where -- where we find value or where we
22 are able to leverage AI to -- to create value.

1 The second is really about changing the
2 value opportunities of data in our contracts. We see
3 this in industry already, but we want to be able to
4 include data incentives in those contracts so that the
5 industrial phase can really help us unlock the value
6 of data. We can align those incentives.

7 But internally, we also have to
8 incentivize data sharing and access within a
9 department. And this kind of really connects to -- to
10 Sue's comments on how we classify data, how we
11 share -- share data across echelon, and how we
12 actually bring that to light.

13 On the people side, this is where the
14 report lays out some recommendations both for the CDAO
15 at the DoD level, making sure they're empowered and
16 properly resourced, that type of thing. But also to
17 make sure that the CDAOs at the service level and the
18 combatant commands don't have additional jobs.

19 That this is important enough that the
20 CDAO is -- is the job. Why? Because we will be able
21 to unlock value and create an advantage that we're
22 just on the cusp of.

1 And then -- then third, we also -- this
2 is not just about from a people perspective about the
3 CDAO. It's about the broader workforce. The broader
4 force. We have to empower the digital natives, the
5 data experts that are within the departments, the
6 innovators, the --

7 As -- as General Kelley just said,
8 the -- the grunt that -- that knows how to code. We
9 have to build that data literacy, that AI acumen, and
10 empower them to be innovative. Give them that safe
11 space so that they can innovative and take the great
12 ideas and scale them.

13 And then from a technology kind of
14 perspective, we have to enable things like an API
15 first technology. Where our systems have platforms
16 from our technical requirements are able to get
17 access -- we are able to get access through the data
18 in a machine-readable way. So we don't have to
19 reengineer or reverse engineer the logic, if you will,
20 from platforms in order to get our data out.

21 And then finally, we have to really
22 embrace the data as a product, a strategy focus kind

1 of across the department. So when you -- when you
2 take all of these kind of recommendations together,
3 this can really create meaningful change in a
4 department.

5 And -- and we see the potential of
6 creating that change and driving that change, and we
7 have clear evidence of where it's working well in a
8 department today.

9 So I encourage you to read the -- the
10 report and really think deeply about how your role as
11 a leader across the department wherever you may be,
12 how data and AI can help you do your job better,
13 faster, more efficient --

14 So before we -- we go to our guest
15 speaker, I would like to open up to my colleagues for
16 any comments on the report.

17 MR. BLOOMBERG: If you read the
18 newspapers, all of the issues really center around
19 where you get the data. The business of collecting
20 the data and distributing it, are being separated.

21 It's not clear what business model
22 would let you still have the money to collect if

1 you're not controlling the distribution. And so,
2 you're going to see an awful lot of battles over that.

3 And those companies that have data that
4 it's not available to anybody else will have a real
5 advantage if all they have is the same thing that
6 everybody else has.

7 I will say you did a great job, I
8 think, in working to ensure that the most relevant of
9 the private sector practices are included in this
10 report. There's a lot of different private sector
11 companies working on it so there's a lot to be learned
12 no matter how smart. The Pentagon is -- it's just
13 nobody can control all of the good ideas.

14 I thought it would be useful at this
15 time to hear from the department's Chief Digital and
16 Artificial Intelligence Officer, Craig Martell.

17 Craig, do you want to fill in?

18 DR. MARTELL: Yeah. Thank you,
19 Mayor Bloomberg.

20 And Reid, haven't seen you in a while,
21 I just wanted to say, "Hi."

22 So I wanted to say that I'm a strong

1 believer in this report and, in fact, most of what's
2 this is in the report -- what's most of what's in this
3 report, is essentially the marching orders that we've
4 been following internally.

5 When I first got to the departments a
6 year and a half ago, I -- I asked what's -- what's
7 the -- what's -- what's the way to build. Allow for
8 short-term wins.

9 It's extremely important that in our
10 organization we have to allow for the short-term wins
11 while building sustainable change and sustainable
12 value, and striking that balance is really what CDAO
13 has been shooting for.

14 So on -- on the sustainable part,
15 I -- I looked hard at -- we looked hard at what
16 was -- what was broken. And what we saw was a bunch
17 of things being delivered at the top.

18 We have a hierarchy of needs, the top
19 of which is AI, and we saw a bunch of things being
20 delivered at the top that were -- that brought AI
21 value, but the -- the lower parts of the hierarchy,
22 which I'll mention in a second, were stove-piped, were

1 owned by a particular vendor, and so that if you
2 wanted to move that value somewhere else in the
3 department, you had to rebuild the same stovepipe.

4 And that sort of stove piping is what's
5 gotten to us -- what has gotten to us to a lot of the
6 pathological things we have today. So we worked
7 really hard to think about what would be the right
8 thing to do.

9 And the right thing to do is to allow
10 for -- for those individual wins to continue to be
11 built -- continue to be built but to recognize that
12 they're tech debt.

13 So that if -- if I build a win right
14 now and this win, it's a particular win for IndoPACOM,
15 that's great. We're going to build that, we're going
16 to allow that to go forward, we're going to encourage
17 that.

18 We're going to recognize the tech debt
19 that's there, and we're going to recognize the way we
20 need to going forward tweak contracts. We're going to
21 recognize the way we need to make contracts even more
22 robustly different than they are now so that we can

1 get to the state that we want to get to down the road.

2 And what is that state? We think of
3 that state as a hierarchy of needs. I think I'm just
4 going to be echoing most of the report, and I'm glad
5 to do that because I was really impressed with what
6 your team did, Mayor Bloomberg.

7 But that hierarchy of needs has at the
8 bottom quality data. And what do I mean by "quality
9 data"? Well, first of all, it has to be discoverable.

10 Think about the data and the Department
11 of Defense. It's distributed everywhere, and not only
12 is it distributed everywhere, it's not distributed in
13 any accessible way everywhere. It might literally be
14 in a machine under someone's desk; right? So -- so
15 the ability to discover that it's there is extremely
16 difficult.

17 Then the ability to know who owns that
18 data so you can actually go talk to the person to
19 figure out how can I get that data and what's the
20 value that that data can bring to me. And finally,
21 how can I access it, so accessibility is extremely
22 important.

1 So we drove forward this notion of a
2 data mesh, and I want -- I want to be clear about what
3 we mean by "data mesh," because there's too many terms
4 right now, data fabric, data mesh, data lake, data
5 warehouse.

6 I want to differentiate data lakes and
7 data warehouses on one side with data fabrics and data
8 mesh on the other because they're too very different
9 ways to think about it.

10 A data warehouse is, as you say, sucks
11 it all into -- I mean, as the name says, sucks it all
12 into one location, and it's there and it's warehoused.
13 Data should not be warehoused. Data should be used.
14 Data has a value when it's a product. Data has a
15 value when it has customers that are delivering value
16 to their customers.

17 So the idea of treating it as a
18 warehouseable thing or, as we had said in the
19 department, that data is an asset. It is an asset,
20 but if you think about an asset incorrectly, an asset
21 becomes a fungible thing. Data is not fungible.

22 Different data has different value, and

1 data isn't something that you lock away. An asset is
2 something you want to lock away such as the more of
3 you have of it, the better you are. But the more you
4 have of the data is not the metric to decide the value
5 of that data. It's the more people who you use your
6 data.

7 So as the report pointed out, we've
8 been driving really hard on this that we see data as a
9 product. That we -- we -- in the data mesh mentality,
10 the data is distributed, the data is closest to its
11 owners because the owners are the ones that know the
12 most about that data.

13 The data has centralized
14 discoverability, so we're taking CDAO's role as
15 building that centralized discoverability tool.
16 So -- so there's some data in the Air Force, there's
17 some data in the Navy, there's some data in the Army,
18 together we can build the right dashboard that talks
19 about readiness for example.

20 So knowing where that data is and how
21 to find it, that's going to be in this centralized
22 tool that the CDAO is building. And the ability for

1 the owners of that data to put an API over it to make
2 it accessible. That's also tools that we're bringing
3 to the table.

4 So we work with the CDAOs at each of
5 the departments, each of the components -- components
6 in the department to learn how to take their data,
7 make it accessible, publish it, put a schema around it
8 so you know -- you know what's in that data.

9 And then very strongly I agree with
10 this idea of data as a product. So we're also
11 teaching the department how to treat data as a
12 product. How to -- how to treat data as to having
13 customers. How to put on your hat a customer point of
14 view, so that the more your customer uses it, the more
15 the data has value.

16 And along that line, we actually want
17 to push really hard to -- to promote people and praise
18 people and reward people the more they treat data as a
19 customer not the more they gather the data.

20 And I think that's one of the
21 pathologies that I saw early on is that people treated
22 the data as an asset, and they treated it as gathering

1 it is the value, and that's actually not the value.

2 The next layer on top of our hierarchy
3 of needs, we were calling it analytics and metrics.
4 You know, in this hierarchy of needs is really a
5 polemical device. It's not a device where we fix the
6 bottom before we get to the top. It's really a device
7 that says, "Here's the way we should think about for
8 any product that we build, the layers that you need."

9 So first we need quality data. Then
10 you need the ability to -- to analyze the data, to
11 look at that data to see what that data tells you, so
12 we have a strong infrastructure that we're building
13 out for analytics dashboards. And we've pushed really
14 hard at metrics.

15 So this is a really fascinating one. I
16 think the last time I talked to the board, we talked
17 about this briefly. In the last year and a half, we
18 went from 70 percent effort-based metrics.

19 If anybody who's been in the department
20 knows, many people count their value by the number of
21 meetings they go to, not the value of those meetings.
22 So we've made a real push for -- from effort-based

1 metrics to outcome-based metrics. And I'll tell you
2 in a moment how we're trying really hard to drive
3 that.

4 And finally, at the top of that, we
5 have AI. Now, when -- when the JAIC was part of -- it
6 was one of the constitutes of the CDAO, and when the
7 JAIC started in 2018, they were really thinking about
8 what are point solutions that I could do -- that we
9 could do to bring immediate value.

10 I -- I immediately thought that that
11 was a slight mistake. And the reason I think it's a
12 mistake, is they centralized, you know, we're -- we're
13 OSD, we're here to help. No one likes to hear that;
14 right? That's like saying, "We're the government,"
15 were to help -- "We're here to help."

16 So a centralized organization that was
17 producing point solutions for particular AI problems,
18 is not scalable. So what we've switched to is what
19 we're calling "AI scaffolding."

20 I hundred percent agree with you,
21 Mayor Bloomberg, the real value in building AI is in
22 the private sector. The private sector knows how to

1 do this. There is no way that we as a department are
2 going to have that value.

3 For the years that I worked for Reid at
4 LinkedIn, they were so far ahead of -- of other teams
5 and now Microsoft has continued that, and Google has
6 continued that.

7 And all of these remarkable companies
8 are so far ahead. There's no way we -- we should even
9 play in the same -- the same ballgame. What we should
10 do though, is show up with a clear definition of our
11 problem, analytics, and metrics.

12 We should show up with our owning the
13 data that we labeled because that is our IP. We
14 shouldn't leave the labeling of the data, the
15 description of the data, the value of the data, and
16 what it means to the war fighter necessarily to the
17 private sector because we're going to understand the
18 war fighter value significantly better than a vendor
19 will.

20 So what we see as our role is producing
21 tools both from the left and the right of the model.
22 The model building itself is going to be industrial

1 task, and it's almost a commodity at this point. A
2 model building is almost a commodity. Modelo, the
3 new -- the current battles with generative AI, but
4 that's going to get commoditized as well.

5 So on the left of the model, we've
6 worked really hard at data labeling as a service. So
7 taking -- taking a video, stream it for example, and
8 saying this is a truck, this is a school bus, this is
9 a truck, this is a school bus.

10 Now, in our use cases, which I can't do
11 over this call, we get very fine grain about what each
12 object is in a video stream. And how fine-grained we
13 get takes an expertise that only a soldier or a war
14 fighter is going to know.

15 So we're building out tools that make
16 it as easy as possible for us to own the labeling of
17 the data. That -- the telling the system what matters
18 in that data. And then the building of the model, a
19 hundred percent. That belongs -- that belongs to
20 industry and that we should -- and we're also building
21 tools.

22 We have something called SUNet which

1 allows for multiple vendors to come to the same data
2 and compete their models so that we can pick the best
3 model for a particular problem. So that's part of our
4 AI scaffolding on the left of the model.

5 On the right of the model,
6 we're -- we're thinking very hard, and it's really
7 difficult in government. It's much easier in
8 industry. We're thinking very hard about what model
9 monitoring looks like.

10 So right -- let's just -- let's just
11 level set. For me, when I say "AI," I basically mean
12 statistics at scale, and what -- what that means is we
13 count the past in order to predict the future; right?

14 So if you look at almost any AI -- AI
15 tool that you use, it ends up not working very well if
16 the deployed situation isn't sufficiently similar to
17 the data gathering situation.

18 So you gather data in one scenario and
19 then you deploy in one slightly different. Well,
20 that's what fine-tuning's for; right? Because the
21 deploying it in that different scenario didn't quite
22 get you the value that you thought you'd get because

1 that deployed scenario is different than where you
2 gather the data.

3 Well, sometimes in war, the -- it works
4 really well when you start off, or even in business
5 cases, the world changes. It works really well when
6 you start off, but the world changes, and the model
7 over time has less and less and less value to you.

8 Right now, we spend hundreds of
9 millions of dollars for a model or models. We ship
10 them, and we no longer evaluate the value of that
11 model going forward.

12 So we're thinking really hard about
13 what it means to do model monitoring on the right-hand
14 side so that we can say, "Oh, it's time to retrain
15 your model," or "It's time to look at your model
16 because I see that the distribution of inferences that
17 you are making is now changed pretty significantly."

18 So quality data almost completely echo
19 the report there. We hundred percent agree that
20 that's the right way to drive forward. On top of that
21 analytics and metrics. And on top of that AI in the
22 form of AI scaffolding.

1 Just one more quick thing because I
2 don't want to take up too much of your time. We've
3 chosen to marquee use cases to drive this forward
4 because we're not going to be able to just say
5 magically, "Please give us quality data." That's not
6 going to work.

7 I mean, that wouldn't work in an
8 organization the size of Google. It's definitely not
9 going to work in an organization the size of the
10 Department of Defense.

11 So we've chosen two marquee use cases.
12 The first marquee use cases -- use case is -- oh, and
13 by the way, we're not going to try to get all of the
14 data. That's boiling the ocean. That won't work.

15 We're looking metaphorically for the 10
16 percent of the data that's going to bring 60 percent
17 of the value. And I say "metaphorically," because we
18 have no idea what the denominator is, so I don't know
19 if it's actually 10 percent, but we're looking for the
20 biggest chunk of -- that -- that -- the low-hanging
21 fruit chunk of data that's going to bring the most
22 value and drive a virtuous cycle.

1 So the first use case is a dashboard on
2 the deputy's desk, and a -- and a -- deputy
3 secretary's desk, and a dashboard in the secretary's
4 desk. These dashboards now present a view of the
5 department for the key metrics that the secretary and
6 the deputy secretary care about, and each of those is
7 data-driven.

8 So we've worked with the reports to the
9 deputy secretary, and we've asked: "How do you
10 measure the quality of your work? How do you know
11 when you're successful?" That's how we drove that
12 flip from effort-based to outcome-based metrics.

13 And then we went to figure out, my team
14 just dove in and was embedded with all of the PSAs.
15 We dove in and we said, "Okay, where does that data
16 come from?"

17 And then we went to the services, and
18 we found that data. And then we went to the
19 components within the -- we went into the components
20 within the services and found that data.

21 And for the key metrics that the deputy
22 wants to see, and the key metrics that the secretary

1 wants to see, we have found the right data, we have
2 built the data flows, we have assigned data ownership.

3 And every meeting that the deputy
4 secretary now has with the PSAs, every one of them
5 starts with a review of the metrics and whether
6 they're red, green, or yellow. And this is a massive
7 change in thought from the year and a half I got here.

8 So that was our first use case, and we
9 think that's the right -- a right marquee use case
10 because it really drives down to the bottom the need
11 to get to the data, to get to the executive
12 decision-making.

13 And when we pushed down to the bottom
14 to get to that data, that's when we institute these
15 data mesh principles. That's when we teach
16 the -- that's when we're teaching them to fish.
17 That's when we're teaching them how to be a data
18 product managers for example, and how to use an API to
19 make the data accessible, and how to get it in the
20 catalog.

21 All right. So that's -- that's use
22 case number one. I only have ten minutes so I'm

1 rushing it all in there. I'll pause in a second for
2 questions. I'm sorry.

3 And then the second one which I think
4 is the right war fighter use case, is CJADC2. If you
5 think about what CJADC2 is, it stands for Combined
6 Joint All Domain, Command and Control. The key there
7 is Command and Control.

8 If you look at the press from a
9 year -- two years ago, CJADC2 was a product. CJADC2
10 was a thing that we were going to buy. That's not
11 true. Command and Control -- Admiral Mullen correct
12 me here because I am not a war fighter, but Command
13 and Control has happened from the beginning of human
14 history; right?

15 Command and Control is just a war
16 fighter thing that leaders must do. It just happens
17 that in the modern world, we can do it significantly
18 differently -- differently and significantly more
19 effective.

20 So we see CJADC2 as a dataflow issue.
21 Getting the right data from the sensors to combatant
22 commanders and then the right decisions back down to

1 where they need to go. And so we're building a data
2 integration layer for -- for the combatant commanders.

3 Now, I'm going to be really honest with
4 you, the phrase "data integration layer," has worked
5 really well in DMAGs. It has worked really well when
6 we go and talk to the combatant commanders because it
7 sounds like something they can understand. They are
8 going to plug their devices into this layer, and the
9 data is going to flow.

10 But all it really is, is an extension
11 of these data mesh principles. That the right data
12 that a combatant commander needs is going to be
13 available. That we can build apps on top of that
14 data, and those apps will allow for Command and
15 Control. And that -- and -- and once a Command and
16 Control decision is made, it can be pushed down into
17 the right levels.

18 Now, we are -- we are -- this one as a
19 use case, where -- where we're focusing first on
20 IndoPACOM, but -- but we had just had massive
21 successes. And I only say it this way, and I'm happy
22 to brief anybody. We're actually having a DV Day next

1 week, but I'm -- I'm happy to brief anybody about the
2 specifics, but we are not just -- it's not just
3 IndoPACOM.

4 One of the largest frustrations is the
5 inability to do cross-combatant command coordination.
6 And AOR boundaries, area of responsibility boundaries,
7 were very hard boundaries with respect to the way the
8 data flowed.

9 And, you know, things move around in
10 the world and cross those boundaries. And we are now
11 at the point where we have leave behind capability for
12 combatant commanders so that CENTCOM can know what's
13 happening, and IndoPACOM can know what's happening in
14 AFRICOM, and as things -- and as things flow in
15 between those areas of responsibility.

16 So these are our two marquee use cases.
17 They have immediate value for the department. They
18 have -- and we have leave behind capabilities. And we
19 are incurring tech debt in the sense that
20 we're -- we're, you know, Palantir's a big helper
21 here, Andrew is a bigger helper here.

22 All the major players are helping us

1 deliver this value, but we're just having them do it
2 in a non-stove-piped way so that we can build up this
3 underlying data layer.

4 Now building up the underlying data
5 layer so it sounds as strong as it was presented in
6 the report, that's going to take years. And that's
7 going to take years of -- of leadership that drives in
8 that direction.

9 The trick is to make sure that every
10 time we deliver immediate value, because we always
11 have to deliver immediate war fighter value, we're
12 doing it in a way that contributes to the long-term
13 stability and the long-term sustainability.

14 I'll pause there. I hope that wasn't
15 overwhelming.

16 MR. BLOOMBERG: Craig, could you repeat
17 your question from Mike Mullen?

18 DR. MARTELL: What was -- oh, I was
19 just going to say --

20 MR. MULLEN: C2 -- it was C2, Mike.

21 Yeah. We've had Command and Control
22 from, you know, the start of time. That was really

1 the issue. And that's not insignificant to
2 what -- what you're talking about, Craig, in terms of
3 my ability to Command and Control in a way where
4 everybody understands clearly what's going on across
5 lots of domains, lots of services, lots of warfighting
6 requirements.

7 MR. BLOOMBERG: It occurs to me that
8 the security people are going to have a nightmare of
9 time in looking at the AI software and seeing whether
10 it is secured in itself.

11 As you pointed out, it's most likely to
12 be developed outside in the private sector. There's
13 no way the military could possibly keep up with the
14 number of different organizations and people that are
15 out there creating. And yet, if you look at the AI
16 software, it's not clear that anybody could look at
17 the code and decide what's really happening in there.

18 One of the things about AI, we always
19 joke about, nobody knows how it does it. So what kind
20 of security issues are we going to face, and how do we
21 deal with that?

22 DR. MARTELL: Well, that's a -- that is

1 just an absolutely great question. I think -- I think
2 we just need to shift the way we think slightly
3 differently, so I'll give you an example.

4 So when I'm driving my car, I -- I
5 choose to use adaptive cruise. Why do I choose to use
6 adaptive cruise? Because I've practiced with it. In
7 military terms, I've trained with it over and over and
8 over and over again.

9 I have a justified confidence in how it
10 behaves. And I can't -- even though I can't look
11 inside what's going on with my adaptive cruise system
12 because it's making millions of decisions per second
13 and too many sensors and there's no way to interpret
14 it if I could, I do understand the statistical
15 envelope around it -- the statistical -- the
16 behavioral -- behavioral envelope in a statistical
17 way.

18 It's very likely to do X in this
19 context. It's very likely to do Y in this context.
20 And just like any other technology, the military is
21 excellent at training, training, training, training,
22 training, training, training, and developing a

1 justified confidence in the system.

2 So I think the right way to think about
3 it going forward is not something analogous to person
4 in the loop. It's not something analogous to
5 explainability. We're never going -- so if you look
6 at our responsible AI principles, we don't have
7 explainability as one of them in there. We have
8 traceability, which is do we understand why this input
9 statistically speaking gave us this output.

10 So you have to think about it like a
11 complex system where you're evaluating its behavioral
12 patterns, not necessarily what's going on in the
13 inside. And I don't think that's very different than
14 any other technology.

15 Let's pick a really old technology.
16 Periodically, guns misfire. Periodically, guns
17 explode in -- in a soldier's face. Periodically,
18 missile guidance or torpedo guidance, which is
19 very -- you know that -- that feedback loop's been
20 around for a long time, goes awry.

21 So what we're really saying is, did we
22 have a justified confidence in the -- the way the

1 system behaves because of the training such that a
2 commander feels confident in making a decision to use
3 that tool?

4 And then just to -- to close the loop
5 there. Other parts of -- so the car I drive is a
6 Subaru. Other parts of it, I don't trust the lane
7 keep assist because it bounces back and forth between
8 the lanes, so I do not have justified confidence in
9 that.

10 I always turn that off, and I would not
11 take the responsibility to use that, but I do take the
12 responsibility because it is my fault if I hit another
13 car to use the adaptive cruise. It's this sort of
14 mentality that we have to switch to.

15 And I would even argue, sir, that for
16 most complex software systems, even if we can look at
17 the code, when you do it en masse, we don't really
18 know. It's very hard for us to trace exactly what
19 happened, and we really look at it in a behavioral
20 pattern for the device itself.

21 So that's -- I'm pretty sure
22 that's -- I'm -- I'm confident that's the right way to

1 move forward. And we have a T&E team that's building
2 this out and working with a -- the DoD T&E team on
3 exactly this.

4 MR. BLOOMBERG: People that work in the
5 security have a -- they have to be a hundred percent
6 secure. Their jobs are on the line. We expect when
7 they say it's secure, we mean a hundred percent
8 secure, endless. And yet, AI software hallucinates
9 unpredictably, and you're never going to get that.

10 So how do you square Senate and
11 Congress people who are screaming bloody murder:
12 "What do you mean you let that out of -- that cat out
13 of the bag? Your job is to keep it in there under all
14 circumstances."

15 And we'll have Ryan explain how this is
16 going to happen afterwards -- but what do you do
17 there?

18 DR. MARTELL: Yeah. So this
19 is -- let's -- let's talk about generative AI
20 particularly with hallucination. I think, you know,
21 the last time we met, I had a very strong opinion
22 about the -- the concerns that we should have about

1 hallucination.

2 And -- and the way I see it is this,
3 the -- look my PhD is in natural language processing.
4 I am unbelievably excited about the state of science
5 right now with respect to AI. This is the best it's
6 ever been in my career. I'm super excited.

7 But the state of the sciences here, and
8 the state of the promises or the hype is here, and
9 there's a gap in between. And it -- we take it as
10 CDAO's responsibility to characterize that gap. And
11 what I mean by characterizing the gap.

12 Well, we're having a
13 symposium -- symposium on February, you're all
14 invited, where we're bringing all of industry
15 together. The whole community is coming together to
16 actually ask the question, "How do we decide when
17 something -- when a generative AI model is sufficient
18 for a particular use case?" So we really believe this
19 is use case driven.

20 So, for example -- so think about
21 the -- the autonomous -- the autonomous' vehicle
22 maturity model. There's a level one, level two, level

1 three, level four, level five. What we -- what was
2 the value of that maturity model? Well, it allowed
3 for industry and consumers to talk the same language.

4 It allowed for industry to make
5 offerings that they know another company wasn't going
6 to out-hype them on because there were objective
7 criteria that said level three, level four, level
8 five.

9 And it allowed us to do things like
10 catch and ask questions of cruise. Was cruise really
11 level five? Well, you know they had some folks
12 interacting so it's not level five, but is that level
13 four? But it allowed us to have a rational
14 conversation about the technology being offered and
15 about the demand signal.

16 So what we've done is first gather over
17 200 use cases across the department. We're
18 categorizing those now; we're going to present them in
19 February. And that will be the demand signal for the
20 department.

21 We'll have levels of use cases and then
22 we're working with industry to -- to -- and

1 they've -- we've had over 33 submissions from Google,
2 from Microsoft. Microsoft's actually was the most
3 robust. But from -- from all of the major companies
4 arguing this is what a maturity model should look
5 like, and we want to be able to knot those together so
6 that we can say --

7 You know, Admiral Mullen, you might ask
8 for something. You know -- you know, last time we
9 talked, there was some demands that you had for -- for
10 when you were CNO. Well, great, I would then be able
11 to say: "Sir, that is a level four demand, but the
12 technology is only at level two, so you can't have
13 that. But here's some level two things, would these
14 be effective for you?"

15 So if we can build out that maturity
16 model, we can start to rationalize that gap. And so
17 then we can say to Congress: "Well, Congress,
18 industry is at level three. Here's some really strong
19 demand for level four and level five, and let's fund
20 that. Let's see if we can get the research to move
21 the technology up."

22 But we're not there yet, so let's not

1 allow for a -- I'm -- as the gatekeeper here, I'm not
2 going to allow the department to buy purported level
3 four solutions if there aren't level four solutions
4 available. So we're really excited about this
5 February symposium exactly for this reason. To
6 characterize this gap.

7 And I just want to -- just -- just back
8 to something I just said. Industry has jumped in with
9 both feet on this. We -- we talked with everyone, and
10 when "everyone," I mean, we talked -- the deputy and I
11 talked with Satya. The secretary and I talked with
12 Sundar. Like, we talked with everyone, and we talked
13 with -- I had a conflict with Amazon, but I don't
14 anymore, so we're about to go out to Amazon.

15 And everyone says, "We would love a
16 characterization like this because it
17 would -- it -- it essentially allows for a more
18 rational marketplace." So the -- the response we've
19 gotten and the energy that industry has put into
20 helping us build this maturity model, it's very
21 exciting.

22 DR. ROPER: Craig, one thing. I think

1 you've got a lot of, like, a lot of momentum where
2 I've been following this trying to build the internet
3 for the military from before there was even a cloud in
4 this department.

5 This is one area that leadership after
6 leadership have kept momentum and kept putting the
7 next step in. And I think you've done a lot to take
8 the focus off of the -- the kind of AI widgets at the
9 end and really build the required infrastructure and
10 inner operability.

11 But my recommendation to you is don't
12 lose sight of the economy and the data economy. And
13 that while you're also thinking about maturity models,
14 there needs to be a value model that gets distilled
15 into contractual language that should be standard so
16 that industry that owns the platform that others are
17 doing things with the data, they're benefiting from
18 those.

19 If they're not benefiting financially
20 and that language isn't in the contract, there are
21 just too many ways a platform owner can make it
22 difficult to get the 10 percent of the data you're

1 wanting.

2 So my recommendation is don't lose
3 sight of the economy and equally be aggressive to
4 reward industry when they give you the access to the
5 data that you want so that monetizing data from their
6 platform becomes the equivalent of, like, the
7 App Store for them.

8 And maybe it's a different set of
9 companies that are making money directly on the
10 contract, but they get a percentage, so it's replacing
11 the cash flows they would normally get from repairing
12 old systems. Now, they can repair less of the old
13 system and benefit with predictable cash flow from
14 their data being, you know, monetized by others.

15 I know we've discussed that, but I
16 think it's so, so --

17 DR. MARTELL: We have, yeah.

18 DR. ROPER: -- important that the money
19 is aligned with the -- the intentions.

20 DR. MARTELL: Well, number one, thank
21 you for the energy you've already given me just diving
22 in and helping me -- like, like, by default --

1 DR. THORNBERRY: Hey, Craig,
2 just -- just quickly. And I know I'll probably get
3 cut off here, but, you know, the building's pretty
4 famous for ignoring COCOMs and, actually, for ignoring
5 CDAOs, or whatever other, you know, specialty we've
6 had historically.

7 It seems to me just to listen to you,
8 that that in a way you've -- you may have overcome
9 that, and -- and I'm -- I'm curious as to how you see
10 that. Because typically the services will not pay a
11 lot of attention to COCOMs, and where they can resist
12 what's going on the third deck, they'll do that as
13 well.

14 So each service has got a CDAO as well.
15 How -- how is that all coming together, and then how
16 do you -- how do you connect that to the COCOMs where,
17 you know, in our hearts we really want to support them
18 but, you know, from the building, that's just really
19 difficult in this area?

20 DR. MARTELL: So, yeah, that -- I'll
21 talk to yours first and then I'll go back to the other
22 question.

1 Kathleen Hicks is the start of this;
2 right? That -- her leadership in preparing the ground
3 for my coming was remarkable. I actually believed
4 that my biggest job when I arrived would be to
5 generate demand signal. That was not true at all.

6 Whatever happened prior to me, the
7 demand signal to be data-driven was unbelievably
8 strong. It was just a how. So my job became, "Let me
9 show you how to do it," which is a significantly
10 easier job than actually the generation of the demand
11 signal. So there was already really strong demand
12 signal.

13 And, sir, I just believe -- I believe
14 that every component realizes the weakness they're at
15 by not understanding their own data. That, on top of
16 Dr. Hicks just driving our being data-driven, and the
17 value of our being data-driven. And actually, I think
18 it goes back much further.

19 When was the start of Ivana? I forget
20 which deputy secretary, I apologize, for that. But
21 Ivana started, I believe when you were in the
22 building, sir. And so the -- the drive towards having

1 our data so that we can do the right thing, so we can
2 measure where we are, that began way -- way before I
3 arrived.

4 Now, your concern, I read your concern
5 as: "How long will this runway last for me? When
6 will that goodwill peter out? That's my real
7 concern." And so there, I believe, it's really
8 effective governance.

9 So we have a CDAO Council. Every CDAO
10 across the departments comes to that council where we
11 leverage problems that they're -- that they're facing
12 and, sure, we push down -- we push down policy. But
13 if -- if my sole job is to write memos, I will be
14 ignored. So what we really do is try to help people
15 solve problems. They're helping them win their fights
16 right away.

17 And -- and that's -- we absolutely have
18 to build the right long-term solution, but we're only
19 going to be successful if -- right long-term solution
20 by helping with immediate problems now. That's my
21 hope.

22 But I -- what you just said keeps me up

1 at night. And what keeps me up at night is that I
2 have momentum now, I'm delivering value. We have our
3 pacing adversary who's giving us the kind of pressure
4 that everybody focuses on into PACOM, so that really
5 helps me focus attention. But if the world changes,
6 how do I maintain this going -- going forward? That's
7 a fear.

8 MR. BLOOMBERG: Reid, do you want to
9 add anything?

10 MR. HOFFMAN: Look, I think the
11 commentary, the discussions are very good as per
12 earlier, like, Will's stuff saying, like, the focus on
13 infrastructure and the continuation of things. But I
14 think that the question around how do we essentially
15 leverage what is amazing data for the DoD mission, is
16 I think, very important.

17 And then the focus on commerce because,
18 you know, there's a ton of obviously -- of like this
19 whole networking co-system or investment going in
20 commerce and making sure those parallels are right.
21 So I think all the discussion is -- is extremely good.

22 And the only thing I would add is that

1 we are in -- within the industry context continuing to
2 see, you know, kind of innovation that -- that works
3 on the order of magnitude of small and months.

4 The leasing of more large-scale models,
5 of different ways of doing it, I think it's going to
6 hit like drug discovery and a bunch of other things
7 within that -- probably within small and years.

8 And -- and so just also that the -- the
9 continuing of consulting with the various industrial
10 things which we have been for that expertise given the
11 pace of that. Given that, you know, I think the
12 discussion has been good and robust.

13 DR. MARTELL: So, Reid, just a quick
14 comment there. There's no way we could keep up with
15 that pace and so we're not trying. What we're trying
16 to do is regardless of the -- the innovation that that
17 industry brings to the table, our not having quality
18 data would be a mistake; right?

19 No matter what, we need to have quality
20 data to be ready for that. Plus that's our IP. We
21 should own our own IP. And so there's -- there's sort
22 of a business case for it as well.

1 But if we don't have that data ready,
2 we are going to be more stove-piped than ever. And so
3 we keep our eye on, we have very strong industrial
4 connections. As I've said, everybody has been
5 remarkably fully engaged.

6 And as people come to us and say,
7 "Here's a solution," again, I am not stopping the
8 deployment of any solution. The only difference I'm
9 doing is saying that's -- "Note that that incurs tech
10 debt." We're going to have to eventually transition
11 that to the new way of thinking.

12 And as long as I can get that in the
13 habit, and then to go back to the -- Dr. Roper's
14 question, and we can think about contracting that
15 allows for that transition, both paying back the tech
16 debt and changing the way the economy is done, I -- I
17 think we're going to have something sustainable. But
18 I say this in a hand -- hand waiving way, all of these
19 things are really hard.

20 From a -- from an economy perspective,
21 well, I -- I think the answer is something like
22 instead of your owning of the stovepipe and being able

1 to resell us the stovepipe, how about you own
2 the -- whatever IP you put into generating that data
3 mesh, you get to monetize that.

4 Maybe -- maybe we pay you per API call.
5 Maybe we change the contract so it's actually
6 beneficial. If we do it per API call, and we require
7 you to open it up to -- to other vendors, well, then
8 you have two markets. You have the market of selling
9 me the app, and you have the market of selling the
10 data to other app builders; right?

11 So we're working -- that might not be
12 the right answer, I don't know, but this is the kind
13 of discussion we're having in part driven by the
14 conversations that we had, Will.

15 MR. BLOOMBERG: Gilda, do your students
16 have an interest in going into AI trying to address
17 the things that Craig's been talking about?

18 DR. BARABINO: Absolutely. AI is so
19 pervasive now that I believe --

20 MR. BLOOMBERG: A little louder --

21 DR. BARABINO: So AI is so pervasive
22 now that students regardless of what they're studying,

1 want to be a part of understanding how to use AI
2 appropriately. And at Olin where I am right now, we
3 are actually infusing it throughout the entire
4 curriculum and -- but also to help the students
5 understand how to use it responsibly. So, yes, I
6 think the interest is only going to increase.

7 And I was curious, Craig's point from a
8 people perspective, how do you make sure that from a
9 training point of view, people aren't always
10 adequately prepared to embrace concepts, like, data
11 mesh and AI scaffolding? Like, what -- what's your
12 recommendation to make sure we're -- we're prepared to
13 use the best frameworks?

14 DR. MARTELL: Hey, that -- awesome
15 question. We built -- one of the things I did when I
16 first got here, is build a data management team.
17 Sorry, a data talent management team. We have a
18 couple of threads about the way we're thinking.

19 You asked, "How do I ensure?" I can't
20 ensure yet. We're trying to figure that out. So let
21 me just tell you the threads that we're thinking
22 about.

1 Number one, stop thinking about hire to
2 retire within the government. You know,
3 industry -- industry produces massive value knowing
4 that their people are going to stay eighteen months to
5 two years. So they've learned how to manage that
6 term. We need to as well. During that eighteen
7 months to two years, how about we help transform
8 careers?

9 Here's another thread we're thinking
10 about. How about we go to HBCUs for example, or just
11 in general the universities that Silicon Valley
12 doesn't by default recruit from? And how about we
13 say: "Come work with us, we'll pay for your
14 education. Come work with us, we'll transform you so
15 that industry is going to want you.

16 We'll give you some of the hardest
17 problems on the planet, and we'll give you some of the
18 best experience so on the other end industry will come
19 knocking."

20 Now, imagine I can create a pipeline of
21 diversity of data-literate diverse candidates. I'm
22 pretty sure industry is going to be knocking on that

1 door. So that's -- that's a pipe we've been -- we've
2 been thinking about.

3 We've been thinking about how do we
4 change JPME and -- and anybody's had to go through
5 JPME, I haven't, but Professional Military Education
6 knows that gets overloaded. Everything gets thrown in
7 there.

8 But we really have to think about when
9 someone's an O3 or an O4, what do they need to know
10 about managing technology like this? How do we make
11 sure -- because every leader is going to have to go
12 through PME throughout their career, how do we -- how
13 do we ensure that that's the case?

14 And we are also the functional
15 community manager for 11 new job titles which are data
16 engineers, data scientists, all of the new titles that
17 we need to actually drive this data-driven
18 transformation.

19 CDAO is the functional community
20 manager, and so the first thing we're doing are very
21 boring things. Like, we're just re-coding jobs. And
22 we're saying, "That's actually not a software

1 engineering job, that's a data engineering job."

2 And once we get those re-coded, which
3 is a monumental task because we have to drive the
4 whole department to do it, we can then say -- we can
5 at least then characterize that here's the gap.
6 Here's -- here's what's missing. And then -- but
7 those are longer term.

8 For short-term wins, we have embedded
9 talent teams in every combatant command. And we -- we
10 call them AIDA. AI and Data Accelerator. And those
11 AIDA teams are in every combatant command and the CDO
12 of the combatant command gets to task them. We pay
13 for them, but the CDO gets to task them. And we
14 specifically tell the team, your job is to support the
15 CDO for mission commander success.

16 And so whatever data they need, just
17 even, like, just building a data pipeline, building an
18 AI app. So at least at the combatant commands, we are
19 seeding the talent to start to build the -- the muscle
20 of leadership to depend upon this talent.

21 If we have leadership demanding this
22 talent, we'll -- we'll have billets [ph] and

1 we'll -- and we'll -- and people will come in the
2 door, and we'll do our best to fill them. But we have
3 to have that demand signal as well as the supply.

4 So, I don't have -- I mean, your
5 question was, "How do we ensure?" I don't know the
6 answer to, "How do we ensure?" But these are the ways
7 that we're tackling it.

8 MR. BLOOMBERG: Mary, you get the last
9 word before Ryan, I hope, is going to recommend that
10 we vote on --

11 DR. MARTELL: I vote yes, by the way.
12 It's a good report.

13 MR. BLOOMBERG: Can you add something
14 to -- a lot of this stuff is right down your alley.
15 Who is going to do -- how's the private sector work
16 with the -- with the military?

17 MS. MEEKER: Well, since the first time
18 we met, Craig, you've -- you've made, you know, leaps
19 and bounds of progress it appears. And it feels like
20 the data economy study that Ryan really spearheaded so
21 well fits. And I love the idea of the dashboard
22 that -- that is rolling out and love the idea that you

1 have the symposium in February and --

2 DR. MARTELL: Please come.

3 MS. MEEKER: He knows this very well.

4 The innovation in artificial intelligence of the
5 United States of America is off the charts. And in my
6 career as an investor, I've never seen this many
7 companies with a valuation in excess of a trillion
8 dollars. Never seen it before, it's never happened
9 before.

10 Most with their founders still involved
11 innovating for this big prize of artificial
12 intelligence with the capital to put behind the
13 infrastructure because it is the most expensive
14 rapidly changing innovation we've ever seen from a
15 funding perspective.

16 And if there's anything we've learned
17 about innovation and technology, when you have great
18 leaders who are founders who don't want to lose the
19 next battle, great stuff can be created.

20 Reid brought up the -- if -- if we
21 can -- if we can create new drugs with this kind of
22 speed which we'll see, Reid, you said in years. I

1 think it's -- I'll just say single digit, looks good,
2 sooner rather than later. If we can do that, we can
3 do a lot of things in a lot of areas.

4 And the fact that you're bringing those
5 companies together and you're going to create,
6 hopefully, new bidding, and new -- new business
7 practices that are faster, better, cheaper, more
8 efficient, can unleash a lot more innovation.

9 So, I guess, Craig and Reid, you may
10 add to that but --

11 MR. BLOOMBERG: Mark, and Frank, and
12 Craig, thank you very much for --

13 Ryan?

14 MR. SWANN: Yes.

15 MR. BLOOMBERG: You do, I assume,
16 recommend that we vote on this?

17 MR. SWANN: Yes.

18 MR. BLOOMBERG: And I will give you the
19 first vote.

20 MR. SWANN: Absolutely. Aye.

21 MR. BLOOMBERG: You're an aye.

22 Sue?

1 MS. GORDON: Wholeheartedly, aye.

2 MR. BLOOMBERG: And Gilda?

3 DR. BARABINO: Aye.

4 MR. BLOOMBERG: Will?

5 DR. ROPER: Aye.

6 MR. BLOOMBERG: Mary?

7 MS. MEEKER: Aye.

8 MR. BLOOMBERG: Mike?

9 MR. MULLEN: Aye.

10 MR. BLOOMBERG: Reid Hoffman?

11 MR. HOFFMAN: Aye.

12 MR. BLOOMBERG: And I will vote last.

13 An aye also.

14 Oh, I'm sorry, Mac, I just jumped over
15 you. I apologize.

16 DR. THORNBERRY: Aye.

17 MR. BLOOMBERG: We can't do this
18 without your vote. Way to go.

19 Thank you, everybody. That concludes
20 the second study for today.

21 DR. MARTELL: Thank you, team.

22 MR. BLOOMBERG: Thanks, Craig.

1 MS. MEEKER: Thanks, Mark.

2 MS. THEODOTOU: Thank you to our
3 speakers.

4 And yes, Mr. Chair, now we're shifting
5 over to the public comments. As we mentioned earlier,
6 we received 77 comments. And they're grouped -- we
7 grouped them in three areas so feedback and inquiries
8 on the previous studies or current studies.

9 So we have Nancy asking, "How is the
10 DIB going to lower barriers to entry for start-ups and
11 small businesses?" And I would recommend to Nancy to
12 read the study as soon as it's published on our
13 website.

14 We also have Timothy who is asking,
15 "How can I support the studies in how we optimize
16 innovation with allies and partners?" That's leading
17 up to our next -- or studies.

18 We also have a new study focus
19 suggestions. We have recommendations on data and
20 analytics and so you've covered all of that in our
21 current study. The way -- economy, so I recommend
22 that -- to our citizens and readers here to review the

1 Data Economy Study. Also, that will be published on
2 our website later today.

3 And we also have some DIB procedure
4 inquiries. And Amanda is asking -- she would like to
5 know, "What metrics do we use for impact when
6 considering these studies and recommendations and how
7 do we know it worked?" That's a great question
8 because I want to make sure that our studies are not
9 only recommending but also being implemented.

10 And that's the work -- that's why we
11 have speakers here and have representatives
12 from -- from the stakeholders across the department to
13 make sure that when our studies are published, we
14 further publish, our stakeholders are engaged early
15 and often so that we have a --

16 So when we study -- when we publish the
17 studies, we can then turn them loose and have them in
18 place and implement and adopt and adapt the
19 recommendations into their practices.

20 And with that, Mr. Chair, I'll turn it
21 over to you.

22 MR. BLOOMBERG: Thank you. The last

1 item of business is to inform the public of the
2 board's work going forward. We are starting two new
3 studies. The first covers how we are innovating with
4 our allies and partners, and Charles Phillips is going
5 to coordinate that effort.

6 And the second stems from a previous
7 recommendation made by this board, and its focus is to
8 align and send notes across the acquisition and tech
9 adoption pipelines. And that's going to be
10 coordinated by Admiral Mike Mullen.

11 Both of these topics have come out a
12 lot in our conversations with people across the
13 defense department and, hopefully, we can provide some
14 valuable insights in the coming months.

15 Any member want to add anything near
16 the end of our public part of our meeting?

17 Okay. Well, that includes
18 our -- concludes our public meeting for today. And I
19 wanted to thank Secretary Lloyd Austin and Defense
20 Secretary Kathleen Hicks, and Under Secretary Heidi
21 Shyu, and the entire Defense Innovation Board team for
22 organizing such a productive day.

1 And let me remind everybody, you can
2 put it on your calendar. You can tune into our next
3 public meeting on Wednesday, April 17th. So thanks
4 again, and we will see you all in the Spring and
5 hopefully, it will be a little bit warmer across the
6 country. All the best, everyone.

7 DR. THEODOTOU: Thank you, Mr. Chair.

8 And thank you to all of our speakers
9 today, and all of our members of our teams, and
10 everybody who joined us. Thank you, and this meeting
11 is now adjourned.

12 (Whereupon, the meeting concluded at
13 11:17 a.m.)

14

15

16

17

18

19

20

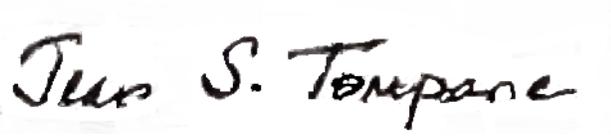
21

22

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22

CERTIFICATE

I, JEAN S. TOMPANE, the officer before whom the foregoing proceedings were taken, do hereby certify that any witness(es) in the foregoing proceedings, prior to testifying, were duly sworn; that the proceedings were recorded by me and thereafter reduced to typewriting by a qualified transcriptionist; that said digital audio recording of said proceedings are a true and accurate record to the best of my knowledge, skills, and ability; that I am neither counsel for, related to, nor employed by any of the parties to the action in which this was taken; and, further, that I am not a relative or employee of any counsel or attorney employed by the parties hereto, nor financially or otherwise interested in the outcome of this action.



JEAN S. TOMPANE

Notary Public in and for the
State of Maryland

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22

CERTIFICATE OF TRANSCRIBER

I, SHANNON GALLINA, do hereby certify that this transcript was prepared from the digital audio recording of the foregoing proceeding, that said transcript is a true and accurate record of the proceedings to the best of my knowledge, skills, and ability; that I am neither counsel for, related to, nor employed by any of the parties to the action in which this was taken; and, further, that I am not a relative or employee of any counsel or attorney employed by the parties hereto, nor financially or otherwise interested in the outcome of this action.



SHANNON GALLINA

1	58 3:11	academia	61:4 62:3,10
10 43:15,19 59:22	6	20:11 24:13	62:17 67:5
10:00 1:9	6 3:4	accelerate	68:3 70:17,22
11 70:15	60 43:16	18:10 24:10	acumen 28:9
11:17 79:13	60s 18:6	accelerated	adapt 77:18
12 3:6	61 3:9,12	25:6	adaptive 51:5,6
16 3:7	6344988 1:18	accelerator	51:11 53:13
17th 79:3	64 3:13	71:10	add 4:6 16:3
1947 14:2	65 3:9	access 10:8,9	64:9,22 72:13
2	67 3:14	27:8 28:17,17	74:10 78:15
	68 3:9	33:21 60:4	additional
200 14:9 22:12	7	accessibility	27:18
56:17	70 37:18	33:21	address 17:14
20088 80:16	700 22:12	accessible	67:16
2018 38:7	700,000 14:7	33:13 36:2,7	adequately
2024 1:8	72 3:15	45:19	68:10
20301 1:14	76 3:4	accurate 80:9	adjourned
21st 18:8	77 3:3 7:5 76:6	81:5	79:11
22 3:3	8	achieve 9:9	adjusted 18:7
23rd 6:22	8 3:5	11:18	admiral 2:7
24 3:8	9	achieving 9:5	3:10 17:6
26 1:8	95 14:22	acquisition	46:11 57:7
29 3:3	a	9:13,22 22:7,8	78:10
29952 81:14	a.m. 1:9 79:13	78:8	admiralty
3	ability 10:12	act 6:20,20	22:15
30 3:9	33:15,17 35:22	15:13	adopt 11:1
32 21:14	37:10 50:3	action 11:12	77:18
33 57:1	80:10 81:7	17:18,21 20:21	adopted 17:14
3e188 1:13	able 26:22 27:3	80:12,16 81:8	adoption 78:9
4	27:20 28:16,17	81:12	advance 7:5
4 3:3	43:4 57:5,10	actionable 9:16	advantage 8:13
49 3:10	66:22	actions 13:9	27:21 30:5
5	absolutely 17:7	actually 10:5	adversaries
50 3:3,9 24:12	51:1 63:17	20:20 26:17	13:4
54 3:3,9	67:18 74:20	27:12 33:18	adversary 13:9
		36:16 37:1	64:3
		43:19 47:22	advisory 6:19
		55:16 57:2	6:19

<p>afford 10:16 africom 48:14 agency 6:11 12:11 agenda 7:2 aggressive 14:10 15:12,20 60:3 agile 5:14 ago 14:6 17:3 31:6 46:9 agree 36:9 38:20 42:19 agreements 10:21 ahead 5:21 39:4,8 ai 14:11,13,18 15:10,13,21 24:10,21 26:2 26:22 28:9 29:12 31:19,20 38:5,17,19,21 40:3 41:4,11 41:14,14 42:21 42:22 50:9,15 50:18 52:6 54:8,19 55:5 55:17 59:8 67:16,18,21 68:1,11 71:10 71:18 aida 71:10,11 ain't 4:4 air 35:16 airplane 12:15 align 11:4 27:6 78:8</p>	<p>aligned 11:1 60:19 alley 72:14 allies 76:16 78:4 allow 6:9 9:11 10:9 31:7,10 32:9,16 47:14 58:1,2 allowed 56:2,4 56:9,13 allows 10:6 41:1 58:17 66:15 amanda 77:4 amazing 64:15 amazon 58:13 58:14 america 73:5 analogous 52:3 52:4 analytics 37:3 37:13 39:11 42:21 76:20 analyze 37:10 andrew 48:21 anew 10:17 announced 6:21 answer 7:8 66:21 67:12 72:6 anybody 30:4 37:19 47:22 48:1 50:16 anybody's 70:4 anymore 58:14</p>	<p>anyways 12:9 aor 48:6 api 28:14 36:1 45:18 67:4,6 apologize 62:20 75:15 app 60:7 67:9 67:10 71:18 appears 72:19 approaches 8:17,19,20 9:3 appropriately 68:2 approve 5:17 apps 47:13,14 april 79:3 area 9:2 48:6 59:5 61:19 areas 8:15 11:18 48:15 74:3 76:7 argue 53:15 arguing 57:4 army 35:17 arrived 62:4 63:3 artificial 30:16 73:4,11 asked 21:18 31:6 44:9 68:19 asking 76:9,14 77:4 asset 10:10 21:13 34:19,19 34:20,20 35:1 36:22</p>	<p>assigned 45:2 assist 53:7 assistant 12:9 association 20:3,5 assume 74:15 attend 6:9 attendees 2:2 attention 61:11 64:5 attorney 80:14 81:10 audio 80:8 81:3 austin 78:19 authority 10:15 11:11 automated 15:1 autonomous 55:21,21 auvsi 20:5 available 30:4 47:13 58:4 awesome 68:14 awful 30:2 awry 52:20 aye 23:9,11,13 23:15,18,20,22 24:1 74:20,21 75:1,3,5,7,9,11 75:13,16</p>
			b
			<p>back 7:12 11:21 12:6 46:22 53:7 58:7 61:21 62:18 66:13,15</p>

background 14:21	believe 10:4 17:18 19:22	16:2 22:11 23:10,12,14,16	brigadier 2:13 3:7 12:13 21:2
backgrounds 4:9	55:18 62:13,13 62:21 63:7	23:19,21 24:1 29:17 30:19	brilliant 21:9 21:18
backlogged 14:7	67:19	33:6 38:21 49:16 50:7	bring 4:8 6:13 22:10 27:12
bag 54:13	believed 62:3	54:4 64:8 67:15,20 72:8	33:20 38:9 43:16,21
balance 31:12	believer 31:1	72:13 74:11,15 74:18,21 75:2	bringing 36:2 55:14 74:4
ballgame 39:9	belongs 40:19 40:19	75:4,6,8,10,12 75:17,22 77:22	brings 65:17
banking 11:3	beneficial 67:6	board 1:1 2:4,5 2:6,7,9,10,11	british 22:15
barabino 2:4 3:14 23:11 67:18,21 75:3	benefit 60:13	2:17 6:4,7,13 6:15,18,19 7:4	broad 25:2,3
barely 21:15	benefiting 59:17,19	7:8,10 8:4,7 37:16 78:7,21	broader 11:7 28:3,3
barriers 8:5,12 13:15 76:10	best 4:4 13:19 41:2 55:5	board's 78:2	broke 14:3
base 9:4 25:6	68:13 69:18 72:2 79:6	boiling 43:14	broken 31:16
based 11:17 37:18,22 38:1 44:12,12	80:10 81:6	book 18:6,9 22:12,13	brought 31:20 73:20
basement 25:10	better 4:5,8 7:15 15:20	boring 70:21	build 28:9 31:7 32:13,15 35:18
basically 41:11	29:12 35:3 39:18 74:7	born 14:2	37:8 47:13 49:2 57:15
basin 25:3	bid 11:10	bottom 15:3 33:8 37:6	58:20 59:2,9 63:18 68:16
battle 22:14 73:19	bidding 74:6	45:10,13	71:19
battles 30:2 40:3	big 16:1,10 18:18 48:20	bounces 53:7	builders 67:10
battleships 22:14	73:11	boundaries 48:6,6,7,10	building 24:6 31:11 35:15,22
began 63:2	bigger 48:21	bounds 72:19	37:12 38:21 39:22 40:2,15
beginning 46:13	biggest 43:20 62:4	brakes 15:7	40:18,20 47:1 49:4 54:1
behaves 51:10 53:1	billets 71:22	brave 22:4	61:18 62:22 71:17,17
behavioral 51:16,16 52:11 53:19	bit 79:5	break 25:4	building's 61:3
	blockers 24:18	brief 21:14,17 47:22 48:1	built 32:11,11 45:2 68:15
	bloody 54:11	briefly 10:2 37:17	
	bloomberg 2:3 3:3 4:2 5:19 7:13,14,20 8:1 11:20 12:4		

<p>bunch 17:5 31:16,19 65:6 bureaucracy 5:20 18:13 bus 40:8,9 business 29:19 29:21 42:4 65:22 74:6 78:1 businesses 76:11 button 19:17 buy 46:10 58:2</p>	<p>car 15:7,8 51:4 53:5,13 card 13:16 care 44:6 career 55:6 70:12 73:6 careers 5:3 69:8 case 13:19,20 43:12 44:1 45:8,9,22 46:4 47:19 55:18,19 65:22 70:13 cases 40:10 42:5 43:3,11 43:12 48:16 56:17,21 cash 60:11,13 cat 54:12 catalog 45:20 catch 56:10 categories 26:12 categorized 26:11 categorizing 56:18 cavalier 11:14 cdao 25:12,14 27:14,20 28:3 31:12 35:22 38:6 61:14 63:9,9 70:19 cdao's 35:14 55:10 cdaos 25:15,16 27:17 36:4 61:5</p>	<p>cdo 71:11,13 71:15 centcom 48:12 center 29:18 centralized 35:13,15,21 38:12,16 centricity 24:8 century 18:8 certificate 80:1 81:1 certify 80:4 81:2 chair 2:3 7:13 76:4 77:20 79:7 challenge 9:4 challenges 25:18 chance 21:6 change 13:3 16:10,20 17:14 17:15 18:6 22:9 29:3,6,6 31:11 45:7 67:5 70:4 changed 42:17 changer 14:16 changes 7:1 16:1 22:10 42:5,6 64:5 changing 8:14 27:1 66:16 73:14 characterizati... 58:16 characterize 55:10 58:6</p>	<p>71:5 characterizing 55:11 charles 23:16 78:4 charts 73:5 cheaper 74:7 check 13:18 chief 30:15 chiefs 11:3 choose 51:5,5 chosen 43:3,11 chunk 43:20,21 circumstances 54:14 citizens 76:22 cjadc2 46:4,5,9 46:9,20 clarkson 21:8 classify 27:10 clear 29:7,21 34:2 39:10 50:16 clearance 13:6 13:7 cleared 10:9 clearly 50:4 close 12:17 53:4 closest 35:10 cloud 10:15 59:3 cno 57:10 cocoms 61:4,11 61:16 code 21:20 22:3,17 28:8 50:17 53:17</p>
c			
<p>c 2:1 3:1 4:1 c2 49:20,20 cabo 21:19 cac 13:16 calendar 79:2 call 22:15 40:11 67:4,6 71:10 called 18:9,13 22:13 40:22 calling 37:3 38:19 camp 21:7 candidates 69:21 capabilities 8:16 48:18 capability 10:19 48:11 capital 10:1 73:12 captains 21:10</p>			

<p>coded 71:2 coding 70:21 colleagues 29:15 collect 29:22 collecting 29:19 combatant 25:16 27:18 46:21 47:2,6 47:12 48:5,12 71:9,11,12,18 combined 46:5 come 11:21 12:6 16:13 41:1 44:16 66:6 69:13,14 69:18 72:1 73:2 78:11 comes 17:10 25:21,21 63:10 comfortable 23:7 coming 55:15 61:15 62:3 78:14 command 21:3 25:16 46:6,7 46:11,12,15 47:14,15 48:5 49:21 50:3 71:9,11,12 commandant 19:13 commander 21:3 47:12 53:2 71:15</p>	<p>commanders 46:22 47:2,6 48:12 commands 21:7 27:18 71:18 comment 65:14 commentary 64:11 comments 7:4 7:5,7,9 27:10 29:16 76:5,6 commerce 64:17,20 commercial 11:10 committee 6:20 commoditized 40:4 commodity 40:1,2 community 13:22 55:15 70:15,19 companies 30:3,11 39:7 57:3 60:9 73:7 74:5 company 56:5 compete 41:2 competency 19:3 competition 10:20 complain 5:2 completely 42:18</p>	<p>complex 52:11 53:16 component 62:14 components 36:5,5 44:19 44:19 concepts 68:10 concern 63:4,4 63:7 concerns 54:22 concluded 79:12 concludes 75:19 78:18 confidence 51:9 52:1,22 53:8 confident 53:2 53:22 conflict 58:13 congress 54:11 57:17,17 connect 61:16 connections 66:4 connects 27:9 consider 7:4 8:16,18,19 considering 77:6 constitutes 38:6 consulting 65:9 consumers 56:3 context 51:19 51:19 65:1</p>	<p>continuation 64:13 continue 32:10 32:11 continued 39:5 39:6 continuing 65:1,9 contract 59:20 60:10 67:5 contracting 66:14 contracts 10:18 26:17 27:2,4 32:20,21 contractual 59:15 contributes 49:12 control 30:13 46:6,7,11,13 46:15 47:15,16 49:21 50:3 controlling 30:1 convene 6:15 conversation 56:14 conversations 67:14 78:12 coordinate 78:5 coordinated 78:10 coordination 48:5 corps 20:22 21:3,14,22</p>
---	--	--	--

<p>22:2 correct 46:11 could've 20:18 council 63:9,10 counsel 80:11 80:14 81:7,10 count 37:20 41:13 counterintelli... 12:10 13:8 country 4:7 79:6 couple 68:18 covered 76:20 covers 78:3 craig 2:16 3:9 21:8 30:16,17 49:16 50:2 58:22 61:1 72:18 74:9,12 75:22 craig's 67:17 68:7 create 26:22 27:21 29:3 69:20 73:21 74:5 created 73:19 creating 8:13 29:6 50:15 creative 26:16 creators 9:14 crisis 15:12 cris 17:9 criteria 56:7 critical 13:3 25:13</p>	<p>cross 48:5,10 cruise 51:5,6 51:11 53:13 56:10,10 cruisers 22:14 culture 4:12,14 16:19,19,20 19:18 22:9 curious 61:9 68:7 current 40:3 76:8,21 curriculum 68:4 culp 27:22 customer 36:13 36:14,19 customers 34:15,16 36:13 cut 61:3 cycle 43:22</p> <hr/> <p style="text-align: center;">d</p> <hr/> <p>d 4:1 d.c. 1:14 dashboard 35:18 44:1,3 72:21 dashboards 37:13 44:4 data 10:21,22 13:3 24:6,7,7 24:10,20,21,22 24:22 25:15 26:2,17,18,19 27:2,4,6,8,10 27:11 28:5,9 28:17,20,22</p>	<p>29:12,19,20 30:3 33:8,9,10 33:18,19,20 34:2,3,4,4,4,4 34:6,7,7,7,10 34:13,13,14,14 34:19,21,22 35:1,4,5,6,8,9 35:10,10,12,13 35:16,17,17,20 36:1,6,8,10,11 36:12,15,18,19 36:22 37:9,10 37:11,11 39:13 39:14,15,15 40:6,17,18 41:1,17,18 42:2,18 43:5 43:14,16,21 44:7,15,18,20 45:1,2,2,11,14 45:15,17,19 46:21 47:1,4,9 47:11,11,14 48:8 49:3,4 59:12,17,22 60:5,5,14 62:7 62:15,16,17 63:1 64:15 65:18,20 66:1 67:2,10 68:10 68:16,17 69:21 70:15,16,17 71:1,10,16,17 72:20 76:19 77:1 dataflow 46:20</p>	<p>dau 16:6 17:14 18:1,22 19:1 day 47:22 78:22 days 13:19,20 dca 13:1 deal 50:21 debt 32:12,18 48:19 66:10,16 decide 35:4 50:17 55:16 decision 11:18 45:12 47:16 53:2 decisions 46:22 51:12 decisive 16:22 deck 61:12 deeply 29:10 default 60:22 69:12 defense 1:1 6:4 6:7,11,12 7:9 12:10,18 33:11 43:10 78:13,19 78:21 definitely 24:14 43:8 definition 39:10 deliver 49:1,10 49:11 delivered 31:17 31:20 delivering 34:15 64:2 demand 56:15 56:19 57:11,19</p>
--	--	--	--

<p>62:5,7,10,11 72:3 demanding 71:21 demands 57:9 denominator 43:18 department 8:8 10:10 12:18 24:8,11 24:12 25:1,7 27:9 29:1,4,8 29:11 32:3 33:10 34:19 36:6,11 37:19 39:1 43:10 44:5 48:17 56:17,20 58:2 59:4 71:4 77:12 78:13 department's 30:15 departments 28:5 31:5 36:5 63:10 depend 71:20 deploy 41:19 deployed 41:16 42:1 deploying 41:21 deployment 66:8 deputy 44:2,6,9 44:21 45:3 58:10 62:20 deputy's 44:2</p>	<p>describe 10:2 description 39:15 designated 6:6 desk 33:14 44:2 44:3,4 desperate 12:5 develop 8:21 developed 50:12 developing 51:22 device 37:5,5,6 53:20 devices 47:8 devoted 4:7 dib 1:5 2:12 76:10 77:3 diego 20:9,13 difference 5:1 9:7 22:20 66:8 different 4:9 8:17,18 30:10 32:22 34:8,22 34:22 41:19,21 42:1 50:14 52:13 60:8 65:5 differentiate 34:6 differently 46:18,18 51:3 difficult 33:16 41:7 59:22 61:19 digit 74:1 digital 28:4 30:15 80:8</p>	<p>81:3 dilatants 11:15 dinner 4:14 direct 10:13 direction 49:8 directly 60:9 director 2:12 6:6 12:9 discipline 4:21 5:13 discover 33:15 discoverability 35:14,15 discoverable 33:9 discovery 65:6 discretionary 6:18 discussed 60:15 discussion 64:21 65:12 67:13 discussions 4:13 64:11 distilled 59:14 distinct 13:1 distributed 33:11,12,12 35:10 distributing 29:20 distribution 30:1 42:16 diverse 69:21 diversity 69:21 diving 60:21</p>	<p>dmags 47:5 dod 10:10 24:7 25:6,14 26:17 27:15 54:2 64:15 doing 4:8 5:4 12:21 18:1 21:12 22:20 24:18 49:12 59:17 65:5 66:9 70:20 dollars 42:9 73:8 domain 46:6 domains 9:21 50:5 door 70:1 72:2 dove 44:14,15 dr 1:5 2:4,9,11 2:12,14,16 3:4 3:6,9,11,12,14 5:18 6:1,5 11:22 12:22 23:9,11,13 30:18 49:18 50:22 54:18 58:22 60:17,18 60:20 61:1,20 62:16 65:13 66:13 67:18,21 68:14 72:11 73:2 75:3,5,16 75:21 79:7 drive 15:12 38:2 42:20 43:3,22 53:5 62:22 70:17 71:3</p>
--	---	--	--

<p>driven 10:19 44:7 55:19 62:7,16,17 67:13 70:17 drives 45:10 49:7 driving 29:6 35:8 51:4 62:16 drove 34:1 44:11 drucker 16:15 16:15,18 drug 65:6 drugs 73:21 duly 80:5 dunford 16:21 16:22 dv 47:22</p>	<p>76:21 77:1 ecosystem 9:14 18:21 education 69:14 70:5 effective 11:8 46:19 57:14 63:8 efficiency 11:8 efficient 29:13 74:8 efficiently 9:19 effort 19:1 20:8 20:10 37:18,22 44:12 78:5 eighteen 69:4,6 element 13:18 15:2 elements 9:13 13:5 eliminate 11:8 embedded 44:14 71:8 embrace 14:13 14:19 28:22 68:10 emphasizes 17:16 employed 19:6 80:11,14 81:8 81:11 employee 80:13 81:10 employees 12:6 empower 28:4 28:10 empowered 25:14 27:15</p>	<p>en 53:17 enable 28:14 encourage 26:8 29:9 32:16 endless 54:8 endorses 18:10 ends 41:15 energy 58:19 60:21 engaged 10:11 17:1 66:5 77:14 engagements 24:12 engineer 28:19 engineering 71:1,1 engineers 70:16 engines 24:11 ensure 30:8 68:19,20 70:13 72:5,6 enterprise 11:6 26:21 entire 14:22 68:3 78:21 entities 11:7 entry 76:10 envelope 51:15 51:16 environment 22:8 equally 60:3 equipped 16:13 equivalent 60:6 es 80:4</p>	<p>especially 8:7 essential 25:13 essentially 31:3 58:17 64:14 establish 10:13 evaluate 42:10 evaluating 52:11 event 6:13 eventually 22:16 66:10 everybody 30:6 50:4 64:4 66:4 75:19 79:1,10 evidence 20:21 29:7 exactly 7:20 53:18 54:3 58:5 example 35:19 40:7 45:18 51:3 55:20 69:10 excellent 51:21 excess 73:7 excited 55:4,6 58:4 exciting 15:16 22:7 58:21 excuses 22:22 executive 1:5 2:12 6:6 45:11 expect 19:15 54:6 expectation 21:5 expected 21:22</p>
e			
<p>e 2:1,1 3:1 4:1 4:1 earlier 64:12 76:5 early 36:21 77:14 easier 5:9 9:12 41:7 62:10 easy 11:14 20:1 40:16 echelon 27:11 echo 42:18 echoing 33:4 economy 24:7 24:7 25:15 59:12,12 60:3 66:16,20 72:20</p>			

<p>expecting 21:19 expedite 13:22 expensive 73:13 experience 4:9 12:19 69:18 experienced 19:19 experiment 18:18 expert 6:12 expertise 40:13 65:10 experts 8:7 9:8 24:15 28:5 explain 54:15 explainability 52:5,7 explode 52:17 explore 19:1 extension 47:10 extremely 31:9 33:15,21 64:21 eye 66:3</p>	<p>factory 22:1 fairness 11:16 famous 61:4 fantastic 17:7 far 39:4,8 fascinating 22:17 37:15 faster 9:12 15:9,11 29:13 74:7 fault 53:12 fear 64:7 february 55:13 56:19 58:5 73:1 federal 6:6,19 6:22 7:2 14:22 feedback 52:19 76:7 feel 7:15 feels 53:2 72:19 feet 58:9 field 9:15 21:12 22:3 fighter 39:16 39:18 40:14 46:4,12,16 49:11 fight 63:15 figure 20:14 33:19 44:13 68:20 figured 20:18 figuring 24:9 fill 30:17 72:2 finally 28:21 33:20 38:4</p>	<p>financially 59:19 80:15 81:11 find 26:21 35:21 fine 40:11,12 41:20 finest 4:3 finishes 17:21 first 6:16 7:17 7:19 8:6 10:3 24:2 28:15 31:5 33:9 37:9 43:12 44:1 45:8 47:19 56:16 61:21 68:16 70:20 72:17 74:19 78:3 fish 45:16 fits 72:21 five 15:16,18 15:20 56:1,8 56:11,12 57:19 fix 37:5 fixed 14:3 flags 22:16 fleet 20:11,12 flew 12:15 flip 44:12 florida 17:4,5 flow 47:9 48:14 60:13 flowed 48:8 flows 45:2 60:11 flush 18:16</p>	<p>fly 22:3 focus 28:22 59:8 64:5,12 64:17 76:18 78:7 focused 9:1 focuses 64:4 focusing 47:19 folks 20:15,16 20:18 56:11 following 31:4 59:2 force 28:4 35:16 forcing 11:3 foregoing 80:3 80:4 81:4 forget 62:19 form 42:22 formulated 19:2 forth 53:7 forward 15:3 32:16,20 34:1 42:11,20 43:3 52:3 54:1 64:6 78:2 foster 19:10 found 44:18,20 45:1 founders 73:10 73:18 four 13:1,5 14:6 25:11 56:1,7,13 57:11,19 58:3 58:3</p>
f			
<p>fabric 34:4 fabrics 34:7 face 50:20 52:17 facebook 14:17 facilities 13:7 facing 63:11 fact 17:16 31:1 74:4</p>			

<p>frameworks 68:13 frank 2:13 3:7 12:12 16:2 74:11 fray 7:22 freedom 18:17 friday 1:8 friend 14:15 friendly 9:19 fruit 43:21 frustrations 48:4 fudge 5:11 fully 66:5 functional 70:14,19 functioning 18:13 fund 57:19 funding 73:15 fungible 34:21 34:21 further 62:18 77:14 80:13 81:9 future 14:12 41:13 futuristic 4:11 fy25 26:15</p>	<p>71:5 gatekeeper 58:1 gather 36:19 41:18 42:2 56:16 gathering 36:22 41:17 general 2:13 3:7 12:13 16:22 17:6 19:13 21:2 28:7 69:11 generate 62:5 generating 67:2 generation 62:10 generative 40:3 54:19 55:17 getting 10:17 21:4 46:21 gilda 2:4 3:14 23:10 67:15 75:2 give 11:15 18:17 19:14 28:10 43:5 51:3 60:4 69:16,17 74:18</p>	<p>33:18 37:21 47:1,6 58:14 61:21 66:13 69:10 70:4,11 75:18 goal 9:16 goes 52:20 62:18 going 5:15,17 7:21 14:12,13 15:2,20,21,22 17:17 23:4 24:20,21,22 26:7,9,9 30:2 32:15,15,16,18 32:19,20,20 33:4 35:21 39:2,17,22 40:4,14 42:11 43:4,6,9,13,16 43:21 46:10 47:3,8,9,12 49:6,7,19 50:4 50:8,20 51:11 52:3,5,12 54:9 54:16 56:5,18 58:2 61:12 63:19 64:6,6 64:19 65:5 66:2,10,17 67:16 68:6 69:4,15,22 70:11 72:9,15 74:5 76:10 78:2,4,9 good 15:22 20:17 30:13 64:11,21 65:12</p>	<p>72:12 74:1 goodwill 63:6 google 14:17 39:5 43:8 57:1 gordon 2:5 3:5 7:19,22 8:3 12:3 75:1 gotten 32:5,5 58:19 governance 63:8 government 6:20 13:21 14:22 15:5 20:10,15,18 38:14 41:7 69:2 governor 17:5 17:8 grain 40:11 grained 40:12 grant 10:8 grassroots 18:17 great 5:2 20:1 20:21,22 21:11 24:16 25:3 28:11 30:7 32:15 51:1 57:10 73:17,19 77:7 green 45:6 ground 62:2 grouped 76:6,7 groups 4:18 grunt 21:20 28:8</p>
<p>g</p>	<p>given 60:21 65:10,11 giving 64:3 glad 7:14 33:4 go 5:21 7:17,19 13:17,20 15:9 15:10 26:10 29:14 32:16</p>	<p>67:16 68:6 69:4,15,22 70:11 72:9,15 74:5 76:10 78:2,4,9 good 15:22 20:17 30:13 64:11,21 65:12</p>	<p>green 45:6 ground 62:2 grouped 76:6,7 groups 4:18 grunt 21:20 28:8</p>

<p>grunts 22:2 guess 74:9 guest 2:13,14 2:16 11:22 29:14 guidance 52:18 52:18 guns 52:16,16 guy 21:8,16</p>	<p>41:8 42:12 48:7 53:18 66:19 hardest 69:16 harvard 18:4 hat 36:13 hbcus 69:10 hear 10:22 30:15 38:13 heartening 9:6 hearts 61:17 heidi 78:20 help 4:6 11:19 22:10 27:5 29:12 38:13,15 38:15 63:14 68:4 69:7 helper 48:20,21 helping 17:8 48:22 58:20 60:22 63:15,20 helps 19:10,10 64:5 hereto 80:15 81:11 hey 18:5 61:1 68:14 hi 30:21 hicks 62:1,16 78:20 hierarchical 18:14 hierarchy 18:11 19:9 31:18,21 33:3 33:7 37:2,4 highly 21:15</p>	<p>hire 69:1 historically 61:6 history 46:14 hit 53:12 65:6 hoffman 2:6 3:13 23:21,22 64:10 75:10,11 hole 11:2 honest 47:3 hope 49:14 63:21 72:9 hopefully 4:6 5:15 74:6 78:13 79:5 house 20:22 how's 72:15 huge 25:22 26:1 human 5:5,5 10:1 15:2 46:13 hundred 38:20 40:19 42:19 54:5,7 hundreds 42:8 hype 55:8 56:6</p>	<p>ignored 63:14 ignoring 61:4,4 imagine 69:20 immediate 38:9 48:17 49:10,11 63:20 immediately 9:17 38:10 impact 9:18 77:5 imperatives 9:13 implement 17:19 77:18 implemented 9:17 77:9 important 20:12 26:5 27:19 31:9 33:22 60:18 64:16 impressed 33:5 improve 9:18 inability 48:5 incent 5:13 incentives 27:4 27:6 incentivize 27:8 incidentally 23:6 incites 24:15 include 26:15 27:4 included 30:9 includes 78:17 inconsistencies 25:19</p>
<p>h</p>			
<p>habit 66:13 haircut 20:17 half 31:6 37:17 45:7 hallucinates 54:8 hallucination 54:20 55:1 hand 42:13 66:18,18 hang 21:15 hanging 43:20 happen 10:5 18:19 54:16 happened 46:13 53:19 62:6 73:8 happening 24:17 25:1,2,3 48:13,13 50:17 happens 46:16 happy 47:21 48:1 hard 31:15,15 32:7 35:8 36:17 37:14 38:2 40:6 41:6</p>			
		<p>i</p>	
		<p>ic 13:18 idea 34:17 36:10 43:18 72:21,22 ideas 28:12 30:13 identify 8:10 9:16 24:18</p>	

<p>incorrectly 34:20</p> <p>increase 68:6</p> <p>incurring 48:19</p> <p>incurs 66:9</p> <p>independent 6:18</p> <p>individual 32:10</p> <p>indopacom 32:14 47:20 48:3,13</p> <p>industrial 13:6 25:6 27:5 39:22 65:9 66:3</p> <p>industry 11:1 19:22 20:10,15 24:13 25:5 27:3 40:20 41:8 55:14 56:3,4,22 57:18 58:8,19 59:16 60:4 65:1,17 69:3,3 69:15,18,22</p> <p>inferences 42:16</p> <p>inform 78:1</p> <p>information 10:1</p> <p>infrastructure 37:12 59:9 64:13 73:13</p> <p>infusing 68:3</p> <p>ingredients 17:2</p>	<p>inner 26:18 59:10</p> <p>innovating 14:8 73:11 78:3</p> <p>innovation 1:1 4:10 6:4,7,13 7:10 8:5,12,15 9:22 11:18,19 13:14 16:11 18:16,20,21 19:2,3,7,11,16 21:4 22:19 25:1 65:2,16 73:4,14,17 74:8 76:16 78:21</p> <p>innovation's 22:21</p> <p>innovation.d... 7:11</p> <p>innovative 28:10,11</p> <p>innovators 28:6</p> <p>input 52:8</p> <p>inquiries 76:7 77:4</p> <p>inside 8:8 25:10,10 51:11 52:13</p> <p>insider 13:8</p> <p>insight 8:9</p> <p>insights 78:14</p> <p>insignificant 50:1</p> <p>install 9:3</p>	<p>institute 45:14</p> <p>integration 47:2,4</p> <p>intel 13:21 21:19</p> <p>intelligence 30:16 73:4,12</p> <p>intentions 60:19</p> <p>interacting 56:12</p> <p>interest 67:16 68:6</p> <p>interested 80:15 81:12</p> <p>internal 12:8</p> <p>internally 27:7 31:4</p> <p>international 20:6</p> <p>internet 14:16 59:2</p> <p>interpret 51:13</p> <p>investigations 14:21</p> <p>investigative 14:2</p> <p>investment 64:19</p> <p>investor 73:6</p> <p>invited 7:3 55:14</p> <p>involved 19:1 73:10</p> <p>ip 10:21 39:13 65:20,21 67:2</p> <p>issue 13:12 46:20 50:1</p>	<p>issues 22:21 29:18 50:20</p> <p>item 78:1</p> <p>ivana 62:19,21</p> <p style="text-align: center;">j</p> <p>jaic 38:5,7</p> <p>january 1:8 6:22</p> <p>jean 1:17 80:2 80:17</p> <p>job 1:18 4:8 17:4 18:18 27:20 29:12 30:7 54:13 62:4,8,10 63:13 70:15 71:1,1,14</p> <p>jobs 4:20 27:18 54:6 70:21</p> <p>joe 16:21</p> <p>john 18:2,3</p> <p>joined 79:10</p> <p>joining 4:2 6:4 12:11</p> <p>joint 46:6</p> <p>joke 50:19</p> <p>jpme 70:4,5</p> <p>jump 7:17</p> <p>jumped 16:16 58:8 75:14</p> <p>justified 51:9 52:1,22 53:8</p> <p>jutland 22:14</p> <p style="text-align: center;">k</p> <p>kathleen 62:1 78:20</p>
--	---	--	--

<p>keep 15:16 50:13 53:7 54:13 65:14 66:3 keeping 4:7 keeps 18:12,12 63:22 64:1 kelley 2:13 3:7 12:12 16:4 28:7 kept 59:6,6 key 24:18,19 44:5,21,22 46:6 kid 21:17 kind 4:15 15:6 16:16 24:11,21 25:2,14 26:11 26:12,20 27:9 28:13,22 29:2 50:19 59:8 64:3 65:2 67:12 73:21 knew 7:20 21:20 knocking 69:19 69:22 knot 57:5 know 4:3 8:13 15:21 16:18 18:13,19 19:1 19:7 20:1,8 22:6,7,9 33:17 35:11 36:8,8 37:4 38:12 40:14 43:18 44:10 48:9,12 48:13,20 49:22</p>	<p>52:19 53:18 54:20 56:5,11 57:7,8,8 60:14 60:15 61:2,3,5 61:17,18 64:18 65:2,11 67:12 69:2 70:9 72:5 72:18 77:5,7 knowing 35:20 69:3 knowledge 80:10 81:6 knows 28:8 37:20 38:22 50:19 70:6 73:3 kotter 17:15 18:1,2,3</p>	<p>leader 25:15 29:11 70:11 leaders 12:18 46:16 73:18 leadership 10:3 17:1 18:18 20:22 21:8 22:9 49:7 59:5 59:6 62:2 71:20,21 leading 17:15 18:6 76:16 leads 14:11 leaning 15:3 leap 7:22 leaps 72:18 learn 36:6 learned 30:11 69:5 73:16 leasing 65:4 leave 39:14 48:11,18 led 18:19 left 39:21 40:5 41:4 level 14:8 18:17 25:15 27:15,17 41:11 55:22,22,22 56:1,1,7,7,7,11 56:12,12 57:11 57:12,13,18,19 57:19 58:2,3 levels 25:8 47:17 56:21 leverage 26:22 63:11 64:15</p>	<p>lieutenants 21:10 life 16:16 light 25:22 27:12 lights 18:12 likely 50:11 51:18,19 likes 38:13 line 15:3 36:16 54:6 linkedin 39:4 list 2:2 listen 61:7 literacy 28:9 literally 12:7 33:13 literate 69:21 little 5:9 67:20 79:5 live 6:8 lives 4:7 livingston 2:14 3:6 12:1,22 22:6 lloyd 78:19 location 34:12 lock 35:1,2 logic 28:19 long 49:12,13 52:20 63:5,18 63:19 66:12 longer 42:10 71:7 look 8:21 25:20 37:11 41:14 42:15 46:8 50:15,16 51:10</p>
	l		
	<p>labeled 39:13 labeling 39:14 40:6,16 lake 34:4 lakes 34:6 lane 53:6 lanes 53:8 language 55:3 56:3 59:15,20 large 65:4 largest 48:4 lastly 13:10 layer 37:2 47:2 47:4,8 49:3,5 layers 37:8 lays 27:14 lead 17:17</p>		

<p>52:5 53:16,19 55:3 57:4 64:10 looked 9:21 31:15,15 looking 13:8 43:15,19 50:9 looks 41:9 74:1 loop 52:4 53:4 loop's 52:19 loose 77:17 loosely 24:21 24:22 lose 59:12 60:2 73:18 lot 12:18 15:1 30:2,10,11 32:5 59:1,1,7 61:11 72:14 74:3,3,8 78:12 lots 15:15 22:22 50:5,5,5 louder 67:20 love 58:15 72:21,22 low 43:20 lower 8:11 13:15 31:21 76:10 lowering 8:5</p>	<p>made 37:22 47:16 72:18 78:7 magically 43:5 magnitude 65:3 maintain 64:6 major 48:22 57:3 make 5:14 6:16 10:5 12:6 14:1 15:22 19:6 23:6 27:17 32:21 36:1,7 40:15 45:19 49:9 56:4 59:21 68:8,12 70:10 77:8,13 making 27:15 42:17 45:12 51:12 53:2 60:9 64:20 manage 69:5 manageable 14:8 management 68:16,17 manager 70:15 70:20 managers 4:19 45:18 managing 70:10 marching 31:3 marina 1:5 2:12 3:4 6:5 16:4 18:22</p>	<p>marine 16:8 20:21 21:3,14 21:22 22:2 mark 2:14 3:6 11:22 12:11,20 74:11 76:1 market 67:8,9 marketplace 58:18 markets 67:8 marquee 43:3 43:11,12 45:9 48:16 marriage 22:8 martell 2:16 3:9 30:16,18 49:18 50:22 54:18 60:17,20 61:20 65:13 68:14 72:11 73:2 75:21 mary 2:17 3:15 23:17 72:8 75:6 maryland 80:19 masse 53:17 massive 45:6 47:20 69:3 matter 30:12 65:19 matters 21:1 40:17 maturity 55:22 56:2 57:4,15 58:20 59:13 maximize 10:20</p>	<p>mayor 30:19 33:6 38:21 mctssa 21:7 mean 14:4 19:22 33:8 34:3,11 41:11 43:7 54:7,12 55:11 58:10 72:4 meaningful 9:7 29:3 means 26:4 39:16 41:12 42:13 measure 44:10 63:2 media 6:11 meeker 2:17 3:15 23:18 72:17 73:3 75:7 76:1 meet 17:4 meeting 1:2 6:5 6:8,10,21 7:6,6 17:8 45:3 78:16,18 79:3 79:10,12 meeting's 7:1 meetings 37:21 37:21 member 2:4,5 2:6,7,9,10,11 2:17 78:15 members 6:9 7:4 79:9 memos 63:13 mentality 35:9 53:14</p>
m			
<p>ma'am 17:18 mac 2:11 3:12 23:8 75:14 machine 28:18 33:14</p>			

<p>mention 31:22 mentioned 76:5 mesh 34:2,3,4,8 35:9 45:15 47:11 67:3 68:11 messages 12:8 met 16:15 54:21 72:18 metaphorically 43:15,17 metric 35:4 metrics 37:3,14 37:18 38:1,1 39:11 42:21 44:5,12,21,22 45:5 77:5 michael 2:3,7 3:3,10 microsoft 39:5 57:2 microsoft's 12:2 57:2 mid 18:6 mike 8:3 23:19 24:5 49:17,20 75:8 78:10 military 4:4 5:1 5:6,10 50:13 51:7,20 59:3 70:5 72:16 miller 19:13 millions 42:9 51:12 mind 11:20 mindful 9:12</p>	<p>mine 14:15 minutes 45:22 misfire 52:16 missile 52:18 missing 71:6 mission 8:14 10:18 64:15 71:15 missions 13:2 mistake 38:11 38:12 65:18 ml 14:14 model 14:2 17:15 18:1,11 18:15,22 19:3 19:5 29:21 39:21,22 40:2 40:5,18 41:3,4 41:5,8 42:6,9 42:11,13,15,15 55:17,22 56:2 57:4,16 58:20 59:14 modelo 40:2 models 41:2 42:9 59:13 65:4 moderated 1:5 modern 46:17 moment 38:2 momentum 59:1,6 64:2 monetize 67:3 monetized 60:14 monetizing 60:5</p>	<p>money 29:22 60:9,18 monitoring 41:9 42:13 months 65:3 69:4,7 78:14 monumental 71:3 morning 15:14 morse 22:17 mos 21:18 move 5:11 32:2 48:9 54:1 57:20 mtm 14:13 mullen 2:7 3:10 17:6 23:19,20 46:11 49:17,20 57:7 75:9 78:10 multiple 41:1 murder 54:11 muscle 71:19</p> <hr/> <p style="text-align: center;">n</p> <hr/> <p>n 2:1 3:1,1 4:1 name 6:5 34:11 names 23:5 nancy 76:9,11 natali 17:7 nation's 13:2 national 13:1 20:3 natives 28:4 natural 55:3 navy 16:7 35:17</p>	<p>ndaa 26:15 ndia 20:2 near 78:15 necessarily 39:16 52:12 need 4:20 8:20 10:7,13,18 11:1,6,8 14:9 14:18 15:3,10 15:11,11 17:2 18:7 19:14,16 19:21 32:20,21 37:8,9,10 45:10 47:1 51:2 65:19 69:6 70:9,17 71:16 needs 14:3 31:18 33:3,7 37:3,4 47:12 59:14 neither 80:11 81:7 network 18:15 19:9 networking 64:19 never 11:20 16:15 19:18 26:2,2 52:5 54:9 73:6,8,8 new 4:11 8:15 11:11 13:17,17 19:21 22:4 40:3 66:11 70:15,16 73:21 74:6,6,6 76:18 78:2</p>
---	---	---	--

<p>12:5 13:20 15:7,8 16:19 17:11 18:17 19:15,16 21:5 26:12 27:13 28:2 35:5 36:17,18,18,21 37:20 50:8,14 54:4,11 63:14 66:6 68:8,9 69:4 72:1 78:12 percent 14:22 37:18 38:20 40:19 42:19 43:16,16,19 54:5,7 59:22 percentage 60:10 perfect 4:5 perform 13:1 periodically 52:16,16,17 person 12:12 17:7 23:5 33:18 52:3 personnel 12:10 13:6 perspective 22:5 28:2,14 66:20 68:8 73:15 perspectives 8:9 pervasive 67:19,21 peter 16:15 63:6</p>	<p>ph 71:22 phase 27:5 phd 55:3 phillips 78:4 phone 18:3 phrase 47:4 pick 41:2 52:15 picking 18:3 piece 17:22 pipe 70:1 piped 31:22 49:2 66:2 pipeline 69:20 71:17 pipelines 78:9 piping 32:4 pitch 15:14 place 20:2 77:18 places 20:2 planet 69:17 platform 59:16 59:21 60:6 platforms 26:19 28:15,20 play 39:9 players 48:22 playing 4:15 please 43:5 73:2 plug 47:8 plus 24:12 65:20 pme 70:12 point 14:1,6,11 17:18 20:14 36:13 38:8,17 40:1 48:11</p>	<p>68:7,9 pointed 35:7 50:11 polemical 37:5 policies 8:22 policy 63:12 positioned 25:16 possible 40:16 possibly 50:13 posted 6:22 7:2 7:9 potential 29:5 practiced 51:6 practices 30:9 74:7 77:19 praise 36:17 predict 41:13 predictable 60:13 prepared 4:4 68:10,12 81:3 preparing 16:9 62:2 present 44:4 56:18 presented 49:5 president 13:13 16:6 press 46:8 pressed 19:17 pressure 64:3 pretty 21:16 42:17 53:21 61:3 69:22 previous 76:8 78:6</p>	<p>principles 45:15 47:11 52:6 prior 62:6 80:5 prioritize 26:17 private 5:1,7,8 5:11 9:14 30:9 30:10 38:22,22 39:17 50:12 72:15 prize 73:11 probably 61:2 65:7 problem 15:5 39:11 41:3 problems 38:17 63:11,15 63:20 69:17 procedural 6:16 procedure 77:3 procedures 8:21 9:10 proceeding 81:4 proceedings 80:3,5,6,9 81:6 process 11:11 26:12,14 processes 9:11 9:11 11:2,19 processing 55:3 produces 69:3 producing 38:17 39:20</p>
---	---	--	---

<p>product 10:14 28:22 34:14 35:9 36:10,12 37:8 45:18 46:9</p> <p>productive 78:22</p> <p>professional 70:5</p> <p>professionals 8:8</p> <p>proficient 15:11</p> <p>progress 72:19</p> <p>progression 5:10</p> <p>promises 55:8</p> <p>promote 19:2 19:10,11 36:17</p> <p>properly 27:16</p> <p>proposal 11:2</p> <p>protect 13:2</p> <p>prove 11:9</p> <p>provide 13:10 78:13</p> <p>providing 6:12</p> <p>psas 44:14 45:4</p> <p>public 1:2 6:5,9 6:15 7:3,5 76:5 78:1,16,18 79:3 80:18</p> <p>publish 36:7 77:14,16</p> <p>published 76:12 77:1,13</p> <p>purchase 11:6</p> <p>purported 58:2</p>	<p>purpose 24:9</p> <p>push 36:17 37:22 63:12,12</p> <p>pushed 37:13 45:13 47:16</p> <p>put 9:12 16:17 36:1,7,13 58:19 67:2 73:12 79:2</p> <p>putting 15:7 59:6</p> <p style="text-align: center;">q</p> <p>qualified 80:7</p> <p>quality 33:8,8 37:9 42:18 43:5 44:10 65:17,19</p> <p>question 7:8 11:21 49:17 51:1 55:16 61:22 64:14 66:14 68:15 72:5 77:7</p> <p>questions 46:2 56:10</p> <p>quick 13:12 43:1 65:13</p> <p>quickly 9:19 61:2</p> <p>quite 16:12 41:21</p> <p style="text-align: center;">r</p> <p>r 2:1 4:1</p> <p>radio 22:17</p> <p>rail 14:18</p> <p>raising 19:19</p>	<p>rapidly 73:14</p> <p>rather 74:2</p> <p>rational 56:13 58:18</p> <p>rationalize 57:16</p> <p>read 23:5 26:8 29:9,17 63:4 76:12</p> <p>readable 28:18</p> <p>readers 76:22</p> <p>readiness 16:11 19:5,13 19:14 35:19</p> <p>reading 7:16 22:12</p> <p>ready 13:20 16:1 19:7 65:20 66:1</p> <p>reagan 13:13</p> <p>real 9:18 22:19 30:4 37:22 38:21 63:6</p> <p>realizes 62:14</p> <p>really 4:12,14 4:18 8:6 9:1 20:14,22 21:1 24:7,12,16,19 25:7,10,14,16 27:1,5,9 28:21 29:3,10,18 31:12 32:7 33:5 35:8 36:17 37:4,6 37:13,15 38:2 38:7 40:6 41:6 42:4,5,12 45:10 47:3,5,5</p>	<p>47:10 49:22 50:17 52:15,21 53:17,19 55:18 56:10 57:18 58:4 59:9 61:17,18 62:11 63:7,14 64:4 66:19 70:8 72:20</p> <p>reason 38:11 58:5</p> <p>rebuild 32:3</p> <p>received 7:5 76:6</p> <p>recently 14:15 20:4</p> <p>reciprocity 10:13 13:12</p> <p>recognizable 9:18</p> <p>recognize 32:11,18,19,21</p> <p>recommend 18:2 72:9 74:16 76:11,21</p> <p>recommenda... 59:11 60:2 68:12 78:7</p> <p>recommenda... 9:17 10:2 24:4 26:8,11,15,16 27:14 29:2 76:19 77:6,19</p> <p>recommending 77:9</p> <p>record 80:9 81:5</p>
---	--	---	---

<p>recorded 6:9 80:6 recording 80:8 81:4 recovering 16:6 recruit 69:12 red 45:6 reduced 80:7 reengineer 28:19 reform 10:7 refreshing 24:16 regardless 65:16 67:22 register 6:22 7:2 reid 2:6 3:13 23:21 30:20 39:3 64:8 65:13 73:20,22 74:9 75:10 reinforces 5:5 related 80:11 81:7 relations 5:6 relative 80:13 81:10 relevant 10:5 30:8 remarkable 39:7 62:3 remarkably 66:5 remarks 6:17 7:13</p>	<p>remember 17:3 17:6 remind 79:1 reminded 16:14 reminder 7:7 repair 60:12 repairing 60:11 repeat 49:16 repeatability 11:16 replacing 60:10 replicator 20:9 20:20 report 26:8 27:14 29:10,16 30:10 31:1,2,3 33:4 35:7 42:19 49:6 72:12 reported 1:17 reports 7:16 44:8 representatives 77:11 require 11:11 11:12 67:6 required 59:9 requirement 11:9 26:16 requirements 28:16 50:6 requires 8:14 research 57:20 resell 67:1</p>	<p>resist 61:11 resourced 27:16 resources 4:20 respect 48:7 55:5 respected 5:5 response 20:9 58:18 responsibilities 4:18 responsibility 10:4 48:6,15 53:11,12 55:10 responsible 52:6 responsibly 68:5 retain 18:11 retire 69:2 retired 12:13 16:8,8 retrain 42:14 reverse 28:19 review 7:6 45:5 76:22 reward 5:9 36:18 60:4 right 7:17 13:18 18:5 21:3 25:8,17 26:5 32:7,9,13 33:14 34:4 35:18 38:14 39:21 41:5,10 41:13,20 42:8 42:13,20 45:1 45:9,9,21 46:4</p>	<p>46:14,21,22 47:11,17 52:2 53:22 55:5 62:2 63:1,16 63:18,19 64:20 65:18 67:10,12 68:2 72:14 rights 26:18 risks 15:4 road 33:1 robust 57:3 65:12 robustly 32:22 role 29:10 35:14 39:20 rolling 72:22 room 1:13 roper 2:9 3:11 23:13 58:22 60:18 75:5 roper's 66:13 round 11:3 rules 22:13 running 21:8 runway 63:5 rushing 46:1 ryan 2:10 3:8 23:14 24:3 54:15 72:9,20 74:13</p>
			s
			<p>s 1:17 2:1 3:1 4:1 80:2,17 safe 4:8 28:10 sail 22:15 san 20:9,12</p>

<p>satya 58:11 saw 31:16,19 36:21 saying 38:14 40:8 52:21 64:12 66:9 70:22 says 34:11 37:7 58:15 scaffolding 38:19 41:4 42:22 68:11 scalable 38:18 scale 26:2 28:12 41:12 65:4 scenario 41:18 41:21 42:1 schema 36:7 school 17:15 40:8,9 science 55:4 sciences 55:7 scientists 70:16 scifs 10:9 screaming 54:11 second 10:7 14:1 25:5 27:1 31:22 46:1,3 51:12 75:20 78:6 secretary 44:5 44:6,9,22 45:4 58:11 62:20 78:19,20,20 secretary's 44:3,3</p>	<p>sector 5:1,7,8 5:12 9:14 30:9 30:10 38:22,22 39:17 50:12 72:15 secure 54:6,7,8 secured 50:10 securely 26:20 security 9:22 10:7 11:16 12:10,11 13:1 13:6,7,10 15:17 50:8,20 54:5 see 19:12 21:22 24:16 26:6 27:2 29:5 30:2 35:8 37:11 39:20 42:16 44:22 45:1 46:20 55:2 57:20 61:9 65:2 73:22 79:4 seeding 71:19 seeing 50:9 seems 61:7 seen 20:21 26:3 30:20 73:6,8 73:14 selling 67:8,9 senate 54:10 send 78:8 senior 12:18 sense 48:19 sensors 46:21 51:13</p>	<p>sent 12:7 separated 29:20 sergeants 21:10,11 service 10:14 12:14 23:1 25:15 27:17 40:6 61:14 services 44:17 44:20 50:5 61:10 session 6:16 7:8 set 24:6,9 41:11 60:8 seven 9:21 13:19 seventy 15:19 shannon 81:2 81:15 share 27:11,11 shared 8:10 26:20 sharing 10:21 27:8 shift 51:2 shifting 76:4 ship 42:9 shoot 4:16,16 shooting 31:13 short 31:8,10 71:8 show 21:9 39:10,12 62:9 shows 25:8 shyu 78:21</p>	<p>side 18:14,15 19:9,10 20:22 26:14 27:13 34:7 42:14 sides 19:9 sight 59:12 60:3 signal 56:15,19 62:5,7,11,12 72:3 signaling 22:16 signature 80:16 81:14 significant 7:1 significantly 39:18 42:17 46:17,18 62:9 silicon 69:11 silos 25:2,4 similar 41:16 simply 13:18 simulation 20:3 single 11:7 74:1 sir 6:2 12:22 53:15 57:11 62:13,22 situation 41:16 41:17 six 17:20 size 43:8,9 skills 80:10 81:6 slight 38:11 slightly 41:19 51:2</p>
--	---	---	---

<p>small 65:3,7 76:11</p> <p>smart 14:15 17:11 21:4,16 30:12</p> <p>software 10:14 11:6 22:1 50:9 50:16 53:16 54:8 70:22</p> <p>soldier 40:13</p> <p>soldier's 52:17</p> <p>sole 63:13</p> <p>solution 63:18 63:19 66:7,8</p> <p>solutions 9:11 38:8,17 58:3,3</p> <p>solve 63:15</p> <p>somebody 18:2</p> <p>someone's 33:14 70:9</p> <p>soon 76:12</p> <p>sooner 74:2</p> <p>sorry 46:2 68:17 75:14</p> <p>sort 4:21 32:4 53:13 65:21</p> <p>sound 20:1</p> <p>sounds 47:7 49:5</p> <p>space 28:11</p> <p>speaker 2:13 2:14,16 29:15</p> <p>speakers 11:22 76:3 77:11 79:8</p> <p>speaking 52:9</p> <p>spearheaded 72:20</p>	<p>specialty 61:5</p> <p>specifically 71:14</p> <p>specifics 48:2</p> <p>speed 10:5 11:5 73:22</p> <p>spend 10:17 42:8</p> <p>spending 13:19</p> <p>spent 21:14</p> <p>spring 79:4</p> <p>spun 14:16</p> <p>square 11:2 54:10</p> <p>stability 49:13</p> <p>staff 8:7 21:10</p> <p>stakeholders 77:12,14</p> <p>standard 59:15</p> <p>stands 46:5</p> <p>stars 17:5</p> <p>start 12:20 17:17 20:2 42:4,6 49:22 57:16 62:1,19 71:19 76:10</p> <p>started 10:3 22:11 38:7 62:21</p> <p>starting 78:2</p> <p>starts 17:21 45:5</p> <p>state 33:1,2,3 55:4,7,8 80:19</p> <p>states 4:3 73:5</p> <p>statistical 51:14,15,16</p>	<p>statistically 52:9</p> <p>statistics 41:12</p> <p>stay 69:4</p> <p>stems 78:6</p> <p>step 59:7</p> <p>steps 8:11 17:20</p> <p>stop 15:6,8,21 69:1</p> <p>stopped 14:8</p> <p>stopping 66:7</p> <p>store 60:7</p> <p>stove 31:22 32:4 49:2 66:2</p> <p>stovepipe 32:3 66:22 67:1</p> <p>strategy 28:22</p> <p>stream 40:7,12</p> <p>streamed 6:8</p> <p>strength 9:2</p> <p>striking 31:12</p> <p>strong 22:9 30:22 37:12 49:5 54:21 57:18 62:8,11 66:3</p> <p>strongly 36:9</p> <p>structure 13:9</p> <p>structured 5:10</p> <p>stuck 14:5</p> <p>students 67:15 67:22 68:4</p> <p>studies 5:16 76:8,8,15,17 77:6,8,13,17 78:3</p>	<p>study 8:4 9:1 10:22 23:3 24:2,18 72:20 75:20 76:12,18 76:21 77:1,16</p> <p>studying 67:22</p> <p>stuff 4:21 15:22 17:20 18:12 22:19 64:12 72:14 73:19</p> <p>subaru 53:6</p> <p>submissions 57:1</p> <p>submit 7:3</p> <p>success 15:6 71:15</p> <p>successes 47:21</p> <p>successful 4:17 14:12 44:11 63:19</p> <p>sucks 34:10,11</p> <p>sue 2:5 3:5 74:22</p> <p>sue's 27:10</p> <p>sufficient 55:17</p> <p>sufficiently 41:16</p> <p>suggesting 19:19</p> <p>suggestions 76:19</p> <p>sundar 58:12</p> <p>sunet 40:22</p> <p>sunshine 6:20</p> <p>super 17:11 55:6</p>
--	---	---	--

<p>supply 13:3 72:3 support 6:12 61:17 71:14 76:15 sure 14:3 16:5 19:6 20:17,17 21:21 27:15,17 49:9 53:21 63:12 64:20 68:8,12 69:22 70:11 77:8,13 sustainability 49:13 sustainable 31:11,11,14 66:17 swann 2:10 3:8 23:15 24:5 74:14,17,20 switch 53:14 switched 38:18 sworn 80:5 symposium 55:13,13 58:5 73:1 system 11:17 18:11 40:17 51:11 52:1,11 53:1 60:13 64:19 systems 9:3 16:7 20:6 21:3 24:11 26:19 28:15 53:16 60:12</p>	<p style="text-align: center;">t</p> <p>t 3:1,1 t&e 54:1,2 table 17:12 36:3 65:17 tackling 72:7 take 15:4 23:4 28:11 29:2 36:6 43:2 49:6 49:7 53:11,11 55:9 59:7 taken 8:11 80:3 80:12 81:9 takes 40:13 talent 68:17 71:9,19,20,22 talk 5:16 8:4 12:15 13:11 15:10,15 19:14 21:10 33:18 47:6 54:19 56:3 61:21 talked 5:19 9:8 37:16,16 57:9 58:9,10,11,11 58:12,12 talking 13:14 18:3 50:2 67:17 talks 35:18 tangible 8:11 9:18 tapping 22:2 task 40:1 71:3 71:12,13 teach 16:19 45:15</p>	<p>teaching 36:11 45:16,17 team 6:13 33:6 44:13 54:1,2 68:16,17 71:14 75:21 78:21 teams 12:3 39:4 71:9,11 79:9 tech 25:6 32:12 32:18 48:19 66:9,15 78:8 technical 21:12 21:15 28:16 techniques 4:11 technologies 8:16 technology 10:1 13:3 26:13 28:13,15 51:20 52:14,15 56:14 57:12,21 70:10 73:17 teletype 22:16 tell 12:14 20:7 38:1 68:21 71:14 telling 12:20 40:17 tells 37:11 ten 13:20 45:22 tend 15:6 term 31:8,10 49:12,13 63:18 63:19 69:6 71:7,8</p>	<p>terms 16:9 34:3 50:2 51:7 test 21:13 testifying 80:5 thank 4:2 6:1,1 6:3,11 8:6 12:11,13 23:1 24:5,14 30:18 60:20 74:12 75:19,21 76:2 77:22 78:19 79:7,8,10 thanks 8:3,3 75:22 76:1 79:3 theodotou 1:5 2:12 3:4 5:18 6:1,5 76:2 79:7 theory 16:14 thing 4:10 16:19 19:12,21 20:1,12 27:16 30:5 32:8,9 34:18,21 43:1 46:10,16 58:22 63:1 64:22 70:20 things 5:6,11 5:12,15 8:20 9:20 10:17 11:4 13:12,15 14:17 16:10,14 16:17 17:13 18:7,12 20:7 20:20 24:19 25:21 28:14 31:17,19 32:6 48:9,14,14</p>
---	---	--	--

<p>50:18 56:9 57:13 59:17 64:13 65:6,10 66:19 67:17 68:15 70:21 74:3 think 4:17 10:16 11:19 14:3,5,9,13,20 15:7,8,19,22 17:1 18:19 19:4 20:2,19 22:6 29:10 30:8 32:7 33:2 33:3,10 34:9 34:20 36:20 37:7,16 38:11 45:9 46:3,5 51:1,1,2 52:2,2 52:10,13 54:20 55:20 58:22 59:7 60:16 62:17 64:10,14 64:16,21 65:5 65:11 66:14,17 66:21 68:6 70:8 74:1 thinking 11:14 11:15 13:16 38:7 41:6,8 42:12 59:13 66:11 68:18,21 69:1,9 70:2,3 third 14:11,18 20:12 25:12 28:1 61:12 thornberry 2:11 3:12 23:9</p>	<p>61:1 75:16 thought 4:22 8:2 21:16 30:14 38:10 41:22 45:7 thread 69:9 threads 68:18 68:21 threat 13:8 three 8:15 13:11,19 14:6 16:10 17:5 26:12 56:1,7 57:18 76:7 thrown 70:6 time 8:9 9:4 10:16 15:16 18:22 19:15 22:7,19 24:15 30:15 37:16 42:7,14,15 43:2 49:10,22 50:9 52:20 54:21 57:8 72:17 timothy 76:14 titles 5:12 70:15,16 today 5:16 6:4 6:14 13:11,14 14:7 16:10 22:2 23:17 25:18 29:8 32:6 75:20 77:2 78:18 79:9 today's 6:8,21 7:5</p>	<p>together 4:19 13:2 16:17 20:19 29:2 35:18 55:15,15 57:5 61:15 74:5 told 14:15 16:5 16:18 tompane 1:17 80:2,17 ton 64:18 tool 35:15,22 41:15 53:3 tools 36:2 39:21 40:15,21 top 31:17,18,20 37:2,6 38:4 42:20,21 47:13 62:15 topics 78:11 torpedo 52:18 tough 22:21 towards 62:22 trace 53:18 traceability 52:8 trained 51:7 training 13:10 16:20 20:3 51:21,21,21,21 51:22,22,22 53:1 68:9 transcriber 81:1 transcript 81:3 81:5 transcriptionist 80:8</p>	<p>transform 69:7 69:14 transformation 16:11 17:22 70:18 transition 66:10,15 transparency 11:16 treat 36:11,12 36:18 treated 36:21 36:22 treating 34:17 trick 49:9 tried 8:10 16:13 trillion 73:7 truck 40:8,9 true 46:11 62:5 80:9 81:5 trust 53:6 try 18:17 43:13 63:14 trying 13:22 38:2 59:2 65:15,15 67:16 68:20 tune 79:2 tuning's 41:20 turn 7:12 53:10 77:17,20 turning 24:3 tweak 32:20 twitter 14:17 two 5:16 7:16 11:4,22 16:17 17:1 18:11</p>
---	---	---	---

<p>19:8,8 43:11 46:9 48:16 55:22 57:12,13 67:8 69:5,7 78:2 type 27:16 typewriting 80:7 typically 61:10</p>	<p>unpredictably 54:9 ups 76:10 urgency 17:17 17:21 urgent 26:5 use 8:20 9:12 10:5,18,21 13:14 18:1 24:10,20,22 35:5 40:10 41:15 43:3,11 43:12,12 44:1 45:8,9,18,21 46:4 47:19 48:16 51:5,5 53:2,11,13 55:18,19 56:17 56:21 68:1,5 68:13 77:5 used 19:5,14 34:13 useful 30:14 user 9:19 uses 36:14 using 10:17 14:4 usury 10:21 utilized 25:19 25:20</p>	<p>32:2 33:20 34:14,15,15,22 35:4 36:15 37:1,1,20,21 38:9,21 39:2 39:15,18 41:22 42:7,10 43:17 43:22 48:17 49:1,10,11 56:2 59:14 62:17 64:2 69:3 various 65:9 vehicle 20:5 55:21 vendor 32:1 39:18 vendors 11:9 41:1 67:7 versus 4:15 viability 11:10 vice 16:6 video 40:7,12 videoconfere... 2:6,8,15,16 view 6:10 36:14 44:4 68:9 virtually 6:10 virtuous 43:22 visit 21:6 vote 23:2,4,5,6 24:1 72:10,11 74:16,19 75:12 75:18</p>	<p>w</p> <p>wait 15:12 waiving 66:18 walls 25:11 walsh 21:2 want 5:13 7:17 8:6,19 9:5 12:20 13:14 16:2 19:12 24:14 27:3 30:17 33:1 34:2,2,6 35:2 36:16 43:2 57:5 58:7 60:5 61:17 64:8 68:1 69:15 73:18 77:8 78:15 wanted 9:9,10 13:11 14:1 15:15 30:21,22 32:2 78:19 wanting 5:4 60:1 wants 10:11 44:22 45:1 war 39:16,18 40:13 42:3 46:4,12,15 49:11 warehouse 34:5,10 warehouseable 34:18 warehoused 34:12,13</p>
<p>u</p> <p>unbelievably 55:4 62:7 under 6:19 15:16 21:7 26:12 33:14 54:13 78:20 underlying 49:3,4 understand 24:7 39:17 47:7 51:14 52:8 68:5 understanding 62:15 68:1 understands 50:4 uniform 20:16 unifying 16:13 unit 13:17 united 4:3 73:5 universities 69:11 unleash 74:8 unlock 26:1 27:5,21 unmanned 16:7 20:5</p>	<p>v</p> <p>valley 69:11 valuable 78:14 valuation 73:7 value 26:1,21 26:22 27:2,5 27:21 31:12,21</p>		

<p>warehouses 34:7</p> <p>warfighting 50:5</p> <p>warmer 79:5</p> <p>washington 1:14</p> <p>way 7:15 10:6 17:3 21:4 25:17 26:6 28:18 31:7 32:19,21 33:13 37:7 39:1,8 42:20 43:13 47:21 48:7 49:2,12 50:3 50:13 51:2,13 51:17 52:2,22 53:22 55:2 61:8 63:2,2 65:14 66:11,16 66:18 68:18 72:11 75:18 76:21</p> <p>ways 20:20 34:9 59:21 65:5 72:6</p> <p>we've 4:13 14:7 15:6,18,19 17:13 22:2 31:3 35:7 37:13,22 38:18 40:5 43:2,11 44:8,9 49:21 56:16 57:1 58:18 60:15 61:5 70:1,1,3 73:14,16</p>	<p>weakness 62:14</p> <p>website 7:10 76:13 77:2</p> <p>wednesday 79:3</p> <p>week 48:1</p> <p>welcome 6:3</p> <p>went 17:14 22:15,18 37:18 44:13,17,18,19</p> <p>wholehearted... 75:1</p> <p>wide 10:10</p> <p>widgets 59:8</p> <p>will's 64:12</p> <p>win 32:13,14 32:14 63:15</p> <p>wins 31:8,10 32:10 71:8</p> <p>witness 80:4</p> <p>word 24:21,22 72:9</p> <p>work 4:19 10:10 12:4,6 13:2,21 19:21 21:11 24:16 25:3 36:4 43:6 43:7,9,14 44:10 54:4 69:13,14 72:15 77:10 78:2</p> <p>worked 14:4 17:16 32:6 39:3 40:6 44:8 47:4,5 77:7</p> <p>workforce 28:3</p>	<p>working 18:22 20:8,19 29:7 30:8,11 41:15 54:2 56:22 67:11</p> <p>works 12:17 42:3,5 65:2</p> <p>world 4:4 8:14 22:4 42:5,6 46:17 48:10 64:5</p> <p>worry 4:12 5:3 5:4</p> <p>worst 13:20 19:15</p> <p>wow 21:21</p> <p>wrap 24:2</p> <p>write 21:20 63:13</p> <p>writing 22:3</p> <p>written 7:4</p> <p>wrote 18:9</p> <p style="text-align: center;">x</p> <p>x 14:17 51:18</p> <p style="text-align: center;">y</p> <p>y 51:19</p> <p>yeah 23:22 30:18 49:21 54:18 60:17 61:20</p> <p>year 10:17 31:6 37:17 45:7 46:9</p> <p>years 14:6 15:18 17:3 21:14 39:3 46:9 49:6,7</p>	<p>65:7 69:5,7 73:22</p> <p>yellow 45:6</p> <p style="text-align: center;">z</p> <p>zoom 12:1,5</p>
--	---	--	--