SESSION E3
"Keeping Up with the Next Revolution: How Prabowo's Indonesia Can Thrive in the World of AI, Quantum Computing, Robotics, and Biotech"
Bebas Aktif room – Conference on Indonesian Foreign Policy 2024

Keynote Speaker:
Meutya Hafid, Minister of Communication and Digital Affairs of Indonesia

Speakers:
1. **Professor Stella Christie**, Vice Minister of Higher Education Science and Technology of Indonesia
2. **Damien Kieran**, Chief Legal and Privacy Officer at Tools For Humanity
3. **Lew Chuen Hong**, Chief Executive of Infocomm Media Development Authority
4. **Professor Chung Min Tsai**, Professor of Political Science at National Chengchi University and Jointly Appointed Professor of Taipei School of Economics and Political Science at National Tsing Hua University

Moderator: Amy Darajati Utomo, Regional Swipe Safe Officer at ChildFund Australia

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Amy Darajati Utomo
Good afternoon, everyone. Welcome to this session. I heard it's one of the most popular sessions in the conference. Thank you for coming here. So welcome to this session. It's keeping up with the next revolution, how Prabowo's Indonesia can thrive in the world of artificial intelligence, quantum computing, robotics, and biotech. This session is held in partnership with Universitas Jayabaya. My name is Amy, and I am honored to be your moderator today. Having recently graduated from Columbia University, now I work at ChildFund Australia working on initiatives on online safety. As one of the proud fellows of FPCI Women in Foreign Policy 2024, I'm very passionate about leveraging technology for equitable development, and that's why I'm very excited to be here.

Now we are gathering for this very critical topic, and we have exceptional experts here from various sectors, which is a brilliant setting on the organizers' part. And they will share their insights and help us explore how Indonesia can not only adapt, but also lead in this transformative era. To set the stage, I would now like to welcome the minister of communication and digital affairs, Bu Meutya Hafid, to deliver her keynote speech. Time is yours.

Meutya Hafid
Honorable vice minister of higher education science and technology of Indonesia, Professor Stella Christie, founder and chairman of the foreign policy Community of Indonesia, who's also a good friend of mine, Mr Dino Patti Djalal. Not only a good friend, he is, one of the reason why I

can stand right here before you because when I was as a journalist abducted in Iraq in 2005, Pak Dino was the one who knocked on mister president SBY at the time to knock on his door to make an appeal for my release. Thank you again, Padino. We'll never forget that. Chief executive of Infocomm Media Development Authority from Singapore, mister Lew Chuen Hong.

Chief legal and privacy officer at Tools For Humanity, Mr. Damien Kiran. Professor at the department of political science at National Chengchi University, mister Chung Min Tsai. Our moderator, Mrs Amy. Ibu Dewi fortuna I have to mention your name. It was on my senior.

Have a lot of other seniors, professors. Ladies and gentlemen, very good afternoon. I'm delighted to be here at this forum with our fellow policymakers, researchers, industry leaders, students, and also colleagues from the public and private sector. It's an honor to address you today as the keynote speaker on a topic of immense importance, which is how Indonesia can thrive in the world of artificial intelligence, quantum computing, robotics, and biotech. These transformative technologies are rapidly shaping not only the presence of Indonesia, but also hold the key to Indonesia's future.

As we know, the global technological landscape is undergoing rapid transformation, presenting Indonesia with a unique opportunity to become a major player in the digital economy. A 2023 PwC study projects exponential growth in global data consumption driven by data intensive technologies like VR and online gaming. Over the past few years, positive developments have been seen in Southeast Asian countries that are progressive and advancing in the utilizations of digital technology. Based on the AI Readiness Index in Southeast Asia, Indonesia in 2023 placed fourth place after Singapore, Malaysia, and Thailand. This trend, coupled with a projected three 66 billion dollars contribution of AI to Indonesia's GDP by 2030.

This places the nation on the edge of digital revolution, indicated by surging data consumption and widespread AI adoption. To fully capitalize on this digital revolution, Indonesia needs to embrace a broader spectrum of technological advancements. Those are crucial for accelerating productivity growth and also enhancing national competitiveness. Ladies and gentlemen, distinguished guests, to remain competitive in this game changing landscape, Indonesia must be proactive and also ready to adopt these future emerging technologies. On the journey towards Indonesia Emas 2045, the year 2024 will mark a point of no return for Indonesia to achieve high income status by the year 2038.

During these years, the national GDP per capita is three times larger than the GDP per capita in 2023. But this is based on one very important assumption, which is that the disparities must be overcome through leveraging digital technologies to drive productivity. Thus, the next five years are critical in determining the direction and pace of Indonesia's progress. For your information, KOMDIGI has released the Digital Indonesia Vision two thousand forty five, which provides a roadmap for leveraging technology to achieve Indonesia's policy directions and common goals, including the president's vision of eight percent economic growth. And with the right

collaboration, we believe Indonesia can become a digital economy by 2045, a leading digital economy by 2045.

Now moving on to the next slide, I feel that there is a need for me to remind this respectable forum that emerging technologies like artificial intelligence, virtual reality, and even quantum computing come with a profound responsibility. On the global stage, organizations like UNESCO are laying the groundwork for ethical AI development, while the UN is calling for a global digital compact to ensure that technological advancement will benefit all humanity, bridging the digital divide and promoting responsible human centered governance. However, beneath these global aspirations, a fierce competition simmers. Singapore, with its AI verified framework, focuses on trust and transparency. China prioritizes social stability through strict regulations and restrictions.

Brazil emphasizes security and fundamental rights. The US champions human rights protection and innovation. And Europe with its landmark AI act leads the charge in human centric AI, prioritizing fundamental rights and nondiscrimination. And thus, Indonesia must carefully navigate and balance the opportunities and challenges of the emerging technologies while upholding its national values and protecting its citizens. The journey requires a focus on meaningful digitalization through strategic knowledge and also technology.

To support that, we focus on three p's, which is policy, people, and platform. First, policy. Policy aims to bridge policy gaps that provide legal certainty without limiting innovation potential. Secondly, people. People focus on human resources development, especially enhancing digital skills.

One example of this is that the Ministry of Communication and Digital Affairs is collaborating with industries, universities, and associations in the digital talent scholarship or DTS program. And thirdly, platform. Platform will focus on creating diverse technological adoptions that encourage collaboration among stakeholders to establish an inclusive AI ecosystem. Ladies and gentlemen, let me also quote the president's statement in Peru during the high level APEC meeting, in which president Prabowo stated that the tremendous breakthroughs in technology demand that leaders be more wise, be more patient, be more accommodating because the power of technology can bring significant progress to human life. But at the same time, the power of technology can also destroy human life very fast.

And therefore, he always choose the path of collaboration, engagement, communication, negotiation. He mentioned that, yes, we have to uphold and live by common laws, by international rules, but we must also have a common understanding of everybody's interests. Now to conclude, I would also like to say that it's clear that Indonesia is now standing at a very pivotal moment in history. The rapid advancement of technology presents both opportunities and

significant challenges. To navigate this evolving landscape successfully, Indonesia must, again, embrace a proactive and strategic approach for creating a meaningful transformation.

I see the FPCI forum today, and I appreciate this forum very much, Pak Dino, as the first step in continuous dialogue through various forums where we can address strategic issues and collaboratively develop a more comprehensive and inclusive digital transformation. The journey ahead will demand collaboration, foresight, and a commitment to ethical and responsible development. But the potential rewards are immense. And I believe together, we can ensure that Indonesia does not only adapt to the digital age, but also will thrive in it. Thank you very much.

Amy Darajati Utomo
Thank you very much, your excellency, for your very inspiring opening remarks. Now I would like to invite her excellency and also the speakers for a picture together and Pak Dino as well. Can we please be here? Photographer.

Thank you very much. Once again, thank you very much, your excellency for your very inspiring remarks that have set the stage for today's discussion. Now, let's officially begin our panel discussion. I would like to invite our very inspiring speakers and panelists. Firstly, Her Excellency, Professor Stella Christie, Vice Minister of Higher Education Science and Technology of Indonesia.

Welcome, Ibu. Next, Mr. Lew Chuen Hong, chief executive of Infocomm Media Development Authority. Next, Mr. Damien Kieran, chief legal and privacy officer at Tools for Humanity. And last but not least, Dr Chung Min Tsai, professor at the Department of Political Science at National University.

A very warm welcome for our panelists, it's an honor for me to also be moderating. And as we can see, we have a full house here signaling the optimism of the AI revolution in Indonesia. To start the discussion, each speaker will have five minutes for introductory remarks. And for your remark, I invite everyone to also share your initial insights on two things, you know, keeping up with the theme as well.

So the first one is, as you know, AI and the emerging technologies have the potential to revolutionize everything, but only if we navigate them wisely. Right? But Indonesia has yet to establish itself as a significant player. What do you see as the critical steps Indonesia should take to not only survive but also thrive in the global AI competition? And secondly, I am also very curious whether competition is the only path forward.

Her excellency earlier has mentioned about collaboration. Right? So the two things that I'd like to hear are about the Indonesian situation itself and the next steps and the global landscape. I hope it's clear. Then we can start with Professor Christie. You have five minutes.

Stella Christie, Ph.D.
Thank you, everyone. Such a pleasure to see all of you here today. Thank you for coming, and thank you for inviting me, Pak Dino. And, it's a great thing to be here. On these two topics, what is Indonesia's position right now?

And how do we compare Indonesia's positions or situate Indonesia's positions in the global world? Well, the first thing that we know, with very, remarkable evidence, is that Indonesia is an extremely, extremely strong user of all kinds of digital and emerging technologies. Right? So if we look at from, the percentage of usage, the percentage of, of of ownership, of all kinds of digital technologies, we're usually, like, leading in the world. So this is our asset.

It is also our responsibility. So compared to the rest of the world, we have a very significant advantage of mass, of usage. That's a very important point. And on the second thing about what is it that we have to do, I think when I look at the situation, it's very clear that what we have to do is to really think strategically about where do we want to be and how do we actually nurture this very big asset. Again, the very big asset is about the people and the fact that Indonesia is extremely ready to actually do a leap forward into the digital usage.

I mean, we already are number one biggest users in a lot of, like, digital, things. So this readiness, how do we actually equip this readiness? I think that is really the challenge that we are facing right now. How do we equip the readiness so that readiness is not just pure usage, but it is actually going to come up with innovations that will bring advantages, that will bring growth to our country. And I think the key solution to this is to have a system, an ecosystem, that really lets everybody thrive, and be able to think creatively and innovatively.

So I think, on the question of competition, which is sort of like the last point, we do have to compete. But, of course, within that competition, we also need to collaborate. You can collaborate so that you can actually win within the competition. That's a very important, key point. I think the power of the youth is very critical.

I see a lot of excitement among the youth, for digital usage. And, it is a big responsibility, however, about how we can create an ecosystem that makes use of this big power of mass usage, and digital technology.

Amy Darajati Utomo
Yeah. Thank you, professor. That reminds me of that scene in Spiderman, you know, with great power comes great responsibility. Right? Yes, please, Mr. Lew.

Lew Chuen Hong
Hi, Selamat siang. It's great seeing everybody. Of course, Ibu Meutya, it's a great pleasure, Pak Dino. And, of course, to my esteemed panelist, it's a great pleasure to be here.

You can sense the energy in the room and I can sense the energy from all the young people here and it gives me great optimism about the future. I think the topic here when we talk about technology is really a topic about the future. It's not so much technology per se. But when we I think the topic here was tech revolution. So maybe if I can just share a few thoughts and take a step back.

Why is this tech revolution so powerful? Because it is going to change structural drivers in two key ways. I think first is just the sheer scale of and the intensity of the impact. I think technology, the growth in the digital economy is two and a half times that of the regular economy. And globally, that has been growing at approximately seven percent.

And if you do the math, that means that the digital economy has doubled over the past ten years. So it's just that breathtaking intensity of the impact as far as technology and what it means for the future. The reason is because, increasingly, software is a lot easier to do because at the core, digitalization is about software. And when you do it at the software level and not at the hardware level, the fundamental rate of change increases. And that is the first structural driver that technology is pushing us towards the future.

The second structural driver is not just the intensity, but the breadth of its scope. We call it the horizontal because, you know, some technologies may be in a particular vertical. You know, maybe you say your battery is vertical. But digitalization impacts all sectors, from construction to healthcare to F and B to retail. And that is a tide that lifts all boats, and that is structural.

A famous VC, venture capitalist, actually this is a16z, had a famous phrase that software will eat the world. And I think there's a lot of truth in that because it is that structural type that will lift all boats. I just wanted to put that as context because there's increasing recognition internationally that digitalization will bring about or help bring about effective change. The UN has sustainable development goals. But for the first time this year, they recognized the Global Digital Compact as a key catalyst and enabler to drive that effective change from everything from hunger to education to equality for gender.

So I just sort of put that as context of what that actually means for all countries and what the young people can do as far as bracing themselves for their future for both Indonesia as well as all countries around the world. If I were to quickly touch on the idea of, you know, collaboration versus competition, The reality as we look at the world around us is geopolitical contestation around technology will increase. This is the world as it is, not the world as we wish it to be. And the question is, how do we react and how do we manage? To say that the human race doesn't have competition, I think, is unrealistic.

But I think within that, how do you manage the competition? How do you have certain rules and norms around it? I think they are extremely key. For example, I think, Ibu Meutya just now talked about when he talks about AI, there is a lot of competition around AI. But I think there's a common consensus that AI safety, AI governance, it's a humanity good, And that it is very important for all countries, be it the US, China, EU, ASEAN, and Southeast Asian countries together to set some of these rules and norms together to make sure that the competition is managed.

But there's huge space as far as collaboration is concerned. And I think you don't have to look any further than within Southeast Asia. Within Southeast Asia, we've had many years of collaboration. There's this thing called the ASEAN Digital Ministers meeting. And within the ASEAN Digital Ministers meeting, there are many concrete things.

For example, I think Indonesia is leading a track as far as how do you help digitalize small and medium sized enterprises, in the rural areas. This is in collaboration with other like minded countries, including Singapore. And I believe the EU, Japan, India, are all part of this. There are other initiatives, around how do you bring broader access as far as connectivity is concerned. You know, at the ITU, the Broadband Commission, in which I sit, the idea is how do you bring that meaningful universal connectivity is all key.

So I think the idea of collaboration, even though there's competition, I think the key is to bring us forward. Thank you.

Amy Darajati Utomo
Thank you, Mr. Lew. Mr. Diamen Kieran, please.

Damien Kieran
Thank you. First of all, I'd like to say a very big thank you to Pak Dino and the Minister and, frankly, the folks in Jakarta for hosting us. This is my second time in Jakarta just in the last two months. And every time I am here, I am filled with a vibrancy and sort of drive to innovate. And it's just inspiring, frankly.

And even this as a policy based event is just astonishing. I travel the world, and I attend events like this often. I can tell you most of them do not have young people who attend them like this to engage in these debates. And so it's honestly a pleasure to enjoy this. I think I want to be very respectful as a visitor to Indonesia to suggest ideas or what should be done to change things.

But I think the largest thing that stands out, and it's actually something the minister said, is people. Investing in people. And that comes in all forms, whether it's the policymakers, the technologists, the education, to be able to compete in a global world is incredibly important. So

I'm Irish and grew up in Ireland. In the seventies and eighties, Ireland was a third world country, and what it actually did was it focused on investing in college and university for everybody, and that was how it managed to make itself a hub for digital innovation in Europe.

And I think it's not unique in that regard. There are many countries that have done similar things, but investing in people is a key pillar to success. In so far as competition and collaboration, these are interesting things, particularly in an AI world. I think that we at Tools for Humanity, our goal is to effectively build products and services that will enable humans in an AI world. And so what we see is that, we think that there will likely be a few players that dominate this space and it's sort of an inevitability of resources, access to computing power, access to the best engineers.

But the question becomes then, how do we build all of the services around AI? Because AI won't, it won't stand on its own. It will be built into everything that we do. And so how do we enable those tools and services? How do we build the education and the resources to ensure that people aren't left behind as they use those services?

And that's sort of the intersection of where we think about success, particularly in developing worlds. So, we have launched in a number of countries in Southeast Asia. And what we try to do is we try to look at the markets where we think that the people will benefit from the technology, but also be able to do things creatively with it that we haven't yet been able to think of. And we look at Indonesia as a prime example of that. As other esteemed colleagues have mentioned, it's one of the most online countries and digitized countries in the world.

People spend an enormous amount of time interacting with platforms, but there are good and bad that come with that. People spending time on social media. I used to work at Twitter, full disclosure. I spent seven years there, and I know the good and the bad that can come with these technologies. So it's going to be incredibly important that we spend time educating folks and providing them tools to navigate the world as it changes, particularly as AI advances.

Today, many of the things that we take for granted in an online world are based around how we trust and interact with each other. But as AI comes online, it's going to be incredibly difficult to trust things. We won't know what is real and what is fake. We won't know whether we're interacting with a human or a computer. And in some cases, that will be okay.

But in other cases, that will cause challenges. And we already see that in a Web 2.0 world. So we don't think about this as competition. We think about this as collaboration. Humanity needs to come together to solve these problems, whether it's in the US, whether it's in Indonesia, whether it's in Europe.

And so I think for us, our focus is actually figuring out how industry, government, and society partners together to make sure that we are actively navigating what will be difficult times ahead as it comes to the adoption of these technologies. Thank you.

Amy Darajati Utomo
Thank you very much, Mr Damien Kieran. Last but not least, Professor Chung.

Dr. Chung-Min Tsai
Hello. First of all, thanks, Pak Dino for inviting me here. So let me give you a little bit about my background. Chung Ming Tsai from National Chengchi University in Taiwan, which means my office is literally five minutes from TSMC by walk. So, you know, as a last panelist, the easiest way for me to conclude is I agree with all of what they said, then I've done my job here.

But another thing I want to share is what's behind AI development, which is hardware. Software is important for sure. But if you don't have, what, chips, which are produced by TSMC, in the Science Park in Hsinchu in Taiwan. And so the idea is that the thing I would like to share with you is where the opportunity for the region in general is, under this geopolitical tension, in East Asia. So Taiwan, our high-tech industries, really need to outsource part of the sector abroad.

But, of course, Southeast Asia is the best destination. It's closer. The cost is lower. So that's the opportunity for all countries in Southeast Asia. And also, we have the problem of shortage of, land, electricity, water, everything.

But we do have the technology. So I would say for the region, the opportunity is to be the place where Taiwanese companies would like to come to invest, but that also brings another issue for the countries in SouthEast Asia that may result in the regional competition. So by now, you will see ten countries in SouthEast Asia. Malaysia is the leading country in the industry. Singapore is very good too.

So who is the rising one? According to the data in 2023, Vietnam, Thailand, and, I'm sorry, Cambodia. That may be to your surprise, but I have the data on that. So Indonesia, by far, is not on the map of semiconductor industry. But I will take that as an opportunity for you, but also a competition.

So what you have here as an advantage is you have very important critical minerals. So that's why the Chinese companies come to make batteries here. And a lot of these critical minerals are actually the same idea if you don't have infrastructure, if you don't have the minerals, raw materials, even TSMC is good at technology. But there's no way for us to make anything. So I would say the three ideas are important here.

First is opportunity for the region, competition for all ten countries, and then collaboration is where you can work with other countries. And also, please feel free to let your friends know, come to study in Taiwan. We have the technology, but we don't have the electricity and the land. So you can come to learn the next technology and then bring that back to Indonesia to develop the industries. I would just stop here. Thank you

Stella Christie, Ph.D.
So I will take you up on that, right? So I will immediately go and talk so that we really use the opportunity. No, no problem.

Amy Darajati Utomo
Thank you. Well, we already see collaboration happening now on the stage. It's really nice to see. It's really nice. It's really great to hear your insights about the current landscape of AI and also what Indonesia currently stands on. And

And I believe we all agree that we need to invest in people and know our starting points and who to collaborate with. I would like to first ask the organizers if we have time for one more question, or should we go and invest in people and ask the questions to the audience? Oh, thank you once again, Your Excellency. Thank you. Please give a round of applause.

So yeah. We still have time for guided questions. Audience, please think of your questions that you want to ask. So I will open the floor right after this. So first, for Professor Stella Christie, I think, we've already talked a lot about investing in people. Right?

And also, just like, her excellency said earlier about policy, people, and platform. I would like to dig deeper into the actual policies of that. For example, what kind of policies does Prabowo's administration would like to implement in terms of technology transfer that would, not only empower the people, ensuring credible access, but also, you know, ensuring, enough safeguarding for vulnerable people.

Stella Christie, Ph.D.
So, I think the first thing that we need to know is this: the mechanism of technology transfer, including giving access to everybody, is critical for any kind of industry. So it is not limited to the AI industry. So if I remember reading the original question is that when and if we entered the AI and digital market as a country, how do we, you know, how can we actually solve? How can we actually ensure what kind of policy that actually can have this technology transfer?

And, I say, we cannot wait. Already right now, we should be thinking about what are those, what are those policies that can allow for technology transfer. And, in my short time, being in the Ministry of Higher Education Science and Technology, Literally, every working day, I work until late at night to study this, the policy. And the studying of the policy is very critical. It's not only that you set the goal of what you want to achieve, but you have to really understand on the basis of data what is currently going on.

And this is very critical. If we talk about the goals, then, the goals are very clear. President Prabowo has set the goal very clearly that, that we need to achieve, growth that is supported by food security, that is supported by energy security, by, security in water resources, and by downstreaming. And in all these areas, we can think about AI or digital tools as the tools that span all this area. So for example, if we just think about food security, if we look at the yield per hectare of our rice, that is very low compared to other, to other neighboring countries.

And if we ask, then we must ask ourselves, then why is that the case? Why do we have such a low yield? And the question and the answer is that because farming is very complex. Because there are many parameters. And these parameters span the gamut of just on the yield of, like, rice alone.

Span the gamut of what are the minerals that, in the soil of that area. What about the fertilizer? What about the seed themselves? What about the climate? The durations of the time. So, in an extremely complex way. And so, when you look at such a complex parameter, this is what you know that the calculation of those complex parameters can actually really help you predict better. What we always feel is that farming is very unpredictable. And this is a very important example where, well, digital technology can help you to do that calculation. So now, we're back into the questions, how can we do that, calculations?

What kind of policy allows us to do that calculation? Well, the first thing is that we need to know that that is what we want to achieve. Okay.. And the second thing is that we need that kind of calculation. So we have to identify the area, first and foremost.

So in the Ministry of Higher Education Science and Technology, for example, we also just had meetings, starting talks with the Ministry of Investment and, and downstreaming, about, from their side. They really know the areas. It's very important. From our sides, we can try to really map out who are the people that can actually give solutions to this potential problem. So we have to map both sides.

And the technology transfer can only happen if you study many many different cases in the world when you have trust between all the parties that are in it. First, there is trust between the government, the researchers. So, this happens either at the institution level or at universities, and also, the industry. So, all three have to trust each other. And secondly, it has to be done in an efficient manner.

So, if it involves a long lag time, if there are policies that do not have a strong legal basis that ensures that all three parties benefit equally, then, this is going to be a weak thing. So we really have to look at it from all those perspectives. And, I think, what it is right now, I think, one of the strongest, point of the policy of President Prabowo is that he really encourages us and really set the standard that we need, not only to thinking about the digital technology but in the governance to actually use a database, a data driven, evidence driven, policy. And by having

that evidence-driven policy, then, we can actually really map who really can solve it. Like, who among you are actually working on farming?

Right? Who among you are working on fertilizers? On the AI side or on the soil side? Who among you are actually doing a startup that has to think about what kind of fertilizers are actually particularly good in, let's say, Nusa Tengara Timur. And so, these are very important to have the data very clearly.

I think, a lot of the time, what happened in our country as well is that, we really have the skill but we haven't mapped out the communications between us about who needs what and who can supply what. And, this actually is really the job also of the Ministry of Higher Education Science and Technology. I think I sometimes say, my, our job from the ministry is that we need to be a very good matchmaker. We need to be a very good benefit dating agency. So then, you know, what a really good dating agency is. When you come to a dating agency, then, you know, even though it's a blind date, if you go to that dating agency, you are very sure that your time is not wasted.

That's what we should achieve, actually. So that, when the researchers come to us and they say, Hey, we have this product. Help us find an industry or an offtaker. Then, we can say, These are the industries that could help you. When the industry comes to us and say, We have this problem.

Can you Please help us find people who actually can provide a solution to this problem. Then, we can help that. And both parties actually feel that they're actually benefiting from that. And we, of course, benefit from that because that means growth for our country. So, this is what we're doing right now as well. Using data to be a really well qualified, dating agency for everybody.

Amy Darajati Utomo
Thank you very much, Professor. It sounds like a very tough but fun work, I guess. Because, Because, you know, blind dating.

Stella Christie, Ph.D.
Of course, it's fun to have everybody, these amazing people to meet with each other, right?

Amy Darajati Utomo
Yes. I'd like to bring more fun by asking Mr. Lew about, how I mean, Singapore is actually one of the leading countries in terms of AI in Southeast Asia. Right? So, building upon the policies and the mechanisms that professor Stella Christie has mentioned earlier about how Indonesia does it, we would love to know key strategies that Singapore has implemented and how Indonesia can learn and replicate from the key strategies.

Lew Chuen Hong
Well, I think first and foremost, Singapore is a very, very, very small country. We are a tiny island, And one of the binding constraints that we have is we don't have enough people. And therefore, for us, digital technology has always or the technology in general has always been a focus because it's a huge multiplier. And of course, AI in particular, because of its wide ranging use, really helps augment. In the delivery of healthcare, for example, it really alleviates potentially the doctors, the nurses from taking case histories so they can look after patients a lot more.

Or, you know, in terms of the number of workers as far as the service, the manufacturing industry. So for us, it's really about the constraint of manpower and how you can augment that. But here, maybe I also build on the two eminent professors' comments and kind of maybe bring the two together because she's the master matchmaker, which I fully agree with. But I think the other professor's point is about matchmaking with who, which is about the industry. And I think maybe for us in a very similar way, talent is key.

They always say in AI, there are only three key things that you need. One, One, you need data. Two, you need a computer. Three, you need talent. And for me, it's very clear talent is the most key. And here is not just talent from a very economic point of view. You know, it's not just going to school, but it is talent in a way that is applicable. So we try our best in a matchmaking kind of a way that even when you're at university, matchmake you such that you have very deep internships, and they actually get you to do real AI projects, for example, or real technical projects. Because it's key that when you graduate, you have what we call turnkey skills. We also try our best to matchmake not just people who will come out of school, but people who are in their jobs, you know, the workforce in the environment, the incumbents.

Likewise, we matchmake them, with the industry, which is maybe their own companies, of how they then apply new technology, and we support that while at the same time training the incumbent workers as far as how do you do this. I was actually very curious amongst the youngsters here. How many people are actually from a computer science or computer science background or studying computer science background?

Amy Darajati Utomo
Raise your hands if you're a Computer Science.

Lew Chuen Hong
Two, three. Okay.

Amy Darajati Utomo
Computer Science students? Only two or three. Okay.

Lew Chuen Hong
Okay. I actually think the rest of you, so sorry to the Computer Science students. I actually think the rest of you, the future is bright. Now, why do I say that? Because one of the powers of AI, it is its natural language. And one of the key powers of natural language is that they call it your democratized expertise. You don't need to be a coder. You can just talk to it and it can give you legal advice or you can just prompt it and it says, you know, draw me a tableau spreadsheet. So actually, the real value is the people with domain knowledge. The domain knowledge could be in agriculture.

The domain knowledge could be in all these other areas. But it's at the intersection. You need to know enough about how you then use this AI, and how do you put the data in place to bring the maximum benefit in that particular domain? So I think that's where the power of AI and digital technology is as far as the future. And I'm nothing against the computer science students because they're still very important. But I think that's where for many of you in the other disciplines, the future is also bright. Thank you.

Amy Darajati Utomo
Thank you, Mr. Lew Yeah, this reminds me of, so I was the United Nations tech envoy, last year, working. And, actually, that was one of the main themes that kept being brought up in both the discussion of Global Digital Compact and the AI advisory body of, you know, having this transfer and having the education and democratizing expertise like you said. So, I would like to ask Mr. Damien. Thank you again, Mr. Lew

I would like to ask Mr. Damien about the other theme that was brought up, often in the Global Digital Compact discussion which is about balancing stakeholders' interest, innovation, and safety. So one of the members in the AI advisory body, Miss Virgina Dignome actually said that we should not be discussing about balancing innovation and safety because it should go hand in hand. It's like if you make cars, you don't make cars without having the safety bills. Right?

But then, perhaps, of course, the other industries or sectors would think differently. So I would love to know from your intensive expertise about this and also coming from the nonprofit sector, what you think.

Damien Kieran
It's a really good question. And I think it's a very complicated balance. It's not very simple. That is to say, I'm sure all of you heard over the years, there was the old mantra at Facebook when they developed early on. It was “move fast and break things.” Right? And obviously, that paid off. They built Facebook. It is a gigantic, amazing, connecting machine. But when one develops quite quickly, one can miss the safeguards that are necessary for the sort of ethical and moral implications that can happen with technology.

And I think many of the policy discussions that we see in the world today, particularly around AI, center around that concern. Right? What will happen? And if we don't have the right guardrails

in place, will it take over the world? Will the software eat the world? And I am obviously an optimist. I believe that AI is inherently good and that humans will do great things with it. But I also do believe that we need guardrails, and I think it's incumbent upon both companies and governments to work together to put those in place. I think that's not simple. Right?

Because I do think that we do run the risk of stymieing innovation too early, and so it's an important balance. But part of that balance has to be having discussions like these today, and with governments around the world. And I think Singapore is a great example of this. So for example, IMDA operates a sandbox to test new technologies, and it's to ensure that we're innovating in ways while we might be pushing the boundary, we're actually testing the limits in safe or hopefully safe ways. But what's also been interesting about this discussion, and often when we talk about AI, is sort of the AI arms race.

How do I, or how do we compete in AI? And I think what's been fascinating, I live in the Bay Area now in San Francisco, and I think there are many people trying to compete in that space, and it's very, very full. And the reality is, it's a little bit like what was just said. It's actually going to be the application of these things that matters. Less about, like, am I the one that owns or builds the AI?

But how do I build the new cool thing with it? And then how, while I'm building that new cool thing, do I have appropriate safeguards in place? And this is where I actually think places like Indonesia can help lead the way. Right? You have a vibrant young community with great minds and a great heritage and great culture. You have an open canvas in front of you to use AI to develop what you want. You have Pak Prabowo and ministers who are supporting innovation, and it's sort of like it's an open field. It's the ideal opportunity to deliver new innovation to the world. And I think you have an opportunity as a result to partner with other ASEAN countries to show what responsible use of technology looks like. Responsible regulation for AI. And so, I just view this as really an opportunity, not like a negative.

Amy Darajati Utomo
Yes. In fact, ASEAN already has an ASEAN AI guide as well. It was published last year by the ASEAN secretariat. So I think, it's also a step in the right direction, you know, to balance innovation and safety. Thank you.

So thank you Mr Damien Kieran. And next, I would like to ask Professor Chung about, similar question that I asked to Mr. Lew about the key strategies. You've mentioned the Taiwan situation, its opportunities as well. So what are the key strategies that you think contribute to Taiwan's success in the AI industry? And how can Indonesia replicate or adapt these strategies?

Dr. Chung-Min Tsai
First of all, I don't think Taiwan model is replicable because TSMC, they are still you know, the data is they are still investing thirty percent of their profit in research and development. At the time, they produced more than ninety percent of advanced chips in the world. So think about

this. The fourth Runner is still running faster. How can you catch up with him? No way. But that does not mean we have no opportunities here. So I want to echo Ms Stella about the technology transfer things. Of course, if there is no chance, it's really difficult. But by taking Taiwan's, we have a very close relationship with the Silicon Valley in the Bay Area.

So how has this trust been built? Education. Right? Taiwanese Taiwanese students went to study in the US and they find a job and they develop their career. In the meanwhile, they brought something back home. So that's why I encourage you Indonesian students to study in Taiwan. Because we won't say, okay. Since you are not Taiwanese, we won't teach you this. No. There's no difference.

So you will learn what we teach to our Taiwanese students, and you will work with them and you will get a job in TSMC. So one day, either TSMC wants to establish its factory here, you will be sent back home, or you just quit and bring something back home with you to create your own company. So another thing is, I would like to echo, Mr Lew, is, I think a huge population is not only human resource because you're also the consumers. So Indonesia with such a huge population, if you have any ideas, you can test, you can do experiments. Once it gets successful, you don't really have to sell it abroad.

So that's why China is strong. They have a very big domestic market, and you have it here too. So if you have a good idea, just try it, and you don't really have to make everything fancy. Right? If you go to China, everyone use mobile. You know, the very mistake I made here after arriving in Jakarta is I exchanged some cash, which I have nowhere to spend. Then since you have this very high level, comprehensive digital payment so wait a minute. You know, Taiwan, Japan, we are still paying cash. So when I was here, I said, oh my god. Everyone was so advanced in these apps and in your cell phone.

So that means you can do more from here because you have a lot of people here. They are helping you to make your ideas, your innovation, your products better. So if that will be successful enough, then that will go abroad. So that will become the strengths you have. So I think for those two things, you have a huge population, which means you have huge market potential. And the second thing is to study Taiwan. Sorry, I promoted it again. But since we are leading in this industry, that's why I keep telling you. And we do need more foreign students to join us in Taiwan to make this industry not for our own good. You know, now the entire world needs chips. So let's make chips together. Thank you.

Amy Darajati Utomo
Thank you. I'm sure many youths here are now interested in studying in Taiwan.

Stella Christie, Ph.D.
Can I add to that? I think it's a really great question, and we should always ask that question about what are the key ingredients? Why are, like, these other nations actually can achieve

What are they today? We may not wanna go there. We may choose a different path or but we have to study them.

It's very critical. So, I know that all of you are very eager to understand the problems. So, if I may, there is actually a book that I really enjoy reading. I don't remember the actual title. It could be that the title is Chip, but the whole book is about the history of why the chip industry becomes as it is now.

That it is extremely complex globally, you know. Professor can tell me, better than I do, of course. But if, you know, it's not TSMC is a very much of a global company. A lot of those sources come. But it didn't start that way. And, it's very useful to read these kinds of history of industry and of science. I can share two points. The first point, I think, is very critical that Taiwan didn't have any science and industry. And, as I read in the history of the book, a couple of the ministers had breakfast every morning, and they sat down together and thought about where we should invest. Here's the money.

We have the money, and we need to invest in science and technology, but we don't know which one. Okay. So they formed an organization to study about where to invest. And this was very critical. So that means they actually study and map about all kinds of science and technology that is happening in the world right now.

Where is it that we can invest? And they came up, and then the organization came up with a list. And among those lists, they also asked, okay. So these are interesting proposals. And which of these proposals can we actually learn from other people who are actually willing to teach us?

And it is precisely at that point when Bell was actually starting to make the transistor, it was not about to be chips yet. It was not very popular. So they are still very willing to share the technology. And, and so, the Taiwanese government sent people there to study them, very, very carefully. And I read that they even write notes about what they wrote, every single detail, including how in the bell they actually changed the lamp. What kind of toilets do they have? It's like every single thing. But I want to highlight that you really need to study to strategize. You cannot take on everything. This is very clear.

Resources are limited. So we have to study and map things first, and be very strategic where we want to invest our resources. And careful, careful planning, that it's not a long time, but you have to be very thoughtful about, you know, what actually is happening and not just do things, based on free shootings. So that's a very important thing about what happened with the TSMC industry. I highly recommend the book.

Amy Darajati Utomo
Thank you. I will look up the book, The history of chips, of semiconductors. Okay. Now, it's time to invest in the people and have them. Oh, okay. Very enthusiastic. I see. Okay. I see that guy with the flashlight, which is a very nice tactic. Very ingenious. Wait, before that, I would like to

get one more. The lady with the glasses, behind standing there. Yes. Yes. So two. Okay? Okay? Only two questions, unfortunately.

Question 1:
Check. Thank you for the opportunity. My name is Saidal Mohammed Noor, and I study at Bakrie University right now.

Amy Darajati Utomo (repeating question in english)
Where technology I mean, not even getting technology. Sometimes, surviving in itself is hard. So, he was asking Professor Stella about the food security technologies that could benefit the rural community. But before that, perhaps we could pull the questions first. Yes, please.

Question 2:
Yes. Hello, everyone. My name is Marofa. I am a refugee from Afghanistan. I am also a student and a technology enthusiast.

It's great to hear from the experts and the enthusiasts in this room, and I'm happy to be here. So hearing from the experts and enthusiasts, I can't stop myself, but to think about this, society and a country like Afghanistan where the socio-political situation makes the people to fall behind and to be behind when it comes to technology. So I would like to hear from you as a technology enthusiast. Do you see a society or a world like the movie Divergent where there are factions. Right?

Do you see a future or a world where there are factions and countries like Afghanistan where their people might be factionless? Do you see such a world as technology enthusiasts and experts? Thank you.

Amy Darajati Utomo
And, we are happy to have you here. Sorry. What's your name again? Amarofa.

Yeah. We were happy to have you here with us. And yeah. The question from Amarofa was about how sociopolitical, the contacts are making a lot of developing countries, including Afghanistan, not having the technology. And do you see whether there is a factionless world as tech experts? So I'd like first to give the floor to professor Stella Christie.

Stella Christie, Ph.D.
Thank you for the question. It's a great question. The first thing that we have to remember is that technology is to serve us. So, when we talk about any kind of industry, in this case, the question is about, agricultural industry. The answer is always the same in my mind. That technology can do two things. The first one is that it increases efficiency. The second one is that it will drive growth. So how to actually bring technology to people in remote areas. The concept is no different from how to bring technology to the people, in urban areas.

Which is that you need to understand first, in what way the technology is gonna serve those people, whether they are in remote areas or in urban areas. So the first thing that you have to do is that you must ask the local farmers, the local people themselves, to create a truly curated well data about what kind of problems are they facing. So this is very important. So you really have to do this study.

Like, actually collected the surveys and the study. And then, you can actually use technology like local, LLM, large language models, to analyze the answers of the local people about what kind of problems, to map out the problems. So that's the first thing. You need to understand the problem of the local people. And when you understand the problem to the local people, then you map out which of these problems is about inefficiency, and which of these problems is about not knowing or a lack of ability to actually grow better. Okay. And once you map this out, is that you realize that you need help. And the best help that you can get is obviously from the local powerhouse. And who is the local powerhouse of innovation? Those are local universities.

Okay. So, we shouldn't be just going outside and everywhere. We should keep things locally as well. It's important to make roads in those local areas. So then, you present it or work together with the local universities about how to actually answer some of these problems. And if the local universities, cannot ask, cannot answer all of these problems, then, they can start working with their networks, with other universities that may actually have those expertise in the area. But again, it starts with mapping out the problem. So, in this regard, since you asked me about what are the policies that the ministry is doing. This is the policy that we're doing. We're very much, again, collecting data about the strength of each university in Indonesia.

So, you don't have to be good in everything because then, you can't really. You do have to have an edge. So, what we're doing right now is we're asking. We have amazing resources. We have a lot of universities in Indonesia, and we actually are asking each and every one of them to actually identify what is really their strength.

And how that strength is actually mapped into the local problem. Okay. So this is the thing that we're doing. And when you map that problem and that solution, clearly, then, you can think about what is needed in order to make that collaboration happen. Is it funding?

Then, you start thinking, what kind of funding that you need. Can the government provide that funding? Can the industry be involved to provide that funding? So, that will be the steps that I would highly recommend. And, and I'm serious about making this, I got invitations a lot to go to universities.

And these days, I make it into an SOP that when universities want to invite me, they have to first do a white paper. Okay? A white paper of what is their strength. Because what I want is when I go to university, I listen. Not I talk, but I listen. What is it that you are excellent at? So, I study. I understand. And also, what is it that I can do to push this further? So, maybe, I can, you know, facilitate with the local government, right?

The university is so good at this. Why don't you help? Because it's all gonna benefit your countries, right? Because we're here to serve and to listen. So, I really do ask this for You know, if universities want to invite me, please, I'm very happy to come. But you must first make a white paper very simple. What is the strength of your university? What have you done so far in that area? So that I learn about all the amazing strengths of our nation. Thank you.

Amy Darajati Utomo
Thank you. And I think, this is also a very relevant personal thing to do, you know. Knowing what you can do, knowing your strength in order to be able to participate in this global competition. So, mister Lew, if you want to tackle any question or at any side?

Lew Chuen Hong
Maybe I just take a step for the other question. Technology is generally neutral. And very often, technology just reflects the human condition, both its upsides as well as its downsides. We all know, for example, if technology is not quite used correctly, even in, say, social media, you create echo chambers, you create misinformation, you create tribes of people that just kind of listen to each other. They always say, you know, I've made up my mind.

Don't bother me with the facts. So I think that's one human condition, but technology just makes it more obvious. But there's also the possibility for the other human condition, which is a much more positive one, that the ability to use technology to share, they use technology to be able to be transparent, the ability for data. And I think if that is the way in which we use technology, then I think the world is a much better and a much more seamless place. And I think, again, if I may come back, I'm always very impressed when young people are engaged with such questions because it starts here.

And you and how you think about how you technology then is what's going to happen ten, twenty, thirty years down the road. Everything that you do online now, be kind. You know, make sure that you don't, you know, dox people, for example, because then that sets a precedence for how technology amplifies society and the human condition. I hope that helps.

Amy Darajati Utomo
Thank you, mister Lew. That was a very powerful message. You know, be kind. And next, Mr. Damien?

Damien Kieran
I think they're both very complicated questions for different reasons. I think, maybe just shortly on the the the farming one, it's anecdotal, but I think what's even happening in the United States around the use of technology as it relates to food and farming in general, like, studies have shown that there will not be enough food or farming to feed the world in the future. That's just the science. And so we will have to rely on technology more to be able to solve those challenges. I think, like, there's a famous agricultural company, United States agricultural

company, called John Deere Farming Company, And they've been investing heavily in the use of AI for farming over the last five to six years.

And so much so that they've actually built a facility in San Francisco where they literally are developing technology that can be used for farmers around the world. My belief and my hope is that that sort of technology will proliferate around the world. But I think it's going to be how we use that. But that sort of dovetails then into the second question, which is sort of like, so the World Economic Forum said this year, in their twenty twenty four risk report, they said that one of the biggest challenges to the world is sort of like misinformation, disinformation, what's happening in Afghanistan as a result of sort of lack of access to things. And we do live in a world of geopolitical instability.

As Pak Dino said this morning when he did his opening remarks, the theme of today is very much about how these smaller nations or middle nations can help solve some of those challenges. I think it's ultimately about how we collaborate together and how we look towards positive ideas and cultivating positive education, positive use of technology, and the great minds in this room that do that together. Ultimately, that will outweigh any of the negative consequences that can come in the world. There will always be some element of that, but it's on the bright minds in this room to make the change for future generations.

Amy Darajati Utomo
Thank you, Mr Damien. And last but not least, is Professor Chung?

Dr. Chung-Min Tsai
I think these are all very good responses. I want to save time for a few more questions because I feel if they can't answer anyone, they will feel very disappointed.

Amy Darajati Utomo
Let me ask the organizers if we have time. They're shaking their heads, unfortunately. Yes. So

Dr. Chung-Min Tsai
So then I'll just say a few words. So this reminds me, like, you know, we now use drones on the battlefield. But in the meanwhile, the farmers, they use drones. And the delivery people, they use drones. But the drone itself is neutral. Just like we always say, a knife is neutral. Everything's neutral. It depends on who uses it in what way. So I still think if you don't feel it's fair or it was misused, you are the person who should make change.

Amy Darajati Utomo
Thank you. Thank you. Please, yes. Have a round of applause for our amazing speakers. Unfortunately, that marks our very insightful discussion. I again, thank you to our panelists for this very insightful discussion. If I may just summarize quickly. Yes. First, I'd like to reiterate that again, this is a revolution. The world is changing rapidly.

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And of course, we have to invest in people. Be kind and have empathy on how we can help. And technology enables us, the humans. And finally, the importance of strategic collaboration. And let's give another round of applause for the panelists. And I would like to thank the audience. You could be anywhere, not here. I don't know. TikTok scrolling, but you're here, which shows that we are actually optimistic in the AI revolution.

Lew Chuen Hong
Actually, if I may, I think the real people who need the applause are the audience.

Amy Darajati Utomo
Give a round of applause for yourself. Thank you. It's been an honour, I'm Amy your moderator. Thank you, and have fun in the rest of the conference. Thank you.