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MEETING  
OF  
DIGITAL ECONOMY BOARD OF ADVISORS MEETING

Conducted by Evelyn Remaley

Thursday, December 15, 2016

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Reported by: Michael Farkas, RPR/CSR

Capital Reporting Company

## A P P E A R A N C E S

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5 Mitchell Baker, Co-Chair, DEBA

6 Penny Pritzker, U.S. Secretary of Commerce

7 Brad Smith

8 James Manyika

9 Ellen Hughes-Cromwick, Chief Economist

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11 James Cicconi

12 Alan Davidson, Director of Digital Economy

13 Lawrence E. Strickling, Assistant Secretary for

14 Communications and Information

15 U.S. Department of Commerce  
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1 P R O C E E D I N G S

2 MS. REMALEY: -- Washington on this chili day.

3 I do want to mention that we have several of  
4 the members on the phone as well, and so they will be  
5 joining us from above. But they do have the  
6 opportunity to intervene during the session as they  
7 feel fit.

8 So welcome, everyone. Glad to have you on the  
9 phone as well.

10 Just a few administrative items before we  
11 begin. I just want to mention we do have a break this  
12 morning at 10:30. But if you need to leave before  
13 then, there are restrooms right out the front of the  
14 hall here.

15 We also will be taking some time for public  
16 comments later today. I do want to mention that we did  
17 receive one on the internet. So those who are watching  
18 the webcast, you can see that on the NTIA website.

19 We also have the agenda posted today on the  
20 website as well as the report from the group for those  
21 who are watching online.

22 I do want to thank the board for all of your

1 tremendous work over the last several months. We're  
2 very excited about the report that was produced, and we  
3 look forward to discussing that today.

4 And with that, I will pass it over to our two  
5 co-chairs, Zoe Baird and Mitchell Baker.

6 Thank you.

7 MS. BAIRD: Thanks, Evelyn.

8 The first thing I'd like to do is to thank  
9 Evelyn and Alan for the commitment and intelligence and  
10 energy they've brought to this effort. So thank you  
11 very much on behalf of all of my colleagues. It's been  
12 a privilege working with you, and we look forward to  
13 continuing the work.

14 I also want to acknowledge the Secretary and  
15 thank Secretary Pritzker for establishing this group,  
16 for understanding the importance of these issues and  
17 the potential that a thoughtful group like this might  
18 bring to helping the government understand its role in  
19 addressing them. And her leadership of the Department  
20 in these years has been extraordinary. And we thank  
21 you very much for --

22 MS. PRITZKER: Thank you, Zoe.

1 MS. BAIRD: -- all you've done.

2 Since the election, I've spoken with many of  
3 you. And the theme that has come through repeatedly is  
4 the sense of the really yawning gap between public  
5 understanding of what's happening in the digital  
6 economy and actions that can be taken by the public and  
7 private sectors and the feeling of so many people who  
8 are uneasy about what it means for them personally.

9 The issues we've been talking about were not  
10 part of the election conversation, and yet we know that  
11 the great challenge of our time is to make everyone  
12 have opportunity in this digital economy and feel  
13 included in that it is working for them. And this  
14 digital revolution has really upended people's sense of  
15 direction and opportunity.

16 We're in this tremendous transformation where  
17 digital technology is impacting everything. McKinsey  
18 did a study -- McKinsey Global Institute did a study  
19 recently that found that 6 million middle-skill jobs  
20 were displaced due to automation in 2007 to 2015, a job  
21 displacement rate which they projected to double by  
22 2025.

1           We also know at the same time that the middle-  
2 skill jobs that require digital skills are growing two  
3 and a half times more rapidly than the middle-skill  
4 jobs for those without a college diploma that don't  
5 have digital components.

6           We in our work have seen good-paying jobs in  
7 growth areas and healthcare and information technology  
8 and advanced manufacturing that require skillsets that  
9 people have little opportunity to develop or don't know  
10 where to turn to develop those skillsets.

11           And employers are finding it very difficult to  
12 fill these positions. If you look at the time to fill  
13 jobs, they are really quite extended in these middle-  
14 skill jobs, meaning that they can't find people with  
15 the skillsets that they need for these growing jobs.

16           And for American businesses, the digital  
17 economy has been equally disruptive. Large businesses  
18 are capitalizing on the disruption and becoming digital  
19 enterprises, and digital businesses are growing two and  
20 a half times the rate of nondigital businesses. But  
21 small and medium-size businesses have not had the same  
22 capacity or understanding to grow in this economy. And

1 small and medium-size enterprises are responsible for  
2 66 percent of all net new jobs.

3 So it is critical that we address these gaps,  
4 that we address people's uncertainty about where they  
5 can get the skills they need, that we address the need  
6 for small and medium-size enterprises to become part of  
7 the digital economy.

8 And this board has very much recognized the  
9 importance of those issues and the potential that the  
10 Department of Commerce can play in addressing them. We  
11 have looked at the small and medium-size enterprise  
12 issue, for example, and said that these businesses can  
13 become micro multinationals using the internet to sell  
14 goods and services to not only around the country, but  
15 internationally.

16 We've looked at the potential for training for  
17 Americans and the skills that are needed in this  
18 economy and have found that there is the capacity to  
19 give people rapid and affordable training. And that  
20 needs focus and development.

21 We've also looked at the fundamental questions  
22 of how do you measure these changes in the digital

1 economy. How do we understand that economy so that we  
2 can make good policy and businesses and individuals can  
3 address the challenges more effectively?

4 So we will talk about all these issues today.

5 I want to thank my colleagues for  
6 extraordinary diligent work. This has been a really  
7 committed group of people. We said to people at the  
8 beginning you're not here because of your current  
9 position; you're here because you do your own work.  
10 And the board has really proven that out.

11 And in particular, the chairs of the working  
12 groups, I want to thank you very much -- Brad Smith,  
13 James Manyika, and Bill Ruh -- because you have been  
14 great leaders for this group. And the people sitting  
15 around the room, the staff that has put in so much time  
16 and effort as a commitment to their country, not  
17 because we have in any way been able to adequately  
18 recognize their efforts. So we really thank you.

19 We have some recommendations we're sharing  
20 today with the Secretary and with the public. Those  
21 recommendations, we think, provide leverage points to  
22 unlock shared prosperity. And I look forward very much

1 to my colleagues' conversation.

2 Thank you.

3 MS. BAKER: Well, I'll do my best not to  
4 duplicate Zoe. But I will add my voice of thanks to  
5 the board, to the working chair leaders, and to the  
6 staff as well. In text speak, as we would say, plus  
7 one to those things.

8 And also, in particular, thank you to the  
9 Secretary for forming the group. I think the time is  
10 really right for such a group. The digital economy,  
11 you know, is here now but unevenly distributed and  
12 poorly understood. And it's here in a global setting  
13 where international activities and regulations and  
14 understandings and cultures have not caught up, are  
15 trying to react, and trying to respond.

16 And so we have issues of the global economy in  
17 the United States and increasingly awkward, too  
18 difficult, to deal with those without an international  
19 setting as well.

20 And so in that environment, the developing of  
21 a shared understanding between the private sector,  
22 civil society, government, and international

1 organizations and settings is particularly important.

2 And I have seen that this board was an opportunity when  
3 formed and also has been exercising its abilities, as  
4 Zoe said, in a really active way to try and build, in  
5 this case, an understanding of some of the issues and  
6 some of the approaches which look most positive for  
7 those things.

8 And this combination of government and private  
9 enterprise and civil society will be necessary, I  
10 think, for any healthy progress on these things. And  
11 so it's been a really fruitful beginning to such an  
12 effort.

13 And with that, I'll just -- I think I'll stop  
14 there and let us get on to the substance.

15 MS. PRITZKER: Terrific. Well, thank you all  
16 very much.

17 First of all, welcome to the final meeting of  
18 2016 of the Digital Economy Board of Advisors. You all  
19 have done an amazing job in a very short period of  
20 time. And without, as Mitchell and Zoe said, your  
21 personal engagement and that of the key staff members  
22 that you all have included here, we wouldn't have such

1 a rich report in such a short period. So thank you  
2 very much.

3 Zoe and Mitchell, I could not be more grateful  
4 to the two of you for leading this effort. Your  
5 expertise, your energy, your commitment, and your  
6 unbridled enthusiasm for engaging on -- in this has  
7 been much appreciated.

8 What you've done as a group is to, you know,  
9 raise, confront, and really address what's fundamental  
10 to the future economic success for the country. And I  
11 -- this is just a very, as you said, Mitchell -- and I  
12 wrote these words down -- you know, the digital economy  
13 is here, but it's unevenly distributed and  
14 misunderstood. And I think that that is a really  
15 important statement that kind of leads to all the  
16 recommendations that you all have produced.

17 Each of you with this report and with your  
18 statement, Mitchell, have really underscored the fact  
19 that the digital economy is essential to generating  
20 opportunity and prosperity for our country in the  
21 future.

22 And as -- Zoe, as you mentioned, you know, I

1 think in the months since we last met personally  
2 together, anxiety over how technology is transforming  
3 our economy is growing and has really pervaded American  
4 politics, and we can't ignore that. But it's also more  
5 than politics. It's pervading people's lives and the  
6 perception of their opportunities and futures. And we  
7 need to step in.

8 Our challenge as a group of business leaders,  
9 academics, policymakers is really how do we help our  
10 people adjust to that world where technology is  
11 changing fast. It's changing the very nature of work.  
12 But we also have to support the digital economy because  
13 it's really critical to our increased economic growth,  
14 to innovation, to strengthening American  
15 competitiveness.

16 And our team has -- led by Larry Strickling  
17 and Alan Davidson and Evelyn, have developed the first  
18 ever, you know, digital economy agenda that's been  
19 focused on four key priorities. One is promoting a  
20 free and open internet, which I'll get back to in a  
21 minute. The second is protecting digital security and  
22 private; third, expanding broadband access and making

1 sure that we have a workforce trained to deal with the  
2 digital economy; and finally, supporting emerging  
3 technologies.

4 Your report really dives into what are the  
5 next steps of us really taking that agenda and making  
6 it more -- you know, and being more effective. And you  
7 know, that's really exactly what we were hoping for,  
8 and it really lays out a blueprint for the next  
9 administration, which is really critical.

10 I'll just make a comment about the free and  
11 open internet. A whole digital economy depends on this  
12 assumption that we have a free and open internet.  
13 We've got to stay focused globally on that issue. And  
14 it's not something to be taken for granted, which is  
15 really important.

16 We've made a lot of progress. I just want to  
17 talk about whether it's from successfully completing  
18 the IANA transition to the recent release of the  
19 president's commission on enhancing national  
20 cybersecurity report. That's a critical report -- I --  
21 and one that leaves a blueprint for the next  
22 administration about both the public sector and private

1 sector's approach to cybersecurity going forward and  
2 the fact that the public sector and private sector have  
3 to partner to address this extraordinary threat not  
4 just to our economy, but to our national security.

5 We've also made progress from laying, you  
6 know, 115,000 miles of high-speed internet  
7 infrastructure to standing up a stakeholder-led process  
8 focused on the Internet of Things. And as it relates  
9 to infrastructure and as we talk about future  
10 infrastructure, we must make sure -- and this committee  
11 has an important role to play in making sure that  
12 infrastructure investment is digit -- includes -- and  
13 is focused on the digital infrastructure that we need  
14 that's critical to our staying.

15 It's just a fundamental foundation not just to  
16 our economy, but to the wellbeing for our people and  
17 for the ability of the Americans as citizens and as  
18 individuals to be able to stay connected.

19 At Commerce, we've taken significant steps to  
20 ensure that future secretaries have the tools to engage  
21 with the private sector and other leading thinkers --  
22 yourselves and others -- on key issues like the digital

1 economy. And you have a really critical role to play  
2 as a board in making sure that it's -- that's well  
3 understood. You're an important part of the bridge to  
4 a new administration.

5           You know, this country does peaceful  
6 transition of power better than any other country in  
7 the world. But don't underestimate it takes a lot of  
8 effort, and you have an important role to play as it  
9 relates to the digital economy both with the Department  
10 of Commerce as well as with the White House because our  
11 efforts are really just at the beginning. As you all  
12 have pointed out, we've made progress, but it's -- we  
13 have a lot to do going forward.

14           A couple of things as we go forward that I  
15 want to just focus on before closing. First is that  
16 it's -- we expect the Department of Commerce to  
17 continue to play a leadership role on digital economy  
18 issues both within the U.S. government, but also around  
19 the world. And it's very important that we have a seat  
20 at the policy-making table alongside those representing  
21 national security issues.

22           When you think about the issues that are

1 facing the growth and breadth of a digital economy,  
2 there are national security issues, but there are  
3 really significant economic issues. And it's important  
4 that that is well understood.

5           And your guidance and your advice to the  
6 Department and to the next administration are really  
7 important as individuals begin to think about the  
8 breadth and scope of what they're facing as it relates  
9 not just to the digital economy, but, frankly, to the  
10 threats to our digital infrastructure, which is on the  
11 front page of all of our papers right now.

12           The other thing that I would say is, you know,  
13 as you've considered the issues that we're facing --  
14 whether it's cybersecurity threats, which are rising;  
15 or privacy, which is being upended; automation and  
16 globalization, which are changing the nature of work  
17 for people and disrupting entire industries -- I think  
18 the working groups that you've created about, you know,  
19 what are the metrics that we should be -- what should  
20 we be measuring in the digital economy, I think, is  
21 terrific.

22           And you've laid out, really, some important

1 recommendations that are -- the Department is in a  
2 position to actually execute on if we -- you know,  
3 bringing together various parts of the Department.  
4 Pushing that, I think, is really critical.

5           You focused on how should the government  
6 industry and the private sector work together to help  
7 Americans succeed in the new economy. What's the  
8 training? What are the skills? How do we do this more  
9 efficiently and effectively throughout our various  
10 training mechanisms and education mechanisms? I think  
11 that's spot on as an issue.

12           And then how can the digital platforms help  
13 smaller enterprises, for profit and nonprofit, thrive  
14 and grow and innovate.

15           But also, as you said, Zoe, create jobs is  
16 really critical.

17           So I really look forward to the discussion.  
18 And as you all know, I'm -- I've always cared a lot  
19 about translating recommendations into tangible policy  
20 and outcomes. And that's why it's so important that we  
21 have members from the Department's professional, you  
22 know, and career teams so that we can make sure folks

1 like Evelyn or John Morris (ph) or other who are here  
2 and others who will join us later will carry forward  
3 this work.

4           So I'll -- let me just close by saying thank  
5 you. Thank you for your service to the country. It's  
6 -- this is a really critical set of issues, and you all  
7 are really important leaders. You have lots on your  
8 plates otherwise, and the fact that you're spending  
9 your time to do this is really an important service to  
10 the country and greatly appreciated. So thank you.  
11 This is not a report that will gather dust on our  
12 shelves.

13           So the other thing I want to assure you beside  
14 that is also that we will -- your work will be part of  
15 the work going forward at many different parts of the  
16 Department -- the Bureau of Economic Analysis, which I  
17 mentioned earlier; the National Telecommunications and  
18 Information Administration; National Institute of  
19 Standards and Technology. They will take up your  
20 issues as it relates to quantifying and assessing the  
21 digital economy.

22           Our Skills for Business team is -- which is

1 focused on helping prepare workers for the 21st  
2 century, they're going to take up your recommendations  
3 about workforce and work with the National Economic  
4 Council and the Department of Labor so that these are  
5 not left -- issues left simply at the Department.

6 And NTIA will also benefit from this platforms  
7 report that you put out, and that'll inform their work  
8 on local -- data localization, cross-border data flows,  
9 cyber-physical systems, and also how we train our  
10 digital attaches -- that'll, you know -- through our  
11 International Trade Administration.

12 So my point simply being is your work touches  
13 very much significant parts of the Department as well  
14 as other parts of the inter-agency, and we will make  
15 sure that it -- this is not just stuck with us, but  
16 also well understood at the career level at the inter-  
17 agency so that the work is -- goes forward.

18 But I look forward to our conversations. And  
19 thank you very much for including me and -- at this  
20 meeting at the end of the year.

21 MS. BAIRD: Thank you very much.

22 The work of the board, as we've mentioned, was

1 done through working groups. But the reports of the  
2 working groups were discussed with and considered by  
3 the full membership and are the product of the  
4 membership as a whole. And so as we get into a  
5 discussion with the Secretary of these issues, they --  
6 conversation will be led by our working group chairs.

7 And I'd like to turn to Brad Smith to start  
8 that.

9 MR. SMITH: Great. Well, thank you.

10 I have the pleasure of leading one of the  
11 working groups. And our group focused on the future of  
12 jobs and work in the digital economy. I was joined by  
13 Zoe, who is a member of the working group, as well as  
14 David Cohen, Oisín Hanrahan, and Mindy Grossman. We  
15 definitely benefitted from the help of the folks at the  
16 commerce department -- Alan, Evelyn, Louise (ph),  
17 others.

18 And I have to say, Secretary Pritzker, when  
19 you asked us to take on this assignment, I certainly  
20 would say I had no idea what an incredible opportunity  
21 you were giving to us to learn about what I think is  
22 one of the defining issues perhaps not just of this

1 year, but, you know, of our generation.

2           And so we embarked this summer on, I'll say, a  
3 tour of the country by telephone as we organized a  
4 series of conference calls to learn from people who  
5 each knew, you know, quite a bit about the issues that  
6 we needed to address. We talked to people at a company  
7 like Manpower, which of course had its finger on the  
8 pulse of much of this; people at AT&T who were  
9 innovating in ways to train workers; the Markle  
10 Foundation; LinkedIn; the Aspen Institute; business  
11 leaders in Colorado; the McKinsey Global Institute.  
12 Everyone was willing to talk to us.

13           I'll say a few words about the report, and  
14 we'll really then have a conversation among the five of  
15 us about it.

16           But before that, I wanted to share something  
17 that was really Zoe's inspiration. A few weeks ago,  
18 she said why don't we produce a short video that really  
19 captures what we have come to focus on. So it's about  
20 a two-minute video, and we'll take a look at it now.

21           (Video playing.)

22           MR. SMITH: I'm tempted to just stop now.

1 (Laughter.)

2 MR. SMITH: But I think that the video  
3 captures well, in my view, that we're living in a time  
4 of both great challenge, but also great opportunity.  
5 And I think that's what we came away appreciating.

6 Jobs and work are changing dramatically.  
7 Digital technologies are creating the need for new  
8 skills, even at the same time that they automate some  
9 older skills.

10 People are working in new ways. The McKinsey  
11 Global Institute came out with a study over the last  
12 couple of months that now shows that between 54 and 68  
13 million Americans are working part time, typically not  
14 as their primary job, but as a secondary source of  
15 income. And so naturally, as people are working in new  
16 ways and they're needing to learn new skills, people  
17 are connecting with jobs in new ways as well.

18 So in short, as you see in our report, we  
19 focused on a few key issues that emerged from all of  
20 this. How do we actually measure what's going on in  
21 the economy? And what can the commerce department do  
22 and continue to do as it has been recently been

1 innovating to measure more accurately what's happening?

2           How do we equip our young people with the  
3 skills they will need for success, especially at a  
4 post-secondary level? How do we equip everybody else  
5 in the population, people of all ages so they can  
6 successfully acquire new skills throughout their lives  
7 and connect with new careers and new jobs?

8           What does this mean for our labor laws, labor  
9 laws that were very much written with a 20th century  
10 economy in mind, a sense that everybody was either an  
11 employee or an independent contractor but there was no  
12 other alternative that existed in the workforce?

13           What does it mean for people's benefits as  
14 they move not only from job to job but may hold  
15 multiple jobs simultaneously?

16           And what does it mean for the social safety  
17 net, a safety net that, in many ways, has rested on  
18 the, in part, contributions that employers make on  
19 behalf of employees?

20           And perhaps most fundamentally, given the  
21 nature of our work, what does it mean for the  
22 Department of Commerce?

1           As you see in our report, it all means a lot.  
2       There's a lot of opportunity in each of these areas.  
3       And I think the best way for us to sort of explore that  
4       and share with you what we learned is to talk together  
5       about it.

6           So I thought I would throw out a few questions  
7       and others on the panel I'm counting on to jump in.  
8       And to begin with, I think one of the things that made  
9       our panel interesting and successful is the five of us  
10      brought different perspectives from our day jobs, so to  
11      speak. We all work with employees in different  
12      contexts. We work with either customers or people that  
13      we're serving in various ways.

14           You know, so we're seeing this change in jobs  
15      and work unfold. And I'd love to start by opening it  
16      up to the others on the panel to just reflect a bit on  
17      the kinds of changes to jobs and work we're seeing.

18           Mindy, go ahead.

19           MS. GROSSMAN: Hi. Thanks for that. It was a  
20      great experience and great work. And thanks to  
21      everyone involved.

22           You know, we've seen such a dramatic shift in

1 the changes to jobs and work just over the last number  
2 of years. In our company alone, 55 percent of our  
3 business is now transacted through a digital platform,  
4 25 percent of that through a mobile platform. So it's  
5 created a dramatic shift in the type of jobs, the  
6 competition for talent, particularly in areas like data  
7 analytics, information technology but, most  
8 importantly, digital and mobile fluency throughout.

9           And if you look at retail in general with one  
10 in four jobs in the United States being retail, the  
11 growth, which is really coming from digital commerce,  
12 is requiring a major shift in needs and competencies.  
13 But most important, the consumer behavior demands are  
14 critical because they are requiring digital fluency  
15 from brands and businesses. And we have to deliver on  
16 those expectations just to compete -- not just to  
17 compete with each other, but to compete as an economy.

18           And then the last really major change is,  
19 generationally, there's been much more demand for  
20 flexibility and being digitally connected through  
21 technology. So our work-at-home jobs, more flexibility  
22 is definitely a significant trend.

1           So it's critical for our business. And right  
2 now, in certain of these areas like data analytics or  
3 pure digital competency, there's not enough talent for  
4 all of us to even be able to fill those jobs. So it's  
5 going to be critical going forward.

6           MR. SMITH: David?

7           MR. COHEN: So in the Comcast-NBC Universal  
8 world, as we work through this report as -- listen to  
9 your summary, watch the video, we're sort of a  
10 microcosm of America. See, everything that we've  
11 talked about in this report we're experiencing.

12           So I start with the -- not the disappearance,  
13 but the beginning elimination of lower-level, entry-  
14 level jobs. They just don't exist anymore. I mean, in  
15 our case, you know, entry-level technician or call  
16 center jobs where, you know, a technician, you didn't  
17 need a -- basically, you had a high school degree.  
18 That was all you needed because you showed up at a  
19 house, you drilled a hole in the wall, you ran coax  
20 cable through the whole, and you plugged it in the back  
21 of the TV. That was a technician job.

22           And those jobs are all but disappearing.

1 They've -- our lower-level jobs have become those  
2 middle-skill jobs. So it's part of the contribution of  
3 growth of that. But even those jobs are not growing at  
4 the same proportion as job growth at the company is  
5 because there's so much technology being used now and  
6 so much of a premium. Quite frankly, people are busy,  
7 and they would much rather order our service online,  
8 get a package in the mail, and plug it in themselves.

9           So we're seeing in the bulk of our traditional  
10 employment the near disappearance of original low-  
11 skill, entry-level jobs. Those jobs are now middle-  
12 skill jobs, require a lot more training, certainly  
13 require more than a high school degree, don't  
14 necessarily require a college degree. So go to that  
15 point that there are pathways to getting those skills  
16 that do not necessarily require a four-year college  
17 degree.

18           Biggest growth in jobs at our company have  
19 been in higher-skill, tech-related jobs, engineering  
20 jobs. That's where the growth is occurring.

21           Many of you have -- if you've been through  
22 Philadelphia, you see we're building a new million-and-

1 a-half-square-foot office building. As I like to say,  
2 it's going to be 1.5 million square feet of office  
3 space with no offices. It's entirely for a technology  
4 workforce. There will be 4,500 people who move into  
5 that building, basically none of whom were employed  
6 three years ago.

7 So that's your -- I mean, one city, that's our  
8 growth. And those are ultimately much higher-skill  
9 jobs. Most of those jobs are above the middle-skill  
10 environment. And it just shows the premium in this  
11 digital economy on higher-skill engineering, software  
12 developer, app developer, talent and technology.

13 And as Mindy just said -- and Brad, as you  
14 previewed -- and then the video said -- the competition  
15 for talent in that space is brutal in the United  
16 States. It is a -- there continues to be a real skills  
17 mismatch between the demand and the technical and  
18 digital economy for employees with those job skills and  
19 the available source.

20 And the last thing I'll say because we're,  
21 like many of us in this room, on both sides of the  
22 table. We're not only employing people directly, but

1 we are also helping to enable the digital economy  
2 through infrastructure, broadband and the -- and making  
3 available the tools for people that develop the skills  
4 to be able to function in this digital economy not at  
5 Comcast or NBC Universal, but at every company in the  
6 country.

7           And I do think that a sort of underappreciated  
8 element is the extent of digital illiteracy in the  
9 United States and the importance of digital literacy  
10 toward driving home broadband adoption, ultimately,  
11 basic digital literacy skills, basic digital  
12 competence. And that's a big focus for our company not  
13 only, again, for our business, but it's a big focus for  
14 how we think we have to play a part in making sure that  
15 we are helping to train a digitally literate workforce  
16 that can fill those middle-skill jobs that are becoming  
17 more and more important in a digital economy every  
18 year.

19           MR. SMITH: Why don't I turn to the next --  
20 oh, sorry. Did -- do you have a question, Secretary?

21           MS. PRITZKER: I have just a quick question.  
22 Given you're going to hire or you're -- as you said,

1 you're building a building that will be full of 4,500  
2 workers that didn't work for you three years ago, are  
3 you -- and given that -- you know, one of the biggest  
4 challenges I see is education is local. It's not  
5 national. We don't have national directives.

6 And so how -- if you think about addressing  
7 this workforce training challenge, there's sort of the  
8 transition of jobs, the continuous learning part. And  
9 then there's the coming up through middle school, high  
10 school, and that path of helping someone onboard into  
11 careers.

12 And how are you thinking about the engagement  
13 with, you know, local schools to -- I mean, you just  
14 said it's underappreciated the extent of digital  
15 literacy and competence.

16 MR. COHEN: Digital illiteracy.

17 MS. PRITZKER: Illiteracy. Uh-oh again.

18 MR. COHEN: Yeah, it's ...

19 MS. PRITZKER: That whole ill thing --  
20 illiteracy and lack of competence -- exactly.

21 And so you know, it needs to start a lot  
22 younger than ...

1           MR. COHEN: Right. Yeah. So we did talk  
2 about this in the report. And we -- nature of this  
3 work can't fully flush out everything. I view this --  
4 and we didn't get deep enough, so I'm really speaking  
5 for myself in making this comment.

6           I think part of that really critical question  
7 goes to the relative roles of government and the  
8 private sector in how we address these issues. And I -  
9 - there will be lots of exceptions to what I'm about to  
10 say.

11           But in a rough justice sort of way, I think  
12 the biggest role of government needs to be to help  
13 create a -- an elementary secondary education system  
14 that is keeping kids in school, that is graduating  
15 them, that is preparing them for something post-  
16 secondary school, whether it's technical training,  
17 technical school, or college.

18           And frankly, if we can get our talent with a  
19 basic level and, particularly, in this engineering  
20 space -- a basic level of STEM-related skills, it  
21 becomes our obligation to train them for what our needs  
22 are in our company. And in a rough justice sort of

1 way, I think that helps to create the dividing line.

2 As a large private sector company, this is  
3 true for -- I mean, it's true for AT&T. It's true for  
4 Microsoft, you know. But everyone's efforts here, we  
5 spent a lot of work working in partnership with our  
6 local educational -- our schools, our local colleges  
7 and universities to make -- to help guide local  
8 curriculum, what is necessary.

9 We just announced last week a form of  
10 apprenticeship program with the Philadelphia public  
11 schools that, essentially, is taking kids in the public  
12 schools and giving them training in cable and high-  
13 speed data-related skills, capable of working in our  
14 company. And we're starting with a pilot program of 25  
15 kids, and it's our goal to be able to hire all 25 of  
16 those kids when they graduate high school.

17 So that's -- I mean, that's how we blur the  
18 lines after I just set forth some basic --

19 MS. PRITZKER: So I think -- you know, for --  
20 as you go forward, there's much to do to make sure that  
21 the current recommendations -- and I'm always loathe to  
22 add to the scope. But I think help -- I think this

1 question of the role where does -- you know, kind of  
2 clearly government in the middle and the private  
3 sector.

4           You know, we've tried to be focused on, you  
5 know, business-led, job-driven training as an  
6 administration. But helping to clarify -- then also,  
7 what's the role, for example -- the Department of Labor  
8 and Department of Ed. have worked really closely -- I  
9 mean Department of Labor and Department of Commerce  
10 have worked really closely on this skills question.  
11 But we don't have much linkage in with the Department  
12 of Ed. That hasn't been the current --

13           MR. COHEN: Mm-hmm.

14           MS. PRITZKER: -- administration. That just  
15 didn't happen.

16           And so my -- I -- one question I would ask as  
17 you lay this out may be to think about kind of what are  
18 some of the basic digital literacy and things like that  
19 that needs to be part of a basic education so that that  
20 becomes more and more a foundation on which we're  
21 building the future of work and skills development  
22 because I -- I'm not sure that's clear.

1           MR. SMITH: Yeah, no. It's a great question.  
2           It's actually very much of the heart of where we think  
3           this needs to go. So we're all sort of thinking alike.

4           And Zoe, you might want to comment because  
5           you've been directly involved in a lot of these  
6           interesting sort of cutting-edge questions in Colorado  
7           and elsewhere.

8           MS. BAIRD: Sure. I'm happy to jump in.

9           I think the group as a whole has concluded  
10          that the commerce department can play a real leadership  
11          role in having the various agencies of the federal  
12          government understand how the federal government can  
13          contribute to this, that if commerce with its  
14          representation of business interest and its deep  
15          understanding of business can help reveal the skills  
16          needed for jobs -- and the labor department does a lot  
17          of this. But the labor department does it in a  
18          comprehensive way as opposed to focus on the growth  
19          jobs that the economy needs and the jobs where  
20          businesses are having a difficult time filling  
21          positions or creating the workforce that they need.

22          Commerce can really help drive this agenda,

1 can help drive the agenda to have businesses take the  
2 lead in working with educational institutions.

3 One of the things that we've focused on in the  
4 working group and that we focus on at Markle, too, is  
5 this whole question of these are immediate needs both  
6 of the Americans in the workforce and they're immediate  
7 needs for businesses.

8 So while the K-to-12 system is an important  
9 issue, we have so much opportunity to train and retrain  
10 people. And people will need to train and retrain  
11 throughout the course of their career, as we said in  
12 the video.

13 So there is a tremendous need for businesses  
14 to work in real time with local officials as well as  
15 federal officials for -- to collaborate on training  
16 programs, whether it be apprentices or the work that  
17 Dave is doing in his company working in local  
18 communities to help people move into rapid training  
19 programs not only in the company, but boot camps and  
20 other kinds of tech training programs that are rapid  
21 and affordable; the work Microsoft's doing in helping  
22 vets re-credential the things they've --

1 MR. SMITH: Mm-hmm.

2 MS. BAIRD: -- learned to be readable and  
3 understandable for private sector jobs and other work  
4 that Microsoft's doing with training programs in areas  
5 of high demand throughout the economy.

6 So I think we feel that Commerce really can  
7 take a lead in helping the federal government as a  
8 whole both raise awareness of critical steps that can  
9 be taken, focus on the immediate needs and  
10 opportunities for the workforce, and to enable  
11 companies to grow and job growth.

12 And that -- there's a data element of this  
13 that's also important to create the proof points and to  
14 have people see that incomes are growing through these  
15 jobs.

16 MR. SMITH: Yeah. Mitchell, it looked like  
17 you wanted to ask her -- say something.

18 MS. BAKER: Yes, thank you.

19 So Mozilla also runs digital literacy  
20 campaigns. And I'm thinking in the pre-apprenticeship,  
21 like younger children.

22 And we have -- you know, as an addition, found

1 that, often, informal education is very effective. If  
2 you can get the kids at the things that they love  
3 doing, whether it's story-telling or video -- and in an  
4 informal, sometimes it's after-school programs where we  
5 work with, you know, public libraries and museums.

6 And so in addition to the classic STEM  
7 education, and particularly for people who learn best  
8 by doing, there is a -- I would almost call it more  
9 community-based, grass roots, but distributed nature of  
10 actually learning technology so that you're interested  
11 and engaged in some of the apprenticeship programs and  
12 in moving forward.

13 And so I do hope that there is a role where  
14 the idea of digital economy and long-term jobs can be  
15 connected both to formal education, but also to the  
16 informal learning that's necessary and comfort with  
17 exploring digital elements, which will always be true  
18 because you're training now. You'll need to keep doing  
19 it for your -- the -- for the rest of your life.

20 And so I think there may be a leadership role  
21 in rolling informal training programs -- or informal  
22 learning programs with training programs connected to

1 education. That is all tied up in the digital economy  
2 and which currently, I think, does not have a home.

3 MS. PRITZKER: I guess what -- part of what  
4 I'm saying is, is that it's clear that if you think  
5 about actually implementing this, it requires an inter-  
6 agency effort --

7 MR. SMITH: It does.

8 MS. PRITZKER: -- both inter-agency within the  
9 Department of Commerce and then inter-departmental  
10 inner-agency efforts with Department of Ed., Department  
11 of Labor.

12 There's not really -- there's a formal  
13 mechanism that got created at the Department of Labor,  
14 but I don't think it's as comprehensive. I don't know.

15 David Langdon, maybe you know better because  
16 you work on that, too.

17 But I think -- if you think about the next  
18 administration, their opportunity to really dig in on  
19 this and really make a step function change difference,  
20 I think making sure that the right inner-agency  
21 structure exists on the future of work to tackle the  
22 various levels of it and various streams.

1           There's a big part for the Department of  
2 Commerce to play, representing the business and  
3 representing the needs and representing the kind of  
4 education. But the actual implementation throughout  
5 the system is going to require DOL and DOE.

6           And I think figuring out exactly to make sure  
7 that we got that agenda set up and that mechanism and  
8 oversight, perhaps, out of the White House --

9           MR. SMITH: Yeah.

10          MS. PRITZKER: -- might be something you might  
11 want to think about as you refine the recommendations  
12 or add to them.

13          MR. SMITH: No, that's helpful. I want to ask  
14 Oisin to speak to one other thing before we run out of  
15 time. But before I do that, I do just want to know,  
16 building on our suggestion.

17          I think we all felt that the kind of  
18 innovation that is going to be needed to really change  
19 the dynamic in the economy will require, as you point  
20 out, greater collaboration between the public and  
21 private sectors, greater collaboration across the  
22 federal government, and greater collaboration between

1 the federal government and state and local governments.  
2 And it's then going to require innovation in all of  
3 these spaces as well.

4 The one other thing I -- we should just spend  
5 a moment on is just sort of the other -- some of the  
6 other aspects we called out in the report, questions  
7 around labor law, benefits, safety net, and the like.

8 Oisin, do you want to --

9 MR. HANRAHAN: Sure.

10 MR. SMITH: -- on that?

11 MR. HANRAHAN: Thanks, Brad.

12 So I can give the company perspective that  
13 we've got, which is four years ago we tried to change  
14 how people buy home services. So you think about every  
15 service you need inside your home from home cleaners,  
16 handyman, plumbers, electricians. And we thought we  
17 could figure out how people could better buy and sell  
18 those services.

19 And over the last four years, we've had about  
20 2 million people apply to work on the handy platform as  
21 cleaners or handymen and plumbers, and we've allowed  
22 about 80,000 people to earn money on the platform.

1           And the thing that we've learned more than  
2 anything else is the motivation for why they're  
3 choosing to work on handy and why they're choosing to  
4 work on whether it's Uber or Lyft or Instacart is the  
5 flexibility that they can workmen in these platforms.

6           So about 80 percent of the people work 20  
7 hours a week or less, 50 percent 10 hours a week or  
8 less. And the reason they're choosing to work here is  
9 the immense flexibility that this part of the economy  
10 gives them.

11           So the technology that exists today has taken  
12 away so much of the coordination layer that people can  
13 choose to work two, three, four hours a week at a time  
14 that works for them.

15           And the one challenge we've got here is we're  
16 still stuck with laws that go back to 1938 that force  
17 us to delineate between contractors and employees. And  
18 this touches on pretty much everything. It touches on  
19 benefits. It touches on our ability to educate and  
20 train people.

21           So it would be wonderful if, as platforms, we  
22 could take on more responsibility for upscaling our

1 contractors for helping them transition into higher  
2 income brackets. Unfortunately, we're stuck with this  
3 law that says hey, if you give people contractor  
4 status, they have flexibility. They also can't have  
5 this training. They can't have benefits. They can't  
6 have education that we could help provide.

7           So I think this is one of the significant  
8 areas that would allow platforms in the digital economy  
9 to actually take on some of the burden that we'd love  
10 to take on, particularly around benefits, education,  
11 and training, which I think actually helps every part  
12 of this conversation.

13           MR. SMITH: I'm cognizant of the fact that we  
14 were given 30 minutes. We've used 32. So we could  
15 talk all morning about the issues in our report, and  
16 then you'd be here all afternoon as well.

17           So I think we should -- I will turn things  
18 over to all of you. So ...

19           MS. BAIRD: Thank you.

20           Let me just -- as the Secretary, if you want  
21 to say anything else about the -- this group's report  
22 before we move on to the next working group.

1 MS. PRITZKER: No, I think let's move forward.  
2 I could talk --

3 MS. BAIRD: Okay.

4 MS. PRITZKER: -- all day about this.

5 MS. BAIRD: Okay, great. Let me turn to James  
6 Manyika and ask him to discuss the measuring of the  
7 economy.

8 MR. MANYIKA: Thank you, Zoe.

9 Thank you, Secretary, for gathering this group  
10 of us to work on these very, very important issues.

11 I think the way we're going to spend the time  
12 is I'm going to make some opening remarks, and then  
13 we'll have a conversation with Ellen about some of the  
14 work that this working group conducted.

15 But first, I'd like to thank members of the  
16 working group. This is a group that included Austin  
17 Goolsbee, Greg Becker, and Martha Toledo (ph). And we  
18 had the wonderful benefit of having an incredible  
19 support staff that worked with us to help us prepare  
20 the work that we did and go through all the details.

21 And I also want to thank colleagues at  
22 Commerce who made themselves available, in particular,

1 in the agencies including BEA and NTIA and Census and  
2 so forth because this is a very much a nuts-and-bolts  
3 measurement set of things we're working on, and there's  
4 no way we could have done what we're trying to  
5 understand without their help.

6 I should also point out that we also have the  
7 luxury of being able to consult with many leading  
8 academics who have been -- work on these questions  
9 about measurement and have the benefit of their counsel  
10 and advice and ideas. And hopefully, we've properly  
11 kind of incorporated that into the recommendations that  
12 we've made.

13 I think an important point to note before we  
14 get into the details here is that I think, by any  
15 measure, the U.S. is the most digitized economy in the  
16 world. But at the same time, by most measures, the  
17 opportunity, the potential, to take even more advantage  
18 of this is even greater.

19 So we have this incredible opportunity that  
20 while the U.S. is doing incredibly well, there's even  
21 more that we could be doing to benefit the economy, to  
22 benefit companies and businesses as well as individuals

1 in the economy.

2 It is also the case, based on the work that  
3 many of us have done, that while the digital economy is  
4 here and rapid and, I think, as Zoe pointed out in the  
5 opening, it is very unevenly distributed. And you can  
6 see this at all levels, whether you look at the level  
7 of how digitized sectors are, how digitized companies  
8 are, how digitized small businesses are, and also the  
9 extent to which households and individuals and  
10 consumers are benefitting from the impacts and  
11 potential of digitization. There's such wide disparity  
12 across all of that.

13 And that's one of the reasons why this working  
14 group, in particular, wanted to focus on this issue of  
15 how do we properly measure this because it's been  
16 established many times over that when companies and  
17 sectors and individuals and household take advantage of  
18 digital technology, they derive incredible benefits in  
19 terms of productivity, growth, and, of its workers,  
20 growth in their wages. So all the benefits are clear.  
21 So we want to make sure that every part of the economy  
22 can fully benefit from this.

1           So with that, we're going to have a bit of a  
2 conversation with Ellen. And let me invite Ellen to  
3 make some opening remarks, and we'll have a  
4 conversation about the working group's recommendations.

5           MS. REMALEY: If I could, before we begin, I  
6 would just like to introduce Ellen, actually.

7           Ellen, we're so glad that you were able to  
8 join us today.

9           Ellen Cromwick-Hughes is the chief economist  
10 for the Department of Commerce. And we wanted to have  
11 her come today because the group -- the -- this working  
12 group has really looked at things that are close to  
13 Ellen's heart and that she's worked on at Commerce.

14           So we're so glad that you could take the time  
15 and join us. And we look forward to this interaction.

16           Thank you.

17           MS. HUGHES-CROMWICK: Evelyn, thank you.

18           James, great introduction.

19           And I just can't thank all of you enough for  
20 all the contributions. I mean, we are data geeks.

21           This is such a passionate issue for economist.

22           And I think the report recommendations are

1 absolutely right on. I mean, they are in the lane that  
2 will, in delivery, generate so much of a contribution  
3 in terms of how we understand and measure the digital  
4 economy.

5 I thought I'd just spend a couple of minutes  
6 talking to you about what we're actually doing. We've  
7 made progress under the Secretary's leadership and the  
8 data pillar in the strategic plan.

9 For example, you've seen and hear a mention of  
10 the satellite account that the Bureau of Economic  
11 Analysis is putting together to measure the digital  
12 economy. We kick-started that, thanks to Alan's  
13 leadership. And we've got Julie McHenry (ph), Jessica  
14 Nicholson here on our career staff team. And if BEA  
15 can do it, you know, this will be a major step forward.

16 Right now, the digital economy is hidden in  
17 the GDP accounts. We don't lift it up and show people  
18 how important and how relevant it is. And they're  
19 going to go item by item and bring it out so that we  
20 can see what, in an accurate sense, how big it is.

21 Just to give you one example, we had a  
22 workshop this week on productivity looking at all the

1 digital pieces to productivity. And one, you know,  
2 area which most people don't even look at is software -  
3 - it sounds simple for many of you -- is as big in our  
4 economy as the auto sector.

5 We think about autos as being so important --  
6 near and dear to my heart, having been at Ford. But  
7 software is big. And if we measure the -- all the  
8 digital components that are then multiplied out of the  
9 software sector, you know, we'll start to measure the  
10 economy in a much better way.

11 Secondly, we've done a lot on the  
12 international digital cross-border flows. And thanks  
13 to Julia and Jessica, we've had some major progress in  
14 terms of measuring what is happening in terms of  
15 digital goods and services. They're going back and  
16 forth. Why is it so important for our businesses to  
17 grow? We have to have that unfettered flow. And that  
18 has been a major thrust.

19 The third one I mention is e-commerce. And I  
20 appreciated the comments about the consumer and how  
21 important it is that we measure e-commerce.

22 Today, in the holiday season, we've seen a

1 surge in online buying in many different categories.  
2 However, we need work to measure that better. And the  
3 Census and BEA are on that, and we've made progress. I  
4 think that's going to really see some sunlight next  
5 year.

6 And then finally, in closing, you know, this  
7 whole puzzle around productivity, growth, and digital  
8 is we've got to crack the code on that. And one  
9 incredible area of science that is moving forward at  
10 BEA is around measuring tech prices. I mean, it sounds  
11 simple maybe for some of you in that space, but we have  
12 not really measured them properly. And if we don't  
13 measure tech prices and understand the evolution of  
14 those prices, we're not going to get GDP right; we're  
15 not going to make progress.

16 So we've seen working together at Commerce  
17 with BEA and, in your recommendations, particularly  
18 Recommendation 7, how important it is -- and I've heard  
19 many of you emphasize this, especially Secretary. You  
20 know, we've got to broaden out and make sure we're  
21 capturing all the critical experts to move this  
22 measurement forward. There are people at the fed

1 working on this, people at Department of Labor, you  
2 know, people here within Commerce. We have to bring  
3 them together to drive that plan forward.

4 So thank you very much.

5 MR. MANYIKA: Thank you, Ellen.

6 Let me give a highlight on the four areas of  
7 recommendations that we are making in this report. And  
8 this is part of the work we've been doing since this  
9 summer.

10 The first category of recommendations have to  
11 do with measuring the extent of the digital -- of  
12 digitization. And this is aimed at try and understand  
13 the extent and rates at which digitization has occurred  
14 across sectors in the economy, different kinds of  
15 businesses in the economy, but also households and  
16 individuals. So this is try and understand how far and  
17 advanced digitization has become.

18 The second area of recommendation has to do  
19 with try and understand the effects of digitization.  
20 And this is mostly around how companies and individuals  
21 are actually using digital technologies once they have  
22 adopted them.

1           So this might include things like to what  
2           extent are companies and businesses using digital  
3           technologies to do transactions, to interact with their  
4           customers and their suppliers, how much -- to what  
5           extent are households using digital technologies. Just  
6           talk to managed household energy use and those kinds of  
7           things. So this is try and understand the effects of  
8           digitization.

9           The third area of the category or  
10          recommendations has to do with try and understand the  
11          impact of digitization. And this is where we get to  
12          the kinds of issues that Ellen is talking about, which  
13          are -- also have to do with impact on GDP growth,  
14          impact on productivity, but also here try and introduce  
15          other measures of impact which go beyond the  
16          traditional economic metrics.

17          One of the questions I think that's been up  
18          for debate, particularly in a world in which we are all  
19          very concerned about the uneven distributions, to  
20          understand the effects around things like jobs, job  
21          growth, job creation, but also potentially impact and  
22          the effects on wages. And this relates to some of the

1 work that Brad was talking about in the earlier working  
2 group's recommendations.

3           And then the final area of recommendation has  
4 to do with trying to understand and monitor new and  
5 emerging activities. One of the things that's -- and  
6 for all of us who live in and around innovation  
7 technologies is just the rapid nature of innovations  
8 astounding. And quite often, many new activities  
9 emerge. And it takes -- it often takes a very long  
10 time before we start to measure them.

11           So this idea is how can, you know, the  
12 government, through its agencies, do a better job of  
13 trying to anticipate and look ahead to emerging areas  
14 of activity. You might think of activities including  
15 whether it's internet or things or the use of linking  
16 of digital technology to even synthetic biology data.  
17 There's a whole range of new areas or activities that  
18 are emerging that we think it's important to keep an  
19 eye on.

20           So those are the four categories of  
21 recommendation.

22           One of the things you will see across our

1 recommendations is that we feel quite strongly just in  
2 our working group that, in order to do this, it's going  
3 to require innovation in three important areas. One is  
4 in terms of getting more agencies and parts of the  
5 government to work together to do this. As we found  
6 out, clearly, Commerce -- many of the measurement  
7 agencies in the U.S. government are in Commerce,  
8 whether it's BEA or NTIA. But also, there are  
9 important other agencies outside of Commerce who are  
10 going to need to come together to somehow work together  
11 to put all these statistics together.

12 So this inter-agency collaboration -- and I  
13 think as the Secretary, you pointed out, maybe even  
14 linked to what the White House might do, we think it's  
15 a very important part of connecting the dots.

16 A second new innovation that we think is  
17 important is to begin to employ new techniques to  
18 gather the data. One of the things that have been used  
19 and tried and tested for a very long time is, of  
20 course, the use of surveys. And I think the commerce  
21 department and others do an effective use of that. And  
22 in fact, they continue to innovate in that.

1           But I think there are going to be new  
2 mechanisms to collect data and gather data that I think  
3 that innovation and experimentation is going to be  
4 quite important, which leads to the third kind of  
5 innovation that we think is going to be needed. And  
6 these are new kinds of partnerships and collaborations  
7 that may go beyond the government itself.

8           One of the things about the digital economy is  
9 that much of the most interesting data when it comes to  
10 what's happened in digital economy is actually not in  
11 government agencies. This is often in the hands of the  
12 private sector, companies who are either cold face (ph)  
13 of interacting with users and consumers and others. So  
14 some new kinds of innovative partnerships are going to  
15 be quite important in order to do the kind of  
16 measurement work we're talking about.

17           So that's the framework that we came up with  
18 in our recommendations. I won't go through all 10  
19 recommendations. But there are a couple that are worth  
20 at least highlighting because they represent new kinds  
21 of measurements, perhaps, that we think are important.

22           One of the things there's always been -- the

1 commerce department's always done a very good job of is  
2 measuring kind of the expenditures and assets and  
3 infrastructure that companies and others typically buy  
4 and consumers as digital technology.

5 But innovations have now led to other kinds of  
6 assets that are quite important. An example of that is  
7 data assets. We've all read and know that the  
8 importance of -- a big part of digitization comes from  
9 having data assets that are quite important. So new  
10 mechanisms of being able to measure the extent in which  
11 we are collecting and amassing and gather data, that's  
12 important for the economy. It's going to be quite  
13 important.

14 And related -- part of that as an example is  
15 the fact that we're going to need to start to measure  
16 the extent to which digitizations (sic) that are  
17 allowing us to connect to physical assets. We often  
18 see this around the Internet of Things, the fact that a  
19 lot of industrial equipment, for example, now includes  
20 digital components. So how do we keep track and  
21 measure the extent to which that kind of digitization  
22 is occurring?

1           So that's all in our -- an example in our  
2 second recommendation.

3           Another example recommendation that I'd like  
4 to highlight is Recommendation number 4. And this gets  
5 at the extent to which digitization is affecting work.  
6 We know that this is an economic concept, this notion  
7 of capital deepening, which really gets at the question  
8 of the extent to which workers are empowered with  
9 digital tools and capabilities is an important part  
10 understanding how we are enabling the workforce to work  
11 with new tools and new capabilities in a way that  
12 benefits them and the economy.

13           So some way to start to measure a set of  
14 labor-related and work-related aspects of digitization  
15 are quite important. That also includes measuring to  
16 understand the rate at which new kinds of digital jobs  
17 are being created so we understand to the rate at which  
18 the workforce is becoming more and more digital. And  
19 that's part of our fourth recommendation.

20           And then of course, an important  
21 recommendation, which Ellen's already pointed to,  
22 relates to really try and understand the connection

1 between digitization and GDP and productivity. And  
2 actually, on that one, I'd like to invite one of the  
3 working group members, Austin Goolsbee, who's on the  
4 line, to give some remarks and comments on that  
5 particular point.

6 Austin, are you on?

7 MR. GOOLSBEE: Yes, I'm on. Can you hear me?

8 MR. MANYIKA: Yes, we can.

9 MR. GOOLSBEE: Okay. Thanks.

10 And Madam Secretary, I'm here representing the  
11 home front in Chicago. It is evidently 1 degree  
12 outside with a wind chill of minus 17. So whatever  
13 cold it is there, it's worse here.

14 On this issue of GDP and productivity  
15 measurement, I would just highlight two and a half  
16 quick points. The first is you know many economist, so  
17 you'll appreciate the economists can't agree on this  
18 subject. And we found that as we were going through  
19 the working group there are firmly held opinions on  
20 both sides of the divide on the question of is the  
21 slowdown of productivity growth that we see in the  
22 (inaudible - technical difficulty) of free digital

1 goods that you can (inaudible - technical difficulty)  
2 and things that have a value but are not measured in  
3 dollars. And is it due to digitization in companies,  
4 the rise of digital (inaudible - technical difficulty)?

5 That's a (inaudible - technical difficulty)  
6 question. The --

7 MR. MANYIKA: Austin, would you mind rewinding  
8 a bit? For some reason, you're dropping in and out.

9 MR. GOOLSBEE: Oh, dear. Okay. It was just  
10 to say summary of point one was economists do not  
11 agree, and there is a dispute over the question is the  
12 observed slowdown of productivity growth and slowdown  
13 of GDP growth of the last decade or so due to the rise  
14 of digital goods, things that are not measured well in  
15 the GDP, whether it's search engines, social media,  
16 things that have a value to consumers but are not --  
17 they don't have to monetarily pay for them, the rise of  
18 the digital assets that James mentioned and things like  
19 that.

20 We sought -- I guess I would highlight with my  
21 other one and a half points the potential synergies  
22 across the recommendations and within the commerce

1 department. So by that, I mean, first, the Category 1  
2 that James mentioned were these measures of the usage  
3 of digital goods and the diffusion of technologies,  
4 let's call it.

5 A, we would like to know that all for its own  
6 purpose. But B, that does open, we felt, the  
7 possibility to do studies. We could use that data to  
8 try to figure out the question of how much does the use  
9 of technology affect productivity growth if we could  
10 better measure across industry, say, or across  
11 different consumers. Here are the digital technologies  
12 they're using. And does that seem to be correlated  
13 with how much productivity has slowed down in those  
14 industries and things like that?

15 And the second, which was highlighted, I  
16 believe, in James's Category 4, is noting how much data  
17 is already being collected, especially in Commerce but  
18 in other parts of the government where if you added  
19 some of these categories to existing datasets, whether  
20 it's -- there's a time use survey. There are consumer  
21 expenditure surveys of what people spend their money  
22 on. There are labor datasets that, if they could be

1 merged with some of these digital issues, it would  
2 really enhance our ability to answer this question  
3 because, fundamentally, we know that the GDP accounts  
4 of the United States were created to be a proxy measure  
5 of the standard of living for the U.S. or for any  
6 country in the world.

7           And our fear is that as the rise of things  
8 that people enjoy but don't cost money, as that gets  
9 more and more important, the GDP, as a measure of the  
10 standard of living, is getting worse and worse. And  
11 so, really, the fundamental building block of our  
12 economic policy is that data and is that concept. And  
13 so it's quite important that we try to figure that out.

14           MR. MANYIKA: Thanks, Austin.

15           And I think one of the things that we are  
16 excited about is, I think, there's about to be a major  
17 new effort by BEA and NTIA to actually try and to do  
18 some of these studies. And we think this is such an  
19 important area. Already, Ellen highlighted the set of  
20 issues around pricing effects, but also what Austin  
21 just added around free goods and other things I think -  
22 - we think are an important part of this.

1           Zoe, you wanted to make a comment.

2           MS. BAIRD: I wanted to just make a quick  
3 comment to underscore -- all of these things are  
4 enormously important. So I don't mean to suggest  
5 otherwise.

6           But I wanted to underscore the importance of  
7 Commerce developing a capacity to collaborate with the  
8 private sector and share data and create mechanisms for  
9 preserving the value of that data, obviously, to the  
10 companies that are generating it, but to create the  
11 collective capacity of understanding so many of these  
12 issues so much better by developing public-private  
13 shared inquiries.

14           There is, and will increasingly be, so much  
15 the private sector will know that the government needs  
16 to know for its own policy-making, let alone to inform  
17 people more broadly about what's going on in the  
18 economy. And if the government doesn't have access to  
19 this private sector data, it will not be able to make  
20 good policy. It won't be able to make good tax policy.  
21 It won't be able to make good policies -- regulatory  
22 policies.

1           And beyond that, we won't be able to grow the  
2 economy because we won't find ways to distribute that  
3 data so that the small and medium-size enterprises that  
4 don't have the collective capacity to generate it can  
5 themselves participate in the benefits.

6           So I think that's a very high priority for the  
7 Department.

8           MS. PRITZKER: Can I just make sure you're  
9 aware of something that I think is an important asset  
10 that we have, which is NTIS, which is a part of the  
11 Department of Commerce, is currently overseen by NIST,  
12 the National Institute of Standards and Technology?  
13 But we're trying to move it to be part of ESA.

14           And the reason is it had the ability to  
15 partner and to do joint ventures. It is a very special  
16 government -- most parts of our government don't have  
17 that capacity and that authorization to do that kind of  
18 engagement. And if you think about -- every one of  
19 your recommendations requires some form of  
20 collaboration and some form of not just public-private,  
21 but maybe public and local government, your federal and  
22 local government.

1           So I think that as you further deepen how --  
2           the how we accomplish some of these things working with  
3           our staff, I think the question is how to engage NTIS  
4           because you make a recommendation about, for example,  
5           the DAS position, you know, the position that Ellen's -  
6           - that's a goal of ours for reasons beyond this  
7           meeting. We were unable to accomplish it this time.

8           But I think that that is an aspiration that we  
9           share with you. We were unable to get it done in this  
10          calendar year. I think that's something we should try  
11          to get done next year.

12          I think you should also look at NTIS and where  
13          it ought to be housed because I think if you put it  
14          closer to BEA and the chief economist office and  
15          Census, we're using -- it's very much playing an  
16          important role not just for Commerce, but for other  
17          parts of the government in terms of public-private  
18          partnership.

19          So that's an onion worth peeling, I think,  
20          that could actually get to some of the -- help address  
21          some of these questions that you're raising about  
22          needing the private data and how do we engage.

1           We're doing -- we're in the middle of doing 35  
2 partnerships right now with different private sector  
3 entities to help us have better streams of -- access to  
4 better streams of data, but also to give our data to  
5 other entities to be able to use. So it's a very  
6 vibrant opportunity.

7           MR. MANYIKA: Thank you for adding that  
8 because that, in fact, was actually one of the things  
9 that we collectively felt strongly about.

10           I wanted to highlight one of the area of new  
11 recommendation that we're making and invite Greg Becker  
12 to comment on this. This has to do with we felt  
13 strongly the need to have some way to look to new  
14 trends and new emerging activities in digital economy  
15 in a way that, hopefully, gives some foresight into  
16 what ultimately then gets measured by the measuring  
17 agency.

18           So Greg, do you want to jump in and make some  
19 comments on that?

20           MR. BECKER: Yeah, James. Can everyone hear  
21 me?

22           MR. MANYIKA: Yes, we can.

1 MR. BECKER: Great. Thanks. And thanks for  
2 letting me participate, allow me to participate on the  
3 committee, on the advisory board.

4 And it's a pleasure to be here, if only by  
5 phone, Madam Secretary.

6 What James said we certainly believe is that  
7 our business model is entirely predicated on emerging  
8 businesses, emerging business models being developed.  
9 And the speed of change by which that is happening is  
10 only increasing.

11 We felt strongly that having a good  
12 indication, good insight into what's happening before  
13 it becomes too mainstream will help the government,  
14 help the commerce department develop policies around  
15 these new emerging technologies, especially in the  
16 digital economy. We felt that we have to really  
17 understand a framework, which is a digital taxonomy of  
18 businesses.

19 And there are so many different models out  
20 there. And once we kind of decide, or you decide, on  
21 what those are, then measuring the amount of capital  
22 flows into those areas, digging into it, will really

1 help understand where emerging trends are going. And  
2 once you have that, then, clearly, what are the  
3 implications and the policy recommendations that are  
4 needed?

5           So we looked at the taxonomy. We looked at  
6 measurement working with the private sector. And  
7 really understanding what's happening is a really  
8 important part because some of these new technologies  
9 on the sharing economy is one that gets a lot of  
10 attention, have come, literally, from nowhere to  
11 dominate certain spaces. And I believe -- we believe  
12 the government shouldn't be looking too far behind  
13 trying to catch up. And the only way to do that is  
14 really see early on what the emerging trends are.

15           So we believe this is -- there is great  
16 opportunities for partnership with the private sector.  
17 I appreciate the comments that were made earlier that a  
18 lot of new partnership are being made. And we  
19 certainly believe that's a key aspect of where we need  
20 to go.

21           So that's what our recommendations outline,  
22 and we look forward to being part of this going

1 forward.

2 MS. PRITZKER: Greg, I would just say I think  
3 absolutely it makes -- you know, the notion of -- that  
4 we have to agree on a technology taxonomy makes perfect  
5 sense. It's a great role for NIST. I mean, NIST does  
6 this well, and they do it, basically, collaborating  
7 with, you know, stakeholders as -- to -- and maybe it's  
8 a partnership between NIST and NTIA to do this so that  
9 you've got -- but you develop a standard language. And  
10 I think the two could do that well. But that's -- it's  
11 absolutely needed. So I concur.

12 MR. BECKER: That's great --

13 MR. MANYIKA: So I think in the interest of  
14 time where -- we've come to the end of this section.  
15 I'm happy to continue the dialogue.

16 But I think, in closing, again, we felt quite  
17 strongly that many of these measurement issues are very  
18 foundational to smart policy-making and by the  
19 government. So we think this is very important  
20 foundational work that must go on.

21 MS. BAIRD: Thank you very much.

22 I'm going to turn now to Jim Cicconi and

1 Mitchell Baker, who will lead us in a discussion of the  
2 platform working group.

3 MS. BAKER: I guess I'll get started, and then  
4 Jim will chime in.

5 Our working group leader, Bill, wasn't able to  
6 be here today. And so I'll start with a few initial  
7 comments and cover the first two recommendations. And  
8 then Jim will take us through the latter two. And  
9 then, as Brad said, we expect a robust discussion on  
10 these topics.

11 And so the third working group was digital  
12 platforms chartered to look at digital platforms and  
13 their ability to enable innovation and competition  
14 across a broad range of stakeholders from the platforms  
15 themselves, you know, to the industries that are able  
16 easily to take advantage and, in particular, to small  
17 and medium-size businesses to see how much opportunity  
18 and innovation competition can be generated from such  
19 platforms and also chartered to look at important  
20 policy areas related to these topics.

21 Digital platforms is a broad and complex topic  
22 in which we start out with a general definition in

1 information services which others can build upon --  
2 seemingly clear but, as you dig into it, really  
3 complex. And I find very often people use the word  
4 platform without a clear, shared understanding of what  
5 that means. And in the digital case, that's even more  
6 exaggerated because, very often, digital is not well  
7 understood. And perhaps by the working group it might  
8 be. But in the general populace, digital platforms  
9 itself is a rather abstract concept. So that's worth  
10 keeping in mind.

11 And also, as we go through the discussions,  
12 you know, the digital platforms are extremely powerful  
13 and, given the nature of digital, existed a global  
14 scale. You know, if you're successful as a digital  
15 platform, you existed a scale which is almost instantly  
16 international. And scale brings its own challenges and  
17 opportunities and complexities as well.

18 And so while we'll talk about digital  
19 platforms as a whole, as we get further into it and  
20 into implementation, it's also important to look at  
21 particular platforms and to get more specific.

22 So we'll dive into one or two of those. In

1 particular, Jim will talk about IOT today. But both as  
2 we go forward and as we look at implementation,  
3 increasing specificity will be extremely important.

4 As a whole, though, for digital platforms, we  
5 can say a few things just before we get to the  
6 recommendations -- one, of course obviously extremely  
7 powerful, provide opportunities clearly for the  
8 creators of those platforms, but also for many others.  
9 By definition, to be successful is a platform others  
10 need to be successful using your services and building  
11 on top of that -- so wide opportunities to enable  
12 innovation; wide opportunities to enable, I think, was  
13 the micro multinationals that Zoe mentioned; and wild  
14 opportunities for competition and, potentially, for the  
15 creation of additional jobs.

16 And so there's also an overlap with the nature  
17 of work and the kinds of jobs that we're looking at.  
18 And are those jobs moving into the middle-skill range?  
19 And what do they mean in terms of income? So huge  
20 opportunities there.

21 And like so many powerful things, digital  
22 platforms have potential negative consequences as well.

1 They're both subject to abuse and can lead to  
2 centralization as well as actual opportunity.

3           And so it's worth bearing in mind that the  
4 complexities of the topic, you know, cover both  
5 opportunities and challenges. Some of those, you know,  
6 opportunities and challenges we can discuss generally;  
7 and some of them are really specific to the particular  
8 platform or type of platforms. And so we'll wait until  
9 we get, you know, sort of deeper into implementation.

10           And so with that kind of general context, as I  
11 said, I'll talk about the first couple of  
12 recommendations. And so the first recommendation is  
13 about enabling small and medium businesses. As Zoe  
14 mentioned, those are the engines of, what, 66 percent  
15 of job creation recently. And digital platforms  
16 provide -- I hesitate to use the words infrastructure -  
17 - but infrastructure-like capabilities.

18           So I think the multi-micronational is a good  
19 example. How do you actually get international reach?  
20 How do you find international customers? How do you  
21 take orders? How do you accept payment? How is  
22 delivery handled? All of those things can -- and are

1 today provided by platforms. And so for businesses to  
2 be able to take advantage of that means that such a  
3 broader range of businesses can engage in an  
4 international activity.

5 And so that's a pretty powerful component.  
6 And the same thing is true of data storage and various  
7 analytics tools. You can look across the range of  
8 systems that a successful business today really needs.  
9 And often, there are platforms that will provide those  
10 services.

11 And it's actually not immediately apparent the  
12 range of those platforms, how one uses them, how to get  
13 the best use out of them, what are they, how do those  
14 platforms benefit small and medium businesses. And so  
15 we looked at and considered is it immediately apparent.  
16 Is the use of those platforms even? And as James and  
17 that working group have pointed out, digitization  
18 varies dramatically by industry and, within an  
19 industry, dramatically by the sets of organizations in  
20 that industry that take advantage of it.very

21 And very importantly, for those organizations  
22 and companies that are able to digitize, the benefits

1 are huge. And the difference between those that are  
2 digitizing quickly and those that aren't are large and  
3 growing.

4 And so the first recommendation is that  
5 Commerce prioritize enabling and assisting small and  
6 medium enterprises to more uniformly understand, take  
7 advantage, and benefit from the opportunities that the  
8 digital platforms provide. And in some cases, we can  
9 do that in a general setting. And in other cases,  
10 implementation might be specific to the particular  
11 platform.

12 And so prioritizing that has the potential to  
13 assist both American competitiveness, but also to be  
14 relevant in an international setting for small and  
15 medium businesses in general, potentially for jobs, and  
16 to take the benefits of digitization and assist in  
17 enabling a broader set of organizations to benefit from  
18 those.

19 So that's Recommendation 1.

20 Recommendation 2 relates to cross-border  
21 information flows, another very complex topic. Data is  
22 clearly an important and growing asset for individual

1 organizations, for -- you know, for governments, for  
2 civil society, and for understanding.

3 And so the international aspect of data is key  
4 to its value and key to generating the platforms and  
5 key to enabling -- I'll continue to go back to the  
6 micro multinational example so we can be consistent.  
7 But in order to do that, data is almost by definition  
8 not in one national jurisdiction.

9 And so the importance of free-flowing cross-  
10 border data flows to the digital economy both in the  
11 United States and to the United States participating in  
12 a healthy global digital economy is really quite  
13 fundamental. And at the same time, you know, we see  
14 that citizens in various locations and their  
15 governments are focused on treatment of data in a way  
16 that makes sense to their societies and their cultures.

17 And so there is currently also a very national  
18 or local flavor to data regulation and protection. And  
19 I think the sense of the working groups is asserting  
20 that that is irrelevant or untrue or not the role of  
21 citizens outside the United States to care about how  
22 they're treated or to expect that governments are going

1 to ignore the concerns of their citizens is probably  
2 not realistic and that, for cross-border data flows to  
3 be smooth, that the interest of citizens in how data is  
4 managed should be addressed.

5           And that -- so the recommendation is that  
6 Commerce, which appears to be, you know, a really  
7 important critical leader in these areas, you know, in  
8 the importance of this asset and treating it --  
9 understanding that the digital economy is linked to  
10 other aspects of life, you know, that Commerce focus on  
11 the sort of general mutually agreed on agreements for  
12 cross-border data flows and that those agreements are  
13 absolutely essential and that it is unlikely that  
14 private enterprise alone dealing with other national  
15 governments will succeed. And if they do, it will be  
16 splintered where we need data flows in a broad, general  
17 sense and not industry or silo-specific -- so  
18 cooperative legal frameworks that enable cross-border  
19 data flows and that these frameworks should be,  
20 obviously, mutually agreed on.

21           They should be transparent. Citizens should  
22 know and understand what goes into them. And private

1 industries should be able to understand what's required  
2 as you build a business, not afterwards. So  
3 transparency is really key. And you know, they need to  
4 respect human rights and due process.

5 And that is a large piece of work but really  
6 fundamental for the state of the digital economy and  
7 for the healthy societies that we hope they engender.

8 And so achieving that would also be a  
9 fundamental element for, you know, a real presumption  
10 that mitigate -- that limiting cross-border data flows  
11 would stop and that it would be possible to run a  
12 service without requirements that data be stored, you  
13 know, on servers in a particular country in a siloed  
14 way; and then reduce the friction of, wherever it's  
15 stored, how do you actually use it and how does it get  
16 combined with information from other jurisdictions.

17 So we see these frameworks as a really  
18 fundamental piece as well and that, in addition, you  
19 know, looking for measures to explicitly track and  
20 quantify and understand the trade barriers related to  
21 data.

22 And so there is a holistic view of the data

1 question, which is really quite imperative. And the  
2 ability and focus of, again, the public-private  
3 partnership in achieving, you know, progress in these  
4 areas is really quite fundamental.

5 And I think, with that, I'll turn it to Jim to  
6 get to our remaining recommendations.

7 MR. CICCONI: Thank you, Mitchell.

8 Like Mitchell, I'm pinch-hitting for Bill Ruh,  
9 who, despite the fact he's not with us today, did a  
10 wonderful job really pulling this committee together  
11 and driving all of us to work very hard.

12 So you would have bene proud of him, Madam  
13 Secretary.

14 The third opportunity that the committee  
15 wanted to highlight really relates to the Internet of  
16 Things. It's an offshoot of that. But I think World  
17 Economic Forum talked about the fourth industrial  
18 revolution that is underway right now, this being the  
19 connectivity not just of people, but of machines.

20 It is -- most of you know this is well  
21 underway. Again, we call it the Internet of Things.  
22 Physical devices, you know, for the last seven years

1 have really outnumbered people in terms of their  
2 connectivity to the internet.

3 But what's going on today I think the  
4 committee wanted to highlight is the fact that an  
5 offshoot of this that's really vital to the country is  
6 the industrial internet. And this really refers to the  
7 integration of the physical machinery with remarkable  
8 revolutions in cheap network sensors that has taken  
9 place -- little notice, but amazingly involved in  
10 almost every area of industrial activity today --  
11 combined with the revolutions in communications,  
12 infrastructure, and near-ubiquitous communications  
13 capability wherever you are.

14 As I said, this is well underway today. It's  
15 having and will have a profound impact on our society.  
16 It's not just going to benefit industry when we talk  
17 about the industrial internet, but also the consumers  
18 they serve. Obviously, it has significant cost  
19 implications that are very positive. And frankly, it  
20 could prove to be highly beneficial to the global  
21 economy in general.

22 But I think the committee very quickly

1 recognized, though, that as we talk about this process  
2 which is well underway today, there are many  
3 challenges, not least of which is cybersecurity, that's  
4 facing this industrial internet.

5           And so our third opportunity really focused on  
6 this and, frankly, how to advance the type of  
7 coordination and collaboration that are going to be  
8 vital to the success of the industrial internet going  
9 forward. Standards is clearly a part of this as well  
10 as cybersecurity.

11           But going right to the recommendation, the  
12 committee felt that the government should examine the  
13 need for a U.S. national strategy to advance the  
14 industrial internet. Much as during the '90s, the  
15 Clinton Administration conducted the same sort of  
16 examination with regard to the internet itself and put  
17 policies in place that I think really helped advance  
18 the modern internet as we know it today and probably  
19 could not have developed nearly as well or as fast as  
20 it has without those policies.

21           And by national strategy, I think we talk  
22 about deciding what is the government's policy toward

1 the industrial internet, determine ways of streamlining  
2 government process to advance that policy. That can  
3 include the proper regulatory approach as much as took  
4 place in the '90s as well as addressing areas of agency  
5 overlap and, perhaps, areas where agencies should have  
6 a role but don't today.

7 Having a policy of this nature I think would -  
8 - stating at a high level the government's approach the  
9 industrial internet we feel would provide the  
10 confidence and certainty that companies need as they  
11 continue to make these investments. And hopefully, it  
12 would enhance not just those investments, but the very  
13 important investments in continued innovation.

14 The second aspect of this was standards-  
15 related. But as we discussed earlier and the -- given  
16 the Secretary's remarks about the important role played  
17 by NIST going forward, you know, the committee felt  
18 that the government should continue its support for and  
19 encouragement of the private sector-led standardization  
20 efforts that are really crucial here.

21 And this relates to development of the common  
22 and open standards that are so crucial to Internet of

1 Things developments. This is certainly private sector-  
2 led today. It's very successful. It's assisted by and  
3 encouraged by the government, and NIST has certainly  
4 played an important role in all of that. And I think  
5 the committee is simply saying that this process is  
6 working and that it should be continued.

7           The third aspect of this goes back to the  
8 comment about security. The -- there's no silver  
9 bullet in this area I think everybody recognized. But  
10 one thing that has proven to work are the multi-  
11 stakeholder partnerships, again, between companies and  
12 the private sector, but also working with the  
13 government to deal with security threats. This is  
14 really vital going forward, and our view is that the  
15 commerce department should promote these partnerships  
16 as a means of ensuring that the industrial internet is  
17 as secure as we can make it.

18           So I can stop there before going to the next  
19 section and see if there's anything further anybody  
20 wants to talk about on this one.

21           MS. BAKER: We could also probably open it up  
22 for --

1 MR. CICCONI: Okay.

2 MS. BAKER: -- discussion in general on the  
3 platforms --

4 MR. CICCONI: Okay.

5 MS. BAKER: -- IOT as well, if you'd like.

6 MR. CICCONI: Right. We had one -- a fourth  
7 section, and I could maybe --

8 MS. BAKER: Yeah, go ahead.

9 MR. CICCONI: -- go into that.

10 MS. BAKER: Yeah.

11 MR. CICCONI: And then -- the -- as all of you  
12 know, all of us were on the board here, were trying to  
13 develop a set of interim recommendations, things that  
14 could be put forward in the near term and addressed in  
15 the near term by the government and by the commerce  
16 department. You know, but I think the committee  
17 recognized that we didn't want to ignore the elephant  
18 in the room or, in this case, the elephants.

19 And so we wanted to at least lay out maybe not  
20 as opportunities, but certainly as challenges, a number  
21 of the remaining issues which we feel it's vital that  
22 the government address and work with the private sector

1 to address and resolve. And clearly, many of these  
2 will fall to the new administration.

3 But the first is cybersecurity itself. The  
4 breaches were in the news all year. They ranged from  
5 foreign hacks for whatever purposes to yesterday's news  
6 that a provider had had a billion personal accounts  
7 hacked and personal information stolen.

8 And it's very clear that this challenge is  
9 only going to grow. And the ongoing risk of cyber  
10 hacks really demonstrates the need to continue and  
11 enhance the collaboration and coordination between the  
12 private sector and the government to address these  
13 things. I think much has been done, but much needs to  
14 be done.

15 And you know, I think the -- we don't have  
16 answers here, clearly. But I think the pace of  
17 activity by the government in this area working with  
18 the private sector is something that the committee  
19 discussed and, I think, would like to see dealt with in  
20 an even more urgent fashion. And I'd certainly welcome  
21 the committee members themselves jumping in here.

22 The level of collaboration and coordination

1 between the private sector and the government has to be  
2 enhanced. I think all of us know that. We've actually  
3 had legal impediments to this in the past, which laws  
4 had to be passed to try to address some of these. And  
5 much needs to be done in the wake of those efforts to  
6 try and continue our information sharing in this  
7 regard.

8           The second issue, obviously, that goes hand in  
9 hand with cybersecurity is privacy. And again, we  
10 don't have all the answers, but we recognize that part  
11 and parcel of digital platforms is that the technology  
12 that people are using is collecting data to provide its  
13 many benefits.

14           And so the -- you know, the implications are  
15 clearly that privacy is involved in almost every aspect  
16 of this data collection to provide the benefits that  
17 customers want. And you know, this is an area, I  
18 think, on a going-forward basis where there is -- it's  
19 vital that there be a true multi-stakeholder process.  
20 I think all of us agreed on that, that digital platform  
21 providers, individual users, government all have  
22 responsibilities in this area.

1           We haven't, frankly, done enough to clarify  
2 the roles of -- that each of us have. I think that's  
3 clear, and there must be more focus on this on a going-  
4 forward basis. There is overlap between various  
5 government agencies. And frankly, there could be  
6 better coordination. I think there was some feeling in  
7 the committee between the agencies on some of those  
8 things. I think the commerce department itself has  
9 pointed out some of those same points going forward.

10           The next aspect I think the committee wanted  
11 to lay out is the importance for flexible for --

12           MS. BAIRD: Jim, if I may interrupt, we only  
13 have five more minutes --

14           MR. CICCONI: Okay.

15           MS. BAIRD: -- with the Secretary. So perhaps  
16 you want to --

17           MR. CICCONI: Sure.

18           MS. BAIRD: -- since I know she's read the  
19 document and it's --

20           MR. CICCONI: Okay.

21           MS. BAIRD: -- publically available. Perhaps  
22 you want to turn now to her comments on this working

1 group --

2 MR. CICCONI: Okay.

3 MS. BAIRD: Thank you.

4 MS. PRITZKER: Well, maybe I could just say a  
5 couple things in general. First of all, as it relates  
6 to this last effort, I think that, you know, I concur  
7 with, you know, particularly, you know, your -- I like  
8 your comparison of the work that was done as it relates  
9 to the internet at its founding, some basic high-level  
10 principles that are laid out of what's the role of  
11 government as it relates to the industrial internet.  
12 And I think that that would be a useful thing to have  
13 the next administration delineate.

14 I would say that, as it relates to  
15 international agreements, I mean, we have been very  
16 focused, this administration. And certainly, Larry has  
17 played -- you know, Strickling has played a huge role  
18 of making sure as well as our International Trade  
19 Administration through Ted Dean and Justin Antonipillai  
20 and to deal with, you know, cross-border data  
21 information and, you know, undertaking, basically, a  
22 consistent approach to try and address those challenges

1 that have been really rising up around the world.

2 As it relates to encouraging the use of -- by  
3 smaller enterprises of larger platforms and the greater  
4 uptake of becoming more digital as an economy, we'd  
5 certainly agree with that.

6 Let me just close by saying the following to  
7 the whole -- kind of the whole report. You know, if  
8 you think about -- when I step back and I look at your  
9 report, first of all, as it relates to cybersecurity,  
10 which is something you raise towards the end here, you  
11 need to look at the commissions report that came out  
12 about two weeks ago. It's quite comprehensive. It has  
13 extensive input from us as the Department of Commerce.

14 I think it's really strong blueprint for the  
15 country to move forward and -- in addressing this  
16 extraordinary threat not just to our economy, not just  
17 to our national security, but, frankly, to our  
18 democracy. I mean, obviously, what's been going on as  
19 it relates to this recent election is really unnerving  
20 for -- just to the efficacy of our democracy. I'm not  
21 opining as to exactly what's happened. But the fact  
22 that there's been engagement is really unnerving.

1           Every recommendation really requires  
2 collaboration. I mean, if you think about how every  
3 one of these thoughts and ideas is really, I think,  
4 important, well thought out, and should be carried out  
5 -- you know, with great -- expeditiously and with focus  
6 by our career leadership. And you'll hear from them at  
7 lunch, and Evelyn will play a leadership role there.

8           But you're talking about collaboration within  
9 the Department of Commerce between -- and now I'll go  
10 through the alphabet soup of our National  
11 Telecommunications and Information Administration; our  
12 National Institute of Standards and Technology; our  
13 Bureau of Economic Administration; our NTIS, which I  
14 talked about; Census; ITA on the international front.  
15 They -- you know, and they all play a role.

16           That's why the digital economy leadership team  
17 that has been led by Alan is so critical because what  
18 you need is these groups -- these individual  
19 organizations to come together to work collaboratively  
20 to address what you've recommended.

21           So collaboration within DOC is critical --  
22 inter-agency collaboration within the administration,

1 so finding a mechanism where, really, the White House  
2 can help to coordinate and create those inter-agency  
3 mechanisms. And before I was in government, I did not  
4 understand what the word mechanism is. But it's  
5 basically how does the inter-agency come together and  
6 work together on a problem. And it needs White House  
7 leadership to do that.

8 Third is with the private sector. And there  
9 are a number of ways for us to do it. NTIS is one.  
10 But -- and working with organizations like your -- you  
11 know, with the Digital Economy Board of Advisors is  
12 another.

13 The Cyber Security Commission calls for the  
14 creation of a special engagement between the public  
15 sector and the private sector. But with the states, we  
16 don't really have a way to engage with local  
17 governments. So that might be an area you might want  
18 to think about.

19 My point is collaboration in and of itself is  
20 necessary to address the specifics of that in order to  
21 get to the outcomes that you desire. And so I would  
22 ask you not to ignore that or assume it will happen

1 without some impetus and effort and attention from you  
2 all because we at the Department can do only so much  
3 without either voluntary or required engagement by  
4 others. And so that's something I would focus on,  
5 particularly as we transition to a new administration.

6 The existing administration, we had those  
7 mechanisms in place. But we don't know what those will  
8 be going forward. And so that would be something I  
9 would focus on.

10 I'll simply close by saying it's been a great  
11 privilege for me to work with all of you. This is --  
12 you know, these initiatives are exciting. They're  
13 important. They're vital.

14 And I am so grateful for -- that you all  
15 agreed to volunteer to engage on these issues. They're  
16 so important. And their importance is only more so in  
17 the future.

18 And so thank you very much again for all that  
19 you've done and will do going forward. And I'm just  
20 sorry I won't be here to be a part to help because I  
21 really think it's -- I think what you've proposed is  
22 really terrific. So thank you very much.

1           And I'm sorry I have to leave. But the  
2 scheduling gods have me doing a few other things.

3           MS. BAIRD: Well, I think it merits a round of  
4 applause for our Secretary for her great service.

5           (Applause.)

6           MS. PRITZKER: Oh, thank you.

7           MS. BAIRD: Thank you.

8           We're going to take a five-minute break, and  
9 then we'll be right back.

10          (Break.)

11          MS. BAIRD: If we could pull our group back  
12 together.

13          So we are -- excuse me -- running short on  
14 time. Our public comment period is in 10 minutes.

15          So let me just briefly mention what the  
16 additional part of the report covered. And then we'll  
17 open up for a few final comments from the group. If  
18 you have comments on the last working group on  
19 platforms, that would be welcome as well.

20          So I won't dwell on this. But there was --  
21 excuse me -- an additional part of the report that was  
22 initially prepared by the chairs, the working group

1 chairs, and Mindy and then shared and developed by the  
2 group as a whole. And it focused on how to transform  
3 the Department of Commerce into a 21st century digital  
4 economy agency.

5 We looked at some of the best practices around  
6 government and in other governments in creating  
7 effective modern government to move from an industrial-  
8 designed enterprise to a digital age enterprise.

9 And I won't go into this in any depth. But we  
10 did focus on collaborations. We focused on the  
11 importance of experimentation, the importance of  
12 government developing -- excuse me -- metrics for its  
13 own work, its own regulations, its own departments and  
14 changing course if the results are not leading to  
15 accomplishment of those metrics.

16 We addressed the importance of bringing the  
17 expertise and perspective of the business community  
18 into how government itself functions, how data is not  
19 just an add-on, but very much a driver in all  
20 operations in business and ought to be in government as  
21 well; and that the commerce department can have a  
22 tremendous role in enabling the entire government to

1 become more of a digital economy enterprise, meet its  
2 mission more effectively and more efficiently and be  
3 able to demonstrate that it's done so, to demonstrate  
4 the value of being added by government.

5 And so I encourage people who are interested  
6 in improvement in government in achieving these  
7 missions to take a look at that part of our report.

8 I'm going to open the floor for comments. And  
9 we have just under 10 minutes.

10 Anyone want to comment on the platforms  
11 discussion, the discussion of how government might  
12 become more of a digital economy enterprise, other  
13 comments from the day?

14 Alan?

15 MR. DAVIDSON: I'm going to actually start  
16 with a question for some of the platforms folks. You  
17 know, we sort of -- it's a very -- the platforms paper,  
18 I congratulate you in the sense that it covers a huge  
19 amount of ground and makes some very concrete  
20 suggestions for how we can proceed.

21 I was kind of curious from the group's point  
22 of view, though, about -- as we think about how we

1 structure our work within this board of advisors. Do  
2 folks think that it makes sense for that effort around  
3 platforms to continue as it is? Are there -- and you  
4 know, covering the entire waterfront of issues that  
5 were raised in that report is a huge amount of work.  
6 In some ways, it might make sense to break things apart  
7 a little bit or give it a particular gloss, focus on  
8 small or medium-size businesses.

9 Focus -- I'm just kind of curious if the group  
10 itself has any reflections on what a good way to go  
11 forward would be with that -- with the platforms piece  
12 of this.

13 MR. CICCONI: I can at least try. I mean, I  
14 think the last part that I wasn't quite able to get  
15 through, I think, does identify some of the biggest  
16 challenges going forward, that we're all aware of them.  
17 And I think that if -- you know, if the digital economy  
18 is to succeed, I mean, we working with government, you  
19 know, in a collaborative fashion need to figure these  
20 things out.

21 I mean, we were -- you know, I mean, there are  
22 -- at the end is challenges because we don't have

1 answers. But they're still festering, and we've got to  
2 address them.

3 And so I don't know if this board is the right  
4 place or what. But I think at the end of this process  
5 and however long we're in existence, if we haven't at  
6 least got some concrete recommendations on these bigger  
7 issues, you know, I -- then I think people will scratch  
8 their heads.

9 MR. DAVIDSON: And I'll just say I totally  
10 agree that those are topics that need to be addressed.  
11 And I may not have articulated well, but I think the  
12 question's sort of are we better off picking a -- you  
13 know, you could pick one of them like cybersecurity and  
14 say hey, let's spend six months talking about that, or  
15 something like that.

16 MR. CICCONI: I get your point. I think we  
17 ought to organize around what we think are the biggest  
18 issues and not necessarily constituencies. And I think  
19 we had a mix of that this time. And I -- you know, we  
20 may not all agree on what the biggest issues are. But  
21 if we can kind of put the list together, then maybe we  
22 organize our work going forward around those.

1           MS. BAKER: Also, I think -- I know the  
2 Secretary is very clear that the cybersecurity report,  
3 it was released as thorough, right? And so it may be  
4 that on some of those, it's participating in something  
5 else rather than us as the home of it, per se, because,  
6 clearly, security -- the cybersecurity -- and I -- you  
7 know, I tend not to use the word privacy so much. I  
8 use the phrase personal security because who's stalking  
9 me is not -- I -- whatever it is that privacy means,  
10 these are personal security or whoever's got access to  
11 my home network and locks. I mean, these are all  
12 security issues.

13           And so the question of personal security and  
14 national security and how we manage that spectrum,  
15 those are fundamental to everything. There seem to be,  
16 you know, many loci of attention to that.

17           And so another possibility would also be that  
18 this board might, for example, participate there and  
19 focus on something that is particularly, like, at least  
20 more of which is housed inside of this department or  
21 this department with, you know, DOE or Labor.

22           So that's not really an answer, but what -- an

1 approach.

2 MS. BAIRD: Are there other comments or  
3 questions from the board?

4 Okay. Then let's open up the floor for public  
5 comment either on any of the subjects we've addressed  
6 or things that you think should be addressed by  
7 Commerce and the board in the future.

8 Evelyn, are you going to manage the public  
9 comment?

10 MS. REMALEY: Yes. And so if there is anyone,  
11 we'll be taking calls from the public on the line. If  
12 there is anyone in the room who would like to speak,  
13 you can raise your hand. We can bring a microphone to  
14 you.

15 Again, I did want to remind everyone. I had  
16 mentioned at the top of the meeting we did receive one  
17 written public comment from the Niskanen Center. And  
18 if you're watching the webcast, you can view that  
19 document on the NTIA website. The --

20 MR. GOOLSBEE: Evelyn, it's Austin Goolsbee.

21 MS. REMALEY: Hi, Austin.

22 MR. GOOLSBEE: Just one thing on a technical

1 grounds, the webcast seems like it's about 5 or 10  
2 seconds delayed from reality. So --

3 MS. REMALEY: Okay.

4 MR. GOOLSBEE: -- just be aware of that when  
5 asking for the public comments.

6 MS. REMALEY: Thank you. Thanks for that,  
7 Austin.

8 The members of the board also have that public  
9 comment in their packet for review.

10 Anyone from the audience here that would like  
11 to speak?

12 Please come up.

13 MS. NICHOLSON: Is this good?

14 I just have a question about the collaboration  
15 between the private sector and --

16 MS. BAIRD: Could you give us your name --

17 MS. NICHOLSON: Yes, I will.

18 MS. BAIRD: -- and, if you'd like, your  
19 affiliation, please?

20 MS. NICHOLSON: Sure. I'm Jessica Nicholson.

21 I've participated in a lot of efforts here at the  
22 Department of Commerce to improve the measurement of

1 the digital economy. And a lot of time -- you know, we  
2 also made the recommendation that Commerce should  
3 increase collaboration with the private sector,  
4 especially to try to collaborate on the data front so  
5 that we can better measure some of these things,  
6 understanding that a lot of the data is housed in the  
7 private sector.

8 But historically, it's been challenging for  
9 the private sector to release data to the government.  
10 And oftentimes -- and so I'm wondering just if you have  
11 any comments on data sharing and sort of your view --  
12 point of view about how the private sector's going to  
13 respond to these types of efforts; and if you have  
14 either today or in the future thoughts about how we can  
15 move forward on this front because I think that it's  
16 going to require a lot of, you know, again, new  
17 innovations about how we share data because we're also  
18 limited, you know, from the government perspective  
19 about what we can share.

20 So you know, we understand that there's  
21 challenges on both sides.

22 MS. REMALEY: Responses from the board?

1 MS. BAIRD: James?

2 MR. MANYIKA: Thank you for the question.

3 I think I was quite encouraged this morning by  
4 the Secretary's comment about the facility that may be  
5 possible through NTIS and its ability to maybe  
6 collaborate and to -- and certainly, as a working group  
7 member, I'd love to understand what that looks like  
8 because if that offers a way for a mutually agreeable  
9 way to collaborate and share data, that would be  
10 enormously valuable because, like you, we all felt very  
11 strongly that there's a complementarity between the  
12 data that the government can collect, but also what's  
13 being collected by the private sector.

14 And so some rules of the road are going to be  
15 quite important in order to share that for the purpose  
16 of measuring the economy and probably not anything  
17 else.

18 So we'd love to understand a lot more about  
19 what the NTI possible -- NTIS possibilities might be in  
20 that regard.

21 MS. REMALEY: Any others from the audience?

22 Thank you.

1           And I believe we also do not have anyone on  
2 the phone. So we can move forward.

3           MS. BAIRD: Great. Thank you very much. And  
4 we appreciate the input and would welcome any other  
5 written input, too, if anyone has interest in providing  
6 comments.

7           So if I may, I'd like to turn to Larry  
8 Strickling, the assistant secretary for Communications  
9 and Information at Commerce and ask Larry for his  
10 observations.

11          MR. STRICKLING: Thank you, Zoe.

12          And thank you, Mitchell.

13          And in particular, thanks to both of you and  
14 members of the board for their work here this past  
15 year.

16          I think when we started this effort many  
17 months ago, we weren't quite sure what we'd end up with  
18 here at the end of this calendar year. But I think you  
19 have greatly exceeded the fairly high expectations we  
20 came into this with. And I think everyone should go  
21 out of here today at this intermediate stage in the  
22 work of the DEBA because it's not done yet. But I

1 think feel -- people should feel very proud about the  
2 accomplishments of this group so far.

3 I think as Zoe and Mitchell mentioned in their  
4 opening remarks, this idea that we have a gap in  
5 knowledge in the digital economy and even, as Mitchell  
6 referred to it, misunderstandings about the digital  
7 economy and what it means for people -- but I think the  
8 work of this group -- and if people take the time to  
9 read your report, the report itself helps close that  
10 gap.

11 And certainly, the recommendations for better  
12 measurement, the recommendations in terms of  
13 understanding how to revolutionize and reform our  
14 workforce to take advantage of these opportunities, I  
15 think, do a lot to narrow that gap and to remedy those  
16 misunderstandings.

17 So I -- as I say, this is an intermediate  
18 point. Some of us are going to get off the train here  
19 in about 36 days. But the career --

20 UNIDENTIFIED FEMALE SPEAKER: About?

21 MR. STRICKLING: Huh?

22 UNIDENTIFIED FEMALE SPEAKER: About?

1 MR. STRICKLING: I --

2 (Laughter.)

3 MR. STRICKLING: I have it down to the hour,  
4 actually.

5 But the -- that's a very small number of us  
6 that will be departing. And the point is that I think  
7 that everyone should take away from their work on this  
8 board is that there will still be an important need for  
9 the work to continue. And you have a very dedicated  
10 career staff that's going to pick up this ball coming  
11 out of this meeting, take these recommendations, and  
12 work on them as best they can within the Department.

13 And then as the Secretary said in her remarks,  
14 it will be important to engage the new leadership of  
15 the Department when they're on board after January the  
16 20th as well as engaging the White House, too, and  
17 continue to emphasize the importance of this work and  
18 these activities in the next administration.

19 I think we can take some comfort from the  
20 discussions that were reported in the press today of  
21 meetings held yesterday on transition. And I think if  
22 that follows through, this ought to be a very, very

1 important set of issues for the next administration.

2 And I think the DEBA is well positioned to make  
3 immediate and important contributions into that effort.

4 But for our part, at least within the  
5 Department of Commerce, our team will be taking these  
6 recommendations and working in a very well established  
7 framework that we have through the digital economy  
8 leadership team and the fact that we already have a  
9 well-working system of inter-bureau cooperation and  
10 collaboration. And so we'll be well positioned to take  
11 up this work as soon as this meeting's over today.

12 So with that, I just want to thank everybody  
13 for their participation; in particular, again, thank  
14 our co-chairs for the leadership they've shown and  
15 thank everyone else for the dedication and effort and  
16 hope that everybody can stay just as fully engaged on  
17 these issues in the coming year.

18 Thank you.

19 MS. BAIRD: Thanks, Larry.

20 Mitchell, do you want to make any final  
21 comment?

22 MS. BAKER: Just a few. You know, some -- we

1 talk about how the digital economy is here. And in  
2 some ways, I think we take it for granted that we're  
3 going forward and that all is well.

4 The digital economy, of course, relies on the  
5 greatest platform of them all -- currently, the  
6 internet. And that was not a subject of, you know, the  
7 -- a working group.

8 But underneath a digital economy is a piece  
9 of, in layperson's terms, I would say infrastructure.  
10 Like, I don't mean any particular political term.

11 But underlying the digital economy is the  
12 network, you know, that makes it possible. And so the  
13 nature of that network and the care we give it and how  
14 that develops is also fundamentally important.

15 You know, to date, you know, it has had a, I  
16 would say, a development path that is somewhat  
17 decentralized, not as decentralized as the, you know,  
18 kind of activist group would have one believe, but, you  
19 know, aimed at providing a playing field for new  
20 businesses, new opportunities, new civil societies to  
21 be able to access and participate.

22 And so those sorts of things are important to

1 continue. What kinds of competitive opportunities are  
2 there provided by the underlying technology? It does  
3 sound abstract, but the nature of the technology or the  
4 network that underlies things affects what sits on top  
5 of it.

6 And so the nature of the internet itself and  
7 the development of the internet will affect the nature  
8 of the digital economy. And so what we call the  
9 openness of the internet or the interfaces to it or the  
10 opportunity it provides will affect the degree to which  
11 our digital economy is open to small and medium  
12 business, to individuals, or the degree to which it's  
13 not.

14 And so as we go forward, we have the  
15 particular working groups, the particular  
16 recommendations. They came out of interest in the  
17 internet itself. And I -- it's extremely important to  
18 pay attention and devote some energy to the under --  
19 the characteristics and traits of the internet as we go  
20 forward because much of what the internet, you know, 20  
21 years from now will look like will be determined, you  
22 know, in the next five years.

1           And I'm just -- those numbers have no  
2 particular significance. The point is that, you know,  
3 the internet, as it was originally conceived, has  
4 carried us a long way. But there's so much further to  
5 go, and there's so many more things -- devices, people,  
6 services -- being offered that the underlying network  
7 itself, you know, needs attention.

8           And that is also an area where, you know,  
9 private enterprise can drive and bring investment and  
10 rapid innovation and also an area where the decisions  
11 and the nature of how that building is accomplished,  
12 will affect the possibilities for the digital economy  
13 on top of it.

14           Thank you.

15           MS. BAIRD: Thanks, Mitchell.

16           I just want to make one comment as we close  
17 our meeting today. I've worked with many groups, and  
18 I've been on many government advisory boards over the  
19 last how many years. I don't even want to count.

20           I have never seen a group as individuals so --  
21 each person on this board is so committed to both these  
22 issues and the public impact of them. And each of you

1 -- it's been such a privilege to work with each of you  
2 because you have worked so hard. You haven't delegated  
3 to your staff. You haven't shown up for the occasional  
4 meeting.

5           It's a remarkable board, and I think it speaks  
6 to the importance of the issues and the profound  
7 understanding each member of this board has that  
8 grappling with these issues is critical and central to  
9 our nation's success and to the success of everyone who  
10 lives in this country.

11           But I really want to both thank you, but also  
12 recognize the remarkable personal commitment you have  
13 given to what is just a federal advisory board.

14           (Laughter.)

15           MS. BAIRD: And it -- I look forward to  
16 continuing to work with each person on this board, but  
17 I want to make sure that it is publically known and  
18 understood just how unusual the individuals on this  
19 board are and how publically committed and selfless you  
20 have been in providing your evenings and weekends  
21 outside of your day jobs to do the work of this board.  
22 And I look forward to working with each of you as we go

1 forward.

2 So thank you. And we will adjourn and end the  
3 program at this point.

4 Thank you.

5 MS. REMALEY: Thank you, Zoe. I will just  
6 mention to the board members that we will be convening  
7 an administrative closed session after this. And so  
8 we'll meet in the hall because we'll need to move over  
9 to the Commerce building for that session.

10 So if you can just -- in about 10 minutes,  
11 I'll convene in the hallway, and we can all head over  
12 there together.

13 Thank you.

14 (Whereupon, the Digital Economy Board of  
15 Advisors Meeting ended.)

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## CERTIFICATE OF NOTARY PUBLIC

I, Michael Farkas, the officer before whom the foregoing proceeding was taken, do hereby certify that the proceedings were recorded by me and thereafter reduced to typewriting under my direction; that 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.



Michael Farkas

Notary Public in and for the

District of Columbia

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## CERTIFICATE OF TRANSCRIBER

I, Karynn Willman, do hereby certify that this transcript was prepared from audio to the best of my ability.

I am neither counsel for, related to, nor employed by any of the parties to this action, nor financially or otherwise interested in the outcome of this action.

12/19/2016

Karynn Willman

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