

president. If you had one utilization to put into our brains, what would that be?

214 15:27:16 >> I can submit my testimony to you in its fullness. It was probably about 15 minutes long which is why I did not read all of it. But I would say three things. Number one, don't just say that workers should have a voice in this. There has to be, like the EU did, like California just did to some extent, there has to be some way of ensuring that voice is real and meaningful, and that's why I think about it in terms of collective bargaining. But there has to be a real and meaningful voice.

215 15:27:56 Number 2, there really has to be a look at costs and benefits, particularly when it comes to youngsters and privacy and things like that.

216 15:28:08 And last is transparency really matters as does accountability.

217 15:28:15 >> Thank you, and especially thank you for joining us from Ukraine. Safe travels.

218 15:28:22 >> Thank you.

219 15:28:24 >> We will now turn to Daniel Chasen, who is vice president of Workplace Policy for the Workplace Policy Association. Daniel.

220 15:28:37 >> Thank you and good morning. I appreciate the opportunity to speak before the committee today from overcast Washington, D.C. By way of introduction, the HR policy association represents police officers globally. Across country we employ 10 million people in the U.S. or more than 9% of the private sector work force. They consider the development and use of AI in the development, our economy is in an extremely tight labor market where jobs exceed people looking for work and it remains at record highs. This means it's critical that new technology is linked with the company's talent strategy. So in addition to increasing efficiency and productivity to AI, they are looking for ways to elevate employee voice, enhance management responsiveness, encourage employee engagement, drive a popular culture, particularly in higher working environments, investing in employee career growth, enhance the employee and candidate experience while ensuring that the human element of HR is not lost, and closing the skills gap by closing the opportunity gap, exposing the talent pool and getting the right talent into the right roles.

221 15:30:05 I don't intend to defend or critique any particular technology or technology use case. It's my understanding the company is looking for information involving the use of the work force. I'll talk about how they are mitigating the use of AI in the work environment. And finally, I'll talk about an approach that would maximize the approach in an environment while helping employers minimize risk.

222 15:30:37 New technology due to the pandemic, as we're all aware, has intensified the need for new skills in the work force. Between 2017 and 2020 alone, one of the skills in finance had become obsolete. So address these challenges, they are leveraging learning opportunities and facilitating skills which can improve pipelines. Machine learning can learn sequences for employees and help enable these steps. AI training can be integrated seamlessly into an employee's work flow, providing integration and access of expertise to ensure workers are going to succeed amid changes in the way the work is done.

223 15:31:32 AI can also help facilitate workplace culture, auto mating flexible scheduling and assisting in disabilities in the workplace. They can also work with efficiencies in the

workplace and enabling those with certain backgrounds. While the skills gap is a continuing challenge for employers and job seekers, there are a significant number of employees who are often overlooked by recruiters. A recent panel by the OECD discussed current applications of technology to expand the talent pool, including programmatic job advertising, including the inclusivity of jobs, and schedule addressing the common black hole applicant experience and speeding up the connection of talent with jobs.

224 15:32:39 Despite these developing opportunities, bias denying workers of autonomy, dignity and saying set it and forget sets up an economy that deteriorates rather than taking things seriously. It necessitates an ongoing fairness on privacy and safety. Reputation damage alone would undermine a company's efforts to assemble a competitive work force. It may cause employees a 10% charge or higher. With a loss of trust, companies would face significant challenges, deploying even relatively benign uses of AI. As was noted by the White House's recent publication for the Bill of Rights, several of which the HR policy has led or participated in. These include the economic forums for human resources tool kit, the work of the data and trust Alliance and policy associations who own AI principles which companies are free to adopt which focuses on bias and accountability. Many employees have adopted classes of their own. I'll tell you about the testament we submitted to the committee which includes a sample base.

225 15:34:20 Finally I would like to include some policy issues for the committee to take into account. It should be noted that AI is not an monolithic concept and one size fits all may put workers at risk. Different uses of artificial intelligence both in scope and what is at risk, that is, safety, autonomy or fairness. A one size fits all oversight may expose workers to risk, even while providing protections in cases for which the oversight was named. Companies build these considerations into their technology oversight processes to imply as innovation accelerates. Any issues of trust without these characteristics will prove both insufficient and unviable. Second, the government must look at policies and bias practices. And third, guidelines on the use of artificial intelligence in the employment complex must not require third parties. They don't yet existly from the standards of technology, the organization of standards and technology.

226 15:35:54 With that I'll end my remarks. As Karen and Randi were speaking, I believe there is a lot here that we agree on, and in that sphere, we believe that all stakeholders, including those represented here today, must work together to ensure the risk inherent with artificial intelligence are minimized while opportunities are maximized. I appreciate the chance to offer our view and enhance anything we can provide to the important work of the committee.

227 15:36:31 >> Thank you very much.

228 15:36:36 >> Hi, Christina Montgomery here from IBM. We had a lot of conversation for the need of focus on interdisciplinary skills, the sociotechnological lens. I know you spoke about technology in the workplace, but can you share some examples, if you have any specifically, that are focused on this -- bringing this -- which may even be whole new professions, right, in terms of this interdisciplinary approach to AIs, that it's fully understood.

229 15:37:15 >> Right. This is an extraordinarily important area given the economic situation that we're in, given the challenges we have going forward with new technologies. IBM itself is a leader in focusing on not just proxies for what would be considered qualifications but the qualifications and skills themselves. Other companies are also stepping into the space. Extensor has a few programs, so I would refer to those and there are others in a statement as well.

230 15:38:14 >> As you were speaking earlier about the opportunities we think are inherent in opening up pathways or the realization of promotion opportunities or non-standard pathing for workers and taking advantage of new skills and developing new opportunities, what are examples you're seeing of empowering workers to be able to chart that pathway, right? Right now in many cases the worker doesn't really have their hands on the steering wheel with that. Where are you seeing cases where we're putting the steering wheel in the hands of the worker to drive the path they want to drive?

231 15:38:51 >> Look, machine learning can take employee data and provide them with recommendations and suggestions that they are free to choose. And when coupled with a program that connects employees with managers, that's a very powerful combination. IBM reported 80% increase in meaningful conversations with managers on career growth after implementing such technologies. And the other angle is in the scheduling. Not many workers can step aside for a few weeks and months and learn a new skill. Or even longer in some cases. These technologies enable a seamless integration with the work flow, and so they're learning literally on the job as -- as technology is changing the workplace.

232 15:39:59 >> One final question. I'm sure you take a lot of incoming from your members and the pressures they're facing. This is a rapidly moving space and the issues we're talking about, worker satisfaction, safety, productivity and dignity on the job kind of get to the gut of life. In terms of how we think about both from a policy point of view and a society point of view how to make this work as it should, can you just talk about when the members and leaders you deal with will to ingest principles and other social dynamics and Norms into their day-to-day leadership and work environment? Are there some things we should just keep in mind on the practicalities of that?

233 15:40:46 >> Look, artificial intelligence should not replace human judgment, I think is the bottom line. It should, on the other hand, augment what humans decide to achieve in the workplace. The development of principles is a live fire process. It's important that as companies design, implement and use these technologies they keep these principles in the forefront and above the use of technology and don't let it get away from them.

234 15:41:36 >> Wonderful, we'd like to thank you very much. Thank you, Dr. Levy, Dr. Weingarten and Dr. Chasen. Thank you very much.

235 15:42:01 >> Thank you. Now we will be taking a break from 1:45 to 1:55, and we will be preparing for Panel 4.

236 15:44:05 [Break

237 15:55:52 Welcome back, everybody. We're going to start with Panel 4, ensuring U.S. government coordination on AI to lead and compete globally, led by Neal. I want to thank the team here at Stanford in hosting us and creating this opportunity so we can hear from

various voices on all aspects of artificial intelligence. Let me just quickly talk about the purpose of Working Group 4. Our group is focused on the task of readiness, how to focus on the organization of getting ourselves more organized with the U.S. government, how to coordinate activities among civilian agencies, but more specifically is facing a competitor who has gone all in and scaled the research of artificial intelligence so they can be the global leader for AI. They are transparent about their goals. So what I wanted to provide today was a panel to describe the global conquests. I'm happy to announce William Hurd, managing director of Allen & Company. He is a former United States representative in the 23rd district, and he was one of the leaders in providing bipartisan legislations in AI. He is joining us today virtually.

238 15:58:11 Second is Brian Drake, now the federal chief technology officer at Accrete AI.

239 15:58:23 And Tara Murphy Dougherty is CEO of Govini.

240 15:58:33 And lastly, Andrei Iancu, former under secretary of commerce for intellectual property of the U.S. and former director of the U.S. patent and trademark office.

241 15:58:56 You saw firsthand the challenges and opportunities associated with AI. Can you please talk about some challenges and opportunities you saw then and what you see today?

242 15:59:07 >> Sure. The first challenge is something you all have already surpassed. I held the first hearing on AI in Congress a number of years ago. Now the fact that we have this organization that almost every agency in the federal government is thinking through this issue is a good sign. But one of the concerns and one of the challenges you had within the federal government is making sure that legislators understood the impact this is going to have. You all talked about this, but you have to get it to a granular level where most of the people sitting on this panel and the people you're having these conversations with have a really good understanding of the tool, how it can be used and the impact it can have. You need legislators who are making decisions on budgets or making decisions on funding some of these initiatives, it has to get to a point like with driving. We know the value of a car, but I don't have to understand the combustion engine. So that's where we have to get smart folks that are participating in this panel have to educate our elected officials on. When I look at additional concerns that I have and it's only getting more granular is the issue of alignment. Now that I've been in the private sector and getting the chance to meet with all these up and coming AI companies and participating with others, we know the more capable that our algorithms get, the less inclined they are to focus and fulfill the intentions of humans. How we manage that and how we ensure that all users and practitioners understand this alignment problem and are taking steps to address it, that's a concern. What was it, a couple weeks ago Nvidia announced having GPUs that are going to be able to have a trillion different elements, will be able to manage a system that has a trillion different elements. That increases our surface area of attack. So the ability for adversarial AI to take advantage of our training models, to be able to put a sticker on a stop sign, to make a driverless car blow through it, the ability to add strange noises to voice-activated commands to get people to do or get systems to do certain things, it was a concern early on but with the power of these systems, it's becoming a real legitimate

concern, and how do you measure that against an adversary like the one we've been talking about today? This has always been an issue, the ability in how do we balance the risk of these systems to various stakeholders? When you have potentially a trillion different inputs, that's a trillion different mistakes that can be made. And our individuals that are being impacted by these systems being involved in understanding and tweaking and training many of these systems. And that has always existed, and making sure that we're focused on these regardless of where you are in the AI stack is something that's going to be important, and how do we ensure that the public sector and the private sector are working together for these things.

243 16:02:37 >> Thank you, sir. Brian, you have covered in the AI submission. Can you tell us how this is helping?

244 16:02:57 >> Thank you. I'm happy to address this topic. I will address that question with two points. The first is that our adversaries know the collective planet is AI. Vladimir Putin said it is whoever can achieve it and they will control the destiny of the planet. We also saw in China that they've put out two plans for artificial intelligence, in 2030 and 2045. In the next 15 years it's critical for them to assert that dominance. They know intellectual property isn't quite where it needs to be, and they see the United States and our allies as a means to an end.

245 16:03:49 That's my second point, is that it's not a small effort on behalf of our adversaries to get at our intellectual property, it is a full spectrum attack. They are looking at every single element of their national instruments of power and control and how they can exert that on our most sensitive technologies, our most vulnerable technologies, and our people who are exploring those technologies. So the prior panels that I listened to, I think these are all making elegant points, and they're excellent. Efficacy is important, data efficiency is important. It's all meaningless if we allow China to take a dominant position, because they will undermine our very fundamental Democratic principles. We have a couple pieces of evidence pointing to that.

246 16:04:46 First is we see their intelligence agencies acting in ways that causes

247 16:05:34 >> And manufacturing techniques all before they were filed with the international patent office of the U.S. trade and patent office. By doing that, it was estimated that pre-patented information is hard to evaluate, but it's somewhere between 225 and \$600 billion in property theft just from 2019 in one study. So consider that's what we know about. What do we not know about? Now consider in 2019 that China surpassed the United States in patent filings internationally and grew that lead by 27% in 2020 at the height of Covid. How is that possible? Your entire work force is home. Nobody is in the laboratory. How is it possible that they gained that kind of advantage in there was any money in any way, shape or form involved in that particular entity, we did not contract with an entity. That means we're denying ourselves access to changing technologies because we cannot assume the risk that our adversaries know something about it that we don't. And if we were to take it and put it in their platforms, we know we will use the technology. We do not know that their adversary will.

248 16:07:25 More evidence to point, from 2015 to 2021, China made 2,000 government

Chinese funds pulling in nearly a trillion dollars. That's aimed at high tech, artificial intelligence and chip sets. A trillion dollars just in venture capital money. Some of that is staying domestically, some of it is going abroad, and in the United States puts it at 128 billion.

249 16:08:06 Third of international control we need to worry about is civil litigation. They 121 military operations. Those are programs that already have artificial intelligence put into them. If we know anything about the Russian way of war fighting, these techniques include schools, housing complexes. You need to look no further than Ukraine to see that doctrine of war fighting employed. Now see that they are going to operate that. They probably seek competitive advantage in making sure they can automate those systems and kill more people faster. That should make all of us take pause. That means we don't want to be party to allowing the Russians to take the intellectual property that can further that goal.

250 16:09:06 The center for emerging technologies, we had a speaker today also looking at artificial intelligence and military integration. We see advanced underwater ventures which accounts for 8% of their procurements and electronic warfare. As we start to think about the future, we need to think about three major movements I would encourage the committee to consider. We need to have programs which impose costs on adversaries, that means they have to be enabled in cyber domains and legal domains. We need to be exposing, blaming and shaming their attempts to undermine our AI programs. We need to make a big deal of it and display it to them, and then we need to integrate artificial intelligence to commercial ventures.

251 16:10:11 We need to extract capital money coming from adversaries. There is a program called the digital marketplace, great program. We should be monitoring that program and mirroring it in other places. We need to be augmenting some laws arguing that if they have sent us their best talent to learn about data science, computer science, that they don't go home. We create incentives that they stay here. By doing that, we're undercutting their major advantage. China needs us. We do not need China. And if that is the case, then we should not be taking their best and brightest and sending them back to China, especially after we've educated them. It also means we need to lean into partnerships with allies, and I'm not just talking about the Five Eyes or NATO. We need south Africa and Asia. We need to be thinking about East Europe. They don't have friends, we have friends.

252 16:11:16 Third piece and then I'll turn it back over. We need to think about data ahead of artificial intelligence. Artificial intelligence is important but it doesn't matter unless we have the data. And data is a strategic advantage in this cyber environment. That means that we need to question how data was collected, why it was collected, where it was collected and whether it was ethically collected. That's where I think this begins and ends.

253 16:11:42 >> Thank you, Brian. Andrew, thank you for calling in. You saw firsthand the importance of intellectual property. You just heard what Brian was talking about, the Chinese attempts to steal our intellectual property. Can you explain why AI -- why IP remains so important and for us as a country to remain a leader in innovation, especially in AI?

254 16:12:10 >> Thank you very much. Thank you for the invitation to be with you. Thank you for conducting these hearings on such important topics. Apologies I couldn't be with you in person, but very happy to at least be able to participate remotely.

255 16:12:26 Excellent comments from Brian, and obviously we need to protect against the theft of our intellectual property, no question about that, and he addressed that very well. And there is a variety of measures that the administration can and should do through trade agreements and otherwise to protect our intellectual property from theft.

256 16:12:53 But I don't want to belabor that point because I think the points have already been made by Brian. I want to focus on the second critically important component here, which is in addition to protecting against theft from other players, we need to double down and increase our own innovation output. And in order for us to compete and actually increase innovation in the United States, we need robust intellectual property laws. Why is that? This is because the United States depends on investment from our private sector. In a free market economy like ours, the private sector cannot be commanded how to direct its resources. This is unlike centralized economies, they can issue five-year plans and ten-year plans and things like that. Here we depend on the free will of our private sector. And the private sector, therefore, needs incentives and protections in order to make appropriate investments in these very risky new technologies.

257 16:14:23 So the private sector needs incentives to invest and innovate, that's number one. So by definition, innovation in general, and in particular disruptive innovation such as the artificial intelligence, is risky. You don't know if it's going to work. In fact, the reason it's an innovation is because nobody has done it before, so most of the time innovative technologies fail. So you need to be obviously incentivized to take the risk and make the appropriate investment of both financial resources but also time and talent. And the patent system and other intellectual patent laws provide that investment. As Abraham Lincoln said, the patent system adds the fuel of greed to the fire of genius.

258 16:15:33 So in addition to this incentive system, we need, once the innovations are created, robust protections provided by the rule of law once those investments and innovations are made. People need to know if they succeed, if they've overcome all the various risks that their creations will be protected and they will not be appropriated once they're on the market. And once again, intellectual property laws, if they are robust enough and if they are meaningfully enforceable, then they provide that level of comfort that your technology and investment, domestically at least, will be protected under the rule of law.

259 16:16:36 So our IP laws need to be designed with those twin goals in mind, incentivizing innovation in the first place, and then protecting the resulting successful innovation that comes out. Unfortunately, as it stands, our IP system, in particular our patent system in the United States at this moment in time, and particularly for these emerging technologies like artificial intelligence that are based a lot on computational sciences and data management are lacking. And in some meaningful respects, they are in limbo.

260 16:17:22 For example, it is not even clear whether a lot of these AI-based, machine-learning based technologies are even eligible for a patent in the first place. Indeed the law

has been so murky in the past decade as a result of certain Supreme Court decisions that all the judges sitting on the Court of Appeals for the Second Circuit have called for a revision of that law, and stakeholders across the spectrum have done the same.

261 16:18:08 So at a minimum, we need to clarify this fundamental principle, our patents, our innovations in this area of technology, AI, machine-learning-based technologies eligible for patent in the first place. Second, there is no meaningful protection for data. And I know Brian mentioned that up as well, and this is obviously critically important to machine-learning technologies, and right now the patent system doesn't cover data protection. The other IP laws don't really cover them -- doesn't cover it, either. So what we're left with, what companies are left with is secrecy, which means they're guarding their data sets carefully and there are specific limitations that are being brought on as a result of this.

262 16:19:23 So these and some other areas need to be addressed in order to clarify the patent system and make it more robust in order to incentivize and protect innovation in this area.

263 16:19:42 The second point that I want to make is with respect to increasing innovation, we need more inventors in the United States. By definition, we are a smaller country than our main competitor in this area, than China, and we're not going to compete, obviously, on the size of our population. At a minimum, though, we need to have more of our people involved in our innovation system. We did studies in the U.S. patent office, and with respect to the participation of women, for example, in the patent system, and what we saw with respect to patents filed in 2016, only 12% of inventors named on those patents in the United States were women. We repeated a study in 2019, and by 2019 the number was up closer to 13%. Certainly a move in the right direction, but, nevertheless, way far from where we need to be. The participation of racial minorities is even lower than that. And, likewise, innovation in the United States is highly concentrated geographically and also economically.

264 16:21:21 So as a result of all of those things, innovation in the U.S. is highly concentrated, and if we are to compete internationally on AI and all the other technologies of the future, with an inherently smaller number of people than what China has, we have to find ways to engage a higher percentage of our population in this incredibly important system.

265 16:21:57 So let me stop there, and just to correct, though, my quote from Abraham Lincoln, he said, The patent system adds a fuel of interest to genius. I very much agree with that.

266 16:22:18 >> We heard so far about the goals and aims of our main rival. We also heard the importance of IP and how we can incentivize and promote IP for our investment and also protect against possible theft. We have been tracking for years now technologies, so I want to know how is our federal government doing in terms of these investments? Because given the size, the budget is really hard to track each individual department and agency, not to mention how we're doing. I go to Tara for a quick overview.

267 16:23:08 >> I think today I am going to express my optimism. Thank you for letting me speak today. I'm very honored to be a part of this conversation and I agree with my fellow

panelists it's incredibly important.

268 16:23:24 It's also clear based on the conversation that has taken place today that the opportunities and the risks of artificial intelligence for U.S. leadership and global competitiveness loom larger than ever, it seems. Over the past several months, we've watched this play out on the battlefield. The war in Ukraine has demonstrated that AI-driven technologies such as autonomous or semi-autonomous drones are already making their presence felt. In fact, we've seen not just their presence but their evolution in war-fighting concepts just in the past six months.

269 16:24:01 Going forward, AI-enabled autonomous systems will collaborate with humans in the United States in responsible and ethical ways. In order to help those humans make faster and better, more relevant, decisions. AI will also operate alongside manned platforms to perform new types of human machine combat teaming.

270 16:24:26 Additionally, artificial intelligence will increasingly play a role until how enterprises across the federal government conduct their business. As leaders come to rely more and more on data driven AI. Sophisticated AI will do much to combat competition and military competition around the globe, which I think is the thesis of this panel.

271 16:25:05 So to help inform the public discourse on this topic, and to share with you, committee members, and those of you who are present, what the data indicates is happening with respect to U.S. government coordination in AI -related efforts were investments in artificial intelligence and related fields given it created a Taxonomy. I'll talk through some of those trends and observations, what the data shows is happening today. I also brought a copy and left some in the back for distribution so you can see some of the taxonomy and its results. It's a little bit much to just take in by listening if you're like me, so if you'd like to have a copy, it's on the bench in the back.

272 16:26:02 This artificial intelligence taxonomy uses techniques to parse it and then analyze it, and in this particular taxonomy, we are looking at federal contracts, both far contracts as well as non-far contracts such as OTAs as well as grants that are dedicated to AI investment over a five-year time period of fiscal year 2017 to fiscal year 2021. Specifically the taxonomy groups artificial intelligence into six major categories, and then each of those categories is further subdivided into subtitles. One of them is To Scale, division science, which we put division science and AI models together to fuel decision aids, computer division, machine learning, autonomy and natural language processing. I'll focus on three overall trends that accurately capture the current state of play and frankly highlight the path the U.S. federal government is currently on in this area.

273 16:27:35 First, overall, yearly federal spending across all agencies on AI and autonomy has trended sharply upward. The rate of growth, the compound annual growth rate from fiscal year 2017 to fiscal year 2021 on the totality of areas I just described as covered in this taxonomy grew by nearly 50%. That is tremendous. Often we take this data that we are looking at, particularly with respect to government investments, and what we find is we find disconnects, disconnects between national strategies and what's actually happening. Disconnects between bullish projections and budget plans and then the dollars that actually go out the door. In this case the headline is, and I argue it's very good news, is the

strategy, the intent, the plans are actually backed up by where the data says the investments are actually going.

274 16:28:38 Overall positive indication that the United States is serious about AI. It's serious about the role that artificial intelligence plays in leadership and competitiveness. And today we saw that the Biden administration released his national security strategy publicly based on its reaffirmation of the role of artificial intelligence in America's global competitiveness and the reaffirmation of ongoing investments in this field in order to harness and scale -- those are their words, and I think important, particularly the latter -- critical technologies of the 21st century for American leadership, and privacy is a further indication that we are unlikely to waiver from this investment path that we're on.

275 16:29:29 Second observation is that within the@i POEFRMD, spanning ally SF six of those SURJS -- they saw positive growth over that five-year time period. In some cases U.S. spending trends can be obfuscated or misleading because of the launch of one or two major programs. You could have a defense program of a billion dollars and it makes -- if you don't look the details, itdata, it's actually brought through the military and then the global distribution of those vaccines, it tells one story. When you take those Covid dollars out, the outlook tells a very different story. And so I use that as a good example of what could be happening what we sometimes see happen in these assessments, and in this case of these AI investments and the overall AI portfolio, there is no one single mover, and that's incredibly important.

276 16:31:27 Data at scale in combination with dramatic growth in a couple other example areas I'll GI you. One predictive, adaptive artificial intelligence, and the second indicator is driving progress in a range of areas, important to U.S. federal priorities and American strategy.

277 16:31:58 Finally, while the department of defense was the largest driver of U.S. government spending on AI and autonomy, as I think you all would expect, I particularly was surprised and expressed at how much the rest of the U.S. government is investing in this technology area as well.

278 16:32:18 Other federal agencies had increasing spending levels over the time period. This covers another point that is often covered by federal leaders that we often see in strategy documents but has a whole the government approach for American competitiveness. I would argue this is an absolutely necessary part of the approach if we are to prevail to maintain privacy.

279 16:32:54 Over that five-year time period, we saw more than \$40 million of AI efforts be contracted through other transaction authorities or OTAs. You might think that sounds like a lot, but it.

280 16:33:12 . Compare that to \$75 billion of AI spending that went through grants and \$4 billion of contracts over the time period. It really shows there is this diversity of participation, not just D.O.D. in that space. These analytical findings would indicate that the United States is reinforcing its strategy when it's hosting AI. I would point out there is one gap. There is a negligible amount of federal investments when you look at most of these federal investments in AI. This issue is well known and it's being addressed through a

variety of efforts. The department of defense is looking this up significantly. There are national efforts such as the PPBE commission that are addressing, how do we bridge this valley of death and into the federal procurement ecosystem.

281 16:34:39 I think it's probably another panel to have a discussion of what performed. That discussion of AI leaders isn't happening today, and I would argue that's an important gap to solve for, not just because of the representation but I believe it will be the ultimate performance of the U.S.

282 16:35:10 >> Thank you, Tara. I want to open it up to the committee members. Keith? The ecosystem, the infrastructure they need to catch their share of economic benefits. Maintaining leadership and competitiveness in the field of AI requires coordination if not integration with our allies around the world, including verses on principles. I would like to strike that balance on competing, and particularly if you have any thoughts on pre-competing spaces where it might actually work together to collaborate. Anyone can answer.

283 16:36:44 >> I'm a year out of government so I still have some hangups about things I wasn't able to forget, and that was participating with our allies more. One of the things I was really hopeful for for the CEO is they have this thing called partnership for defense initiative, which is great because it brings together a lot of folks to tackle those questions. How can we compete and cooperate at the same time? Cooperation is a good thing. Cooperation is better, especially when we're talking in the military context. The thing that disappointed me most about that particular group is we had participation all across the planet except for Africa. And for me, that's a tremendous strategic mistake. Because when we look at our adversaries, particularly China, their strategy is directed toward that continent. They are seeking to digitize the content, whether it's exploring natural resources there, or P bringing national parts. The African people are losing their land to a foreign invader. So in our efforts to find allies and a fight for freedom and democracy, that's who we should be talking to, but we're not talking to them. I think it comes from a misplaced belief that there is no technical innovation occurring on continent. I think there is a lot of innovation occurring on the continent, and we should be doing things like that, thinking of what our adversaries are doing and how we can cut that advantage. That's just one example.

284 16:38:43 Keith, in my last decade in the CIA, if we can share intelligence with many of our allies, we should be able to do things like share data on areas of mutual concern. The other thing we need to do is re-engage in some of these international institutions that are a standard sitting body. One thing that would be great for y'all in knowing what those government majors in. The other issue we have to get beyond is the privacy issue between America and Europe. There were a lot of elements that were GDPR a JALS he not. I was one of the people that was involved in fighting the Europeans on JDPR. So we had to bridge this gap on what privacy means. You all will be doing work in these working groups. Recommendations are important and if we allow workers 12 to 15 years ahead of if us, STORLS. Ly we're never going the. We need to cut down in areas where we can and it starts with privacy.

285 16:40:47 >> Can I jump in?

286 16:40:49 >> Yes, Andrei, go ahead.

287 16:40:51 >> Thank you. I very much agree with the points Representative Hurd just made, and I do think we need to cooperate. Ly our the P. I want to add the intellectual property point here. Without robust property protections, our private companies won't be willing to collaborate. You can't force them, really. So in order to have an ecosystem where companies feel comfortable sharing their data, sharing their technologies, they need to know that they can rely on the rule of law such that technology will be corrected, and if that's point number 1, we are falling behind in those bodies, in chairmanship of those bodies and there will be solutions that will be adopted by those bodies into their resulting standards.

288 16:42:27 Intellectual property laws are even more critical there. If we don't have a robust system of intellectual property system, we will be less incentivized to disclose the standard setting to the standard setting bodies. Most of the time they don't succeed, so it's lost, anyway. But if they TFRMENT. Ly they need to recouple their creations and submissions to the economic bodies are protected byly project laws. I'm sorry I just hard on them with layer upon layer of robustly protection.

289 16:43:35 >> I just want to point out the leading candidate of the head of IT is the first step in the right direction of these bodies. Dan, over to you.

290 16:43:49 Stanford, I want to thank the panelists for sharing their important perspectives. You noted the need to democratize the innovation. Brian, you know that data needs to be ahead of where AI is going. I heard you talk about the need for new forms of public/private partnerships, and Tara Dougherty, you talked about the critical role of foreign investment in the space.

291 16:44:21 So why don't you get your perspectives on one proposal mentioned a few times today, which is a proposal for an AI research resource. Get your perspectives on how you see that playing in to the other set of policy lovers that you've mentioned here. Increasingly intervention is centered around a few large players who have access to the scale of data and compute to be able to think about the cutting edge of AI innovation. Particularly with this scale a lot of innovation is out of reach for a lot of individuals. So I wanted to just open it up and ask you whether you had a perspective on the NAIR and how that fits into the other set of interventions that you mentioned. Thank you.

292 16:45:14 >> I'm happy to make the first comment to kick it off. I'm familiar with what you're speaking of, but I'm by no means steeped in the details of it. So I'll just share one point that strikes me based on the time I spend talking to not just the defense community but the population and that there is a gap that needs to be addressed. Layer on top of that classified spaces, you know, the ability to share information with program managers and working on classified programs, anything that creates that barrier once you get it into the national security space, and then it becomes even more challenging.

293 16:46:19 So certainly in those instances the government in the past has played an effective role to provide investment to put in place the infrastructure to allow that innovation to happen. But I don't think it can come just from the government at this point

in time. There has been a dramatic increase over the past few years in terms of venture capital, not just investment but interest in American competitiveness. The saying is people used to say if you want to scare off an investor put sale to government in your business plan. Now you can raise capital around that thesis solely focused on the federal marketplace. So leveraging outside private investment into some of this system in a way that plays an active role in spurring that innovation is absolutely necessary for these dual use types of technologies, and I think it's a good example of what the future model needs to look like between the public sector and the private sector in the United States.

294 16:47:32 >> Dan, I'll just add on to that, and again, I'm not steeped in the details on NAIR, but one of the things, do we get an accepted group of AI researchers that should be able to gain access to data and learnings and information from research that's already been done and funded by the federal government? I could even go a step further on activities the federal government is paying for, should that go to a community that's been blessed and has the right credentials and clearing credentials. I think that's another way of achieving this than through just pure research dollars making sure that information is available to everyone.

295 16:48:24 >> Thank you, sir. Reggie?

296 16:48:26 Good afternoon and thanks again to all the panelists. I want to set this up in a way that will work with your perspective. I think our working group wants to provide recommendations that is ultimately digestible and explainable to a broader American public, right? I consider myself a part of that broader public. I'm not a D.C. guy. I don't speak D.C. very well, so pardon me. I think both hope and fear are great catalysts for inspiration, right? So we got -- Brian hit us with we have to compete really hard against China. With Tara I enjoyed the strategy of we're putting money behind it and the trajectory looks relatively decent. Help the normal American public folks, not us in the room, right? Help interpret why we ought to care about the conversation that's taking place right here. And the reason I asked the question that way is I personally believe that part of our competitive advantage is, in fact, the collection of voices, the collection of experiences that we have that is 180 degrees different from those who might exist in a totalitarian environment. Help us care so that we can interpret that in the form of recommendation and hopefully share that with the American public.

297 16:50:14 >> I'll start with the negative side and Tara can put some sunshine on it. So for me it's pretty simple. I think it comes down to jobs. That speech I mentioned from Chris Wray, he cataloged an event with General Electric where the Chinese, same thing I've been describing but more specifically, went for a piece of their electrical property, went for someone with the Chinese government, had them give something they weren't ready to give over, but that was part of their strategic plan around aerospace projects. It was 50,000 jobs at risk just for General Electric. That doesn't even count all their sub-suppliers, the raw materials that make those engines, the fuel that will power it. It doesn't even count those jobs. So for me it's the future of our world, future of our government is digital. If we're allowing our adversaries to take highly sensitive technology, be that in manufacturing, artificial intelligence, that is undercutting our future as a society. And the future, if we allow

it to be yielded to our adversaries, will not be a future we want to live in, a place where mass surveillance exists everywhere, because everything made in America was sold in China and it gets sent back to the Chinese government. That's not a future I want for my children.

298 16:51:54 >> This is such a thoughtful question. I'm glad you asked it and it's a challenge to remember how we talk to the American people about these issues is an important thing.

299 16:52:06 I'm going to pick up where Brian left off. I thought his play on jobs was a good one, but mine would be about the American way of life. If I had to distill down what we've been talking about here to the way it might impact my sister in Atlanta or someone's brother in Washington state, I would say it like this. We enjoy certain things about the American way of life because we have written the rules since the end of the Second World War about how the world operates. Unless you want pictures of your children, yourself, your loved ones that you posted on social media because it's a great way to stay in touch with your friends, to train algorithms that are going to target Westerners in a future war, then you're for the American way of life. That idea of collecting information like that whether people are for it or against it, they have no say in a country like China. That's the Chinese way of -- those are their rules of the road. I don't think Americans want to play by those rules, and so that's what this really comes down to and that's what's at stake.

300 16:53:23 >> I'm just going to ask Andrew and Lily if you have any questions. We have three minutes left.

301 16:53:32 >> Before I answer your question, I'd like to make a proposal, Mr. Chairman. I propose that Reggie reviews every document that produces this to make sure it makes sense to the American public. Reggie, that's the right question. All those in favor say Aye.

302 16:53:56 >> Aye.

303 16:53:58 >> So the way I've tried to explain it, and this is always going to be changing, for our generation it's equivalent to typing. If you couldn't type, you're not going to get a job. For our kids, for our grandkids, and even current folks, your jobs are going to depend on understanding machine-learning tools, understanding data analytics, understanding being able to use AIs. It's not just the job of the future, it's going to be a transition of our current jobs. We have to have the tools to do this. AI is equivalent to nuclear fission. Nuclear fission controls because it's nuclear power that can light up the world. We always have to give examples of why this matters, and that's why it's hard for a group like this that understand it so well, you have to be able to make sure that Tara's sister understands it and my brother in San Antonio has as well.

304 16:55:00 >> Andrei, one last minute, one last comment from you.

305 16:55:04 >> Yeah. So I believe we're at an inflection point, a historical inflection point at this moment in time vis-a-vis these technologies. Let me broaden it just briefly beyond artificial intelligence and contemplate the standard in the world going forward. We have imagined soldiers that are driven by artificial intelligence, that are computing at quantum computing speeds and in fast speeds, 5G and 6G and well beyond that. When those three technologies merge, just one example, that will control the future for at least the next century. Quantum computing is 150 million times faster than the fastest supercomputer

today. Imagine autonomous soldiers computing at that speed based on huge amounts of data that is fed by the national security system of a foreign adversary. Do we want to be second when it comes to that race? This is a question of absolute national security, and as the other panelists have said, a question for the American way of life. We must win this technological race.

306 16:56:42 >> On that note, Andrei, I want to thank you. I want to thank Representative Hurd, Brian, Tara and my colleagues on the Working Group 4. Please join me in a round of applause for today's panelists.

307 16:57:06 [Applause].

308 16:57:09 >> Thank you, panel 4. We'll take a break now and we'll reconvene at 3:05 with Panel 5. Thank you. 6.

309 17:08:52 We'll now have panel Kapp 5 headed by -- okay, Streyer. Thank you. For the purposes of today's panel, I would like to introduce our panelists. Gerard de Graaf is senior EU Envoy for digital and head of the new EU office in San Francisco. Thank you for coming in today. And Cameron Kerry, who is the distinguished visiting fellow in governance studies and center for technology innovation at the Brookings Institution. I am a fellow committee member that is going to conduct the conversation. Mr. Kerry?

310 17:09:51 >> Gerard, welcome. Thank you for being here. I know you just got appointed to this new position, so I just want to ask you, what are some of the expectations you have?

311 17:10:06 >> It's a question I'm asking myself almost every day. This is a very important area of technology or innovation. This could go all over the world and it's important to know what's coming down the pike. We need to aware of the past, we need to be fully aware of what's happening. That's one thing.

312 17:11:06 Another thing we have a lot of technology innovation in view of regulations and AI, as we've discussed, and we are welcome to Digital Services activity or data. This provides an impact on the European market because of all the U.S. companies established in this area. They are very successful in the European Union. Why we have regulated in these areas and what is behind, so that's the second task.

313 17:12:11 More generally and this goes a little bit closer to the discussion we had in this panel. We have a keen interest to promote cooperation with the U.S. We are living in a world that is a dangerous place. It is one of our major resources on which our strategy is built. We see effort for possible Italian companies, China, Russia, Turkey to break up the Internet, build their own Internet and use it for purposes with a take on human rights that we do not agree with. It is important in this world, even more important than before, that the U.S. work as closely as possible and together we know there are countries like China, Australia, New Zealand, we work together and we show, because effectively there are three multiples of the Internet governance in the world. I don't talk about the technical side of Internet government. A third model is basically leaving it to the actors, often the private industry, to kind of set the rules of the road and make it to some extent of a viewers model. We want to work with the U.S., certainly toward a human-centric goal. We follow different tracks or opposing tracks. It is not going to help us in the kind of current politics we find ourselves in. We have channeled with other countries and if we can make a small

contribution on the West Coast, it would be very good. We have intense conversation with the U.S. administration and I have been co-chairing with big tech and data governments and there is an attraction between digital and climate. And the cooperation, the exchange of news, the discussions that we've had are very interesting and lively and it involves the White House, it involves the Commerce Department, the state house and the UR. We have a common problem analysis so we don't see the situation from a different perspective. We arrive at common conclusions. Again, there is a lot of interest in what the EU is doing in the DMA and the data, and I wouldn't say the U.S. agrees with everything we do, but at least there is an understanding of how we are addressing these issues.

314 17:16:34 I think here your committee can contribute to promoting this convergence of a new similar program. The next step begs the question, what did you do about it? There are policy questions you withdraw from the take people have together in the U.S. I think the U.S. came out in AI with a Bill of Rights last week on substance. That's excellent. There is nothing missing in this, other than it's not binding. It's a framework that's a call to action. As I said earlier, we in the European Union, we do not believe in areas as important as AI where we really have -- maybe I should state in Europe we're only regulating 5% or 10% of AI space. We're not regulating like 90% of AI. But where there is a risk, either a non-acceptable risk or a very high risk, we think regulation is something, because we go here into areas which are fundamental to the freedoms that we have and the rights we have and the fundamental values that are enshrined in our treaties. There you cannot rely on the goodwill of actors and people, because you always will have some that will comply and others that won't, and the result is creating a vacuum, we create uncertainty, people lose trust and one of the fundamental ingredients for being a successful digital economy in society, we heard in the previous session how we continue to lead the technology for evolution. One critical ingredient that is incredibly difficult to me is trust. If our citizens lose trust in AI because they believe it kind of discriminates against them and leads to outcomes which are harmful to their lives, they will shun AI and we will never be successful.

315 17:18:48 I think the other element here that was alluded to in the previous discussion, we don't want AI that does not meet our values, our standards in EU. Wherever it comes from, and obviously what is being developed in China by way of example, that is not the kind of AI our citizens should be exposed to. Therefore, we set the rules of the road in a binding way and this enables us to say this AI is not welcome in the European Union because it doesn't meet the standards of the European Union. Much like cars that don't meet the expectations of the European Union can not be sold in the European Union. We think the environmental committee needs to suggest what is politically right to do. We do the right thing in the public interest to say what do you think needs to be done in the general interest? Whether that's politically achieved in the U.S., it's not a question. We know in the EU the capacity to implement legislation in this area and possibly in other areas as well is greater with the help of the U.S.

316 17:20:12 >> International cooperation by definition is bilateral but your position is why you're here is a new chapter in an international position is technical. For those not familiar with that term -- don't look it up -- it really refers to the importance of engaging with

piece here of the nut we're trying to crack. How can we make sure that AI is effective, is inclusive and imagine all the various use cases and downstream users. While our esteemed committee member will do a great job to bring that home, this will really take all hands on deck to make sure we're doing this properly.

350 18:09:07 In closing, I really do want to give so many thanks. As I said, thank you to the NAIAC committee members for a masterful job of fostering really thoughtful conversations that we are now going to bring forward in action items. We will think over the next few months about specific concrete recommendations, how we can take these thoughts and ideas and bring them to the finish line. We will have that in our spring report. We will float those ideas and try different ideas in public conversations over the next few months. But also, this is a three-year process. So we'll have this spring report but we'll have two following as well where we will think more broadly and where we will further develop these ideas and come up with new ones.

351 18:10:00 A thank you to the speakers who came today and sharing their deep insights. Thank you, again, to Stanford for hosting us here. Thank you to the HII institute in inviting us to participate in this wonderful forum you set up to engage in ideas. That is so much in the DNA you created particularly with regard to responsible AI, and we're glad to be the beneficiaries of what you have set up here and to really be able to Foster a collaborative approach here in our conversations in how to move forward.

352 18:10:43 Thank you to the law school for allowing us to sit in here today. I love that we are broadening the ideas in the legal institutions thinking about where we are today. There's been so many discussions about laws on the books, what is helping, what is hindering and what needs to be on the books. I personally appreciate that grounding in our law and fundamental institutions.

353 18:11:05 I think that at this point we have a lot to digest, we have a lot to think through. We'll have another public session tomorrow where we will hear feedback from committee members on what they heard today, where they are thinking about going with recommendations and other action items. So we will look forward to hearing more from everybody tomorrow. And keep the questions and thoughts coming and thank you so much, all, for participating.

354 18:11:44 >> Thank you, Miriam. At this time it's 4:11. I adjourn the meeting. Thank you