SPECIAL COMMITTEE ON ARTIFICIAL INTELLIGENCE

IN A DIGITAL AGE (AIDA)

HEARING ON AI AND COMPETITIVENESS

Panel I: AI Governance

Kristi Talving, *Deputy Secretary General for Business Environment, Ministry of Economic Affairs and Communications, Estonia*

Khalil Rouhana, *Deputy Director General DG-CONNECT (CNECT), European Commission*

Kay Firth-Butterfield, *Head of Artificial Intelligence and Machine Learnings; Member of the Executive Committee, World Economic Forum*

Dr. Sebastian Wieczorek, *Vice President – Artificial Intelligence Technology, SAP SE, external expert (until October 2020) in the study commission on AI in the Bundestag*

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Panel II: the perspective of Business and the Industry

Prof. Volker Markl, *Chair of Research Group at TU Berlin, Database Systems and Information Management, Director of the Intelligent Analytics for Massive Data Research Group at DFKI and Director of the Berlin Big Data Center and Secretary of the VLDB Endowment*

Moojan Asghari, *Cofounder/Initiator of Women in AI, Founder/CEO of Thousand Eyes On Me*

Marina Geymonat, *Expert for AI strategy @ Ministry for Economic Development, Italy. Head, Artificial intelligence Platform @TIM, Telecom Italia Group*

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BRUSSELS

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1-002-0000

IN THE CHAIR: DRAGOŞ TUDORACHE
Chair of the Special Committee on Artificial Intelligence in a Digital Age

(The meeting opened at 9.06)

Opening remarks

1-003-0000

Chair. – Good morning dear colleagues. I hope you are all connected and you can hear and see us in the room. Welcome to this new hearing of our committee. We have an interesting and very topical discussion today on AI and competitiveness. We're going to have two panels today from 9 to 12, so quite an intense debate for the full morning.

I will start with an announcement that I trust will satisfy our expectations, because in the EP plenary of 9 March our request for an extension of the mandate by six months was approved, which brings us to 22 March, when we envisage the adoption of our committee's final report, so enough time for us to do our work properly and to prepare our reports.

And with that, I move to the hearing proper. Before I announce the structure of today's debate – the structure of the panels – a few words of introduction from me. The reason why artificial intelligence is so intensely debated and scrutinised is that it has tremendous potential for the development of our economies and societies. AI can improve every single aspect of our lives to an extent yet unimagined. Coupled with cutting-edge digital infrastructure including 5G, 6G in high performance in quantum computing, AI promises to transform our world.

But are we as Europe competitive enough on the global stage? The digital revolution will bring with it a reshuffle of the established global order. Those who are digitally competitive will stay ahead and become the new digital superpowers, while those who are not digitally competitive will fall behind no matter what their position is now. I believe that the Commission has taken some important steps in the right direction through the proposals of new legislation that it has started to put on the table since autumn last year, and now we have the Digital Decade Communication.

We need to set some concrete goals and benchmarks for digitising Europe in order to become competitive. However, are these ingredients the right ones and are they sufficient for actually making us competitive as we all wish to? Innovation and start-ups are the lifeblood of an economy and of economic growth. We need to work on supporting our start-ups and SMEs and securing a regulatory environment where they can thrive, become unicorns, go global, become tech giants and compete with other unicorns and tech giants out there. For this we need to think from their perspective and ensure their needs are served.

This can only be done if we do it both top down, through the rules we set in place and through the strategic partnerships we engage in, but also bottom up, by understanding and responding to the needs of our industry, of our businesses and of our start-ups and SMEs. I want to thank our guest speakers for making themselves available to attend our hearing today, and I want to especially thank Ms Kay Firth-Butterfield, who has kindly accepted to connect from the US, despite this very uncomfortable timing for her.

Now, moving on to the first panel. I would like to give the floor to Nicola Beer, my colleague, who is also the rapporteur for the opinion of the Committee on Industry, Research and Energy (ITRE Committee) on shaping the digital future of Europe, removing barriers to the functioning of the digital single market and improving the use of AI for European consumers. She will give us her thoughts on today's topic for our hearing and then we will start with the first panel on AI governance.

I will announce the speakers at the time. Now I would like to give the floor to Nicola. You have the floor for two minutes.

1-004-0000
Nicola Beer (Renew). – Thank you, Chair. This is an important hearing because the view of the Committee on Industry, Research and Energy (ITRE) is that we really have to have the ambition to assume leadership in the world. So we need more ambition in developing and setting international standards worldwide, and to do so by joining forces: joining forces in research and development, joining forces by attracting the best to work with us, to develop with us, to live with us, and joining forces to facilitate financing so that market entry is possible and SMEs have the chance to be successful all over the world.

This is the approach advocated by ITRE and industrial and science sectors in general. So we have to overcome the fragmentation of the European market, which means completing the digital union, bringing everybody together – businesses and citizens – harnessing the creativity and power of the private sector, but also that of the public sector, making it a frontrunner in the use of new technology.

It's important to have a flexible framework that enables and doesn't hinder. These technologies develop so fast, are often surprising and disruptive; so granular legislation is a burden. We have to overcome this type of law-making. We need a framework with principles that can adapt to developments and with space for experimentation, as with regulatory sandboxes. These principles have to be trustworthy, technology-open and able to handle risk, rather than risk-adverse.

So we need a high-risk approach. We need to examine very carefully where we have to regulate and where we don't. We need a new approach for data. As this technology is data-driven, we need an approach to data that facilitates research, innovation and competitiveness by giving more rights to access and use anonymised and non-sensitive data.

So you see the result for us as ITRE members is a special European approach, which is more of an attitude which enables, so that together we are winning the future for a better life. This is what we put in our opinion, which was supported in the vote by 72 colleagues, with only three abstentions, in the ITRE Committee. So I hope this will also be in our joint opinion and the European Parliament resolution.

1-005-0000
Chair. – Thank you very much Nicola. Thank you for making time to share your thoughts and, of course, we look forward to working together with ITRE on all of the upcoming proposals but also important visionary documents that we have received from the Commission and on which we will be working for the rest of at least the mandate of this AIDA Committee.

1. Panel I: AI Governance

1-005-7500
Chair. – Now, moving on to the first panel. As I was saying, the first panel is on AI governance. What are the choices for regulatory frameworks for enabling the potential of AI solutions for

increasing EU enterprises' competitiveness? A very long title, which actually hides the important topics and the important question marks that we have in terms of how we serve, for the regulations that we do, the interests of our companies, small or big.

We have four panellists for this first panel. I will remind you that they have, each of them, five minutes for their interventions, after which we will move on to the exchange of views with the Members, for which, as always, we have a two-minute slot and then two minutes for the replies to be given to the questions, and I will remind again our colleagues to please direct their questions to one of the panellists, be clear about who you want to ask the question to, to allow me to moderate the discussion afterwards.

The panellists for this morning are Ms Kristi Talving, Deputy Secretary-General for Business Environment with the Ministry of Economic Affairs and Communications in Estonia; Mr Khalil Rouhana, Deputy Director-General of DG CONNECT, European Commission; Ms Kay Firth-Butterfield – again, thank you very much for making yourself available at this uncomfortable hour for you on the US side of the Atlantic – Ms Firth-Butterfield is Head of Artificial Intelligence and Machine Learnings, Member of the Executive Committee with the World Economic Forum; and, last but not least, Dr Sebastian Wieczorek, Vice-President, Artificial Intelligence Technology, SAP SE, who until October 2020 was also an external expert in the study commission on AI in the Bundestag.

So we start our panel with Ms Kristi Talving. You have the floor for five minutes.

1-006-0000

Kristi Talving, *Deputy SG for Business and Consumer Environment, Estonia***.** – Hello, good morning. I'm glad to be here today and share my thoughts on AI governance and more specifically how we can create a supporting framework for EU enterprises. It's clear that AI is high on the agenda across Member States and also at EU level. Just two weeks ago the Commission set out the costs for the digital decade and presented a very good vision for digital transformation. And it does include the digital transformation of businesses. An ambitious goal was set for 2030: 75% of EU enterprises have to take up AI solutions. It's a long-awaited and much needed code.

Today, during the pandemic, we tend to focus only on how to manage the crisis, but we need to look more further ahead; how to exit the crisis stronger than ever. As EU companies play a central role in digital transformation, the question of how regulation and government actions can adequately help and support SMEs to speed up the application of AI is a crucial one.

In April, the Commission is scheduled to present its proposal on a horizontal framework of AI. If our goal is for the regulatory environment to become a competitive advantage for European companies, I think there are several important aspects in my mind to be considered. To achieve a competitive edge in the AI race, our guiding principle should be to avoid any over-regulation in relation to AI and consider the principle of proportionality. I know it's already been heard several times, but you have to keep in mind that most of our companies are SMEs and we need to do all in order to let them join the new market, and it's especially important for the start-ups. We need to let them grow to unicorns in the EU market.

In order to ensure the legal certainty and legal clarity, the scope of the framework of AI must be clearly defined. The framework should be based on a risk-based approach that's based on objective criteria with the existence of actual risk and the possibility of realisation of that risk considered. We shouldn't be afraid of new solutions and innovation.

About two years ago, we also had our talk in Estonia about a specific AI legal framework, and the definition of the AI-proportionality question and risk-based solutions were the main

challenges. Altogether, in short, we aimed to modify the existing law in order to enable AI use in the government and private sector without the specific AI law approach, and today we have more than 72 active AI used spaces in our government sector.

When it comes to AI we also need to talk about the data. Availability of the data is one of the key drivers supporting European innovation and therefore an open-approach respect of data flows is needed. We need to address the obstacles for free movement of data between Member States, between third countries. Our enterprises can create AI solutions only if there is sufficient data to use.

What we do in Estonia on main principle is an open-data approach. Data collected by the government are even openly to use for all enterprises. Among other things, we are also making some government AI components openly used and the aim is to share different AI applications in which the private and public sector are also interested and to be able to use them and re-use them without charge, for companies to further develop the AI solutions towards their own needs.

Later this year when the data act will be coming out, the only thing I want to address is interoperability of data. We should consider it as priority at EU level. In order to support R&D in the field of AI, interoperability of the data is really important. And there are a few other supportive actions we should take to push the take-up of AI.

When it comes to the transformation of businesses, the shift over to digital must be acknowledged and strategical at the highest level of businesses. An important precondition is shared understanding about the benefits of using data and AI applications, how transformative it can be for businesses. To this end, attention should be paid to digital training and education of businesses at top management level. And as I said, we should create opportunities for companies to test and experiment with new technologies, prolonged testing before investment.

In addition, we should promote the use of AI application. As I said, in Estonia we are using a platform where open-source AI core components are accessible to all interested parties. This allows to decrease expenses and speed up the use of new technologies in both the public and private sector.

And today we should focus also the wider uptake of AI solutions. It’s something that can also be accelerated by the public sector. AI has a great potential to be used in public sector services. Therefore additional investment and innovation in development of public-sector AI can create a snowball effect and boost uptake also in the private sector.

I believe these are the discussions that are needed to find the right balance between regulation and innovation. It’s essential for both governments and businesses to create the environment where innovation can thrive and thereby foster the advancement of AI capabilities. So to take it all together, just a few key words to remember – joint effort, legal clarity and certainty, opportunities to test and experiment, access to high quality of data, open-source for sharing, public sector as accelerator and digitalisation as a strategic goal in top management of any company.

1-007-0000

Khalil Rouhana, *Deputy Director-General of DG CONNECT, EC***.** – Thank you very much, Chair. The benefits of artificial intelligence will come from its wide use across the economy and society. For that, you need an environment of trust, to ensure the uptake of AI by businesses and our citizens. This is the line that the Commission highlighted in its White Paper a year ago proposing how we tackle artificial intelligence to make sure that the benefits are spread across the economy and society.

There are two tracks, two big pillars, which we call ‘ecosystems’ – an ecosystem of excellence and an ecosystem of trust – which should go hand in hand. We need to master the technology, shape its development, and make sure that we have the skills and the businesses in Europe to develop and use AI applications. At the same time, we also need to create an environment where the development of AI is done in a trustful away and is human-centric.

We have been working on the two tracks proposed in the White Paper for a year now. In the next few weeks, we will have proposals regarding the two tracks: a horizontal framework for AI, which we reconfirmed in the digital decade communication, and also other legal legislative proposals that are important for AI, notably concerning data.

For the horizontal framework, the real challenge we’ve been working on is to make sure that the framework is proportionate and enables us to reassure businesses and, in particular, citizens about the development of AI. – that it should be trustful, that it should have human oversight, that it should be transparent, that it should reinforce the way we apply and benefit from our fundamental rights without bias, that it’s robust and safe. At the same time, we need to make sure that we do not overburden businesses or the development of AI applications so that Europe is indeed the best place to develop and use AI.

To be proportionate, our framework will, as we mentioned in the White Paper, focus on high-risk applications, i.e. on those applications that will have a direct impact on our safety, a direct impact on our fundamental rights. And we will frame what we call high-risk applications to make sure that we do not create uncertainty. So the scope of these high-risk applications – on which there would be obligations to make sure that they are trustful – will be well defined. And the obligations will address what I’ve mentioned before. I’m working also from the Parliament report on what needs to be addressed for high-risk applications. Our target is the end of April, so we should have this horizontal framework ready by then.

I also wanted to point out that, on the legislative side, we already have the Data Governance Act. We know that data is essential for AI. Without data, it would be difficult for our industry, for our researchers, for our innovators, for SMEs, to develop and use AI. Hence our legislative work on data.

Supplementing our open data legislative framework, the Data Governance Act addresses the three main issues that are needed for data sharing. We will have a new act on the way data can be shared between businesses, and between businesses and governments. So, we will complete our data framework to ensure that we have a legislative framework that makes Europe a data hub.

In addition, we worked on the ecosystem of excellence with a coordinated plan, together with the Member States, that will complement the legislative framework to ensure that we have the excellence and the technology.

There are three pillars there. Very briefly, we have: a pillar on investment and research innovation, on skills; a track on investments in the use and the uptake of AI, mainly by small businesses across the Union with the network of digital innovation hubs bringing AI technology to every business, every region in the EU; and a third track on building our common data spaces with big investments in a large project on data.

We want Europe to master the technology and shape its development. We want to make sure that the brand of Europe’s reputation of having trustful applications, products and services also applies to artificial intelligence. That’s the strategy and this is what is planned: the documents, the legislative framework and a coordinated plan on AI together with the Member States.

1-008-0000

Kay Firth-Butterfield, *Head of Artificial Intelligence and Machine Learning***.** – It's an honour to be invited to speak to you today. I should start with a disclaimer. I worry that regulation of AI will be very hard to enforce and difficult to change. I think that soft governance would probably work better because it can respond more easily to the changes as it can be iterated and legislation cannot. We've developed a number of different governance frameworks which span across the full gambit from things that companies can do to things that countries can do, and I'm happy to share those if you're interested in learning more.

But I wanted to tackle how regulation or governance stimulates innovation. First, I think knowing what's expected of companies should create more innovation, because companies are therefore prepared to risk their R&D budget and venture capital – which I think currently is waiting to know what's going to happen – will begin to flow. We saw that with the soft government's procurement work that we did with the UK. Once they announced what their framework was, then they were able to create a start-up community, which has grown very well, around that ecosystem of providing services to the government.

So I think it will also help companies and organisations using technology to know where they stand. For example, can they sell or use facial recognition technology in your area or not? If yes, what are the parameters?

It seems to me that doubt kills innovation or allows innovation to flourish in ways which are antithetical to our political processes and desires. At the forum we require start-ups joining the AI work to adopt an ethical use of technology code of conduct. Legislation or governance mechanisms could make such an approach mandatory. If that's Europe-wide, then venture capitalists will know what is expected and will realise that their AI companies are simply not competitive in all markets without putting ethics at the heart of their work.

But even without legislation, I'm increasingly contacted by venture capitalists to work on how start-ups implement ethical approaches in their work. I do think that as ethical AI becomes more mainstream and purchasers of start-ups or their products are more aware of the issues, then we will see responsible AI growing from the ground up.

I've also been approached this year by a number of investors saying that they wish to add responsible AI to their investing criteria, or indeed have already done so. Legislation should require responsible AI development and should lead to investment in companies in your geographical area, because they are doing what the market demands.

Likewise younger employees and customers want companies they deal with to be responsible in their use of AI. They care about what their future with AI looks like. Legislation could make European companies desirable to these groups, boosting the ability to recruit them and to sell to them. Although I wonder if a voluntary commitment to responsibility is actually a stronger draw for this demographic.

Legislation of course is only a first stage. Interpretation of that legislation is next, undoubtedly creating some of the jobs of the future. Also I think that governance or legislation allows companies to do good with AI because we'll have a better idea of what doing good actually means. For example, it is said that we should teach our children about AI in kindergarten. But one only has to look at the toy My Friend Cayla, which was banned in Germany, to see the potential problems for education of our children in AI, and also by AI.

Finally, good legislation should control unbridled and undesirable innovation and create a level playing field for all by requiring the same ethical principles for all. We've certainly heard a

number of the large AI companies in the US talk about how if they don't do facial recognition others with less scruples than them will do. So that level playing field is very important.

In AI we know the risks but we have actually done less individually and globally in concert to imagine what we want our future with AI to be. We do not have a mechanism to pull us together, to ask the simple question, what future do we want with AI and how do we achieve it? In my view, this is where regulation, or I would say governance with a small g, may help bring everyone together to share the good AI could do and find innovative ways of governing the use of AI, to allow a future which is thought through and desirable for all.

1-009-0000
Sebastian Wieczorek, *Vice-President, Artificial Intelligence Technology, SAP SE; external expert in the study commission on AI in the Bundestag***.** – Hello everybody. Welcome also from my side, here obviously speaking for SAP, on behalf of Bitcom as well and as a former member of the study group on AI, as was mentioned.

I wanted to separate my part into three challenges that I want to talk about: competency, data and acceptancy, and I think that, at least in my opinion, all three are needed in order to be competitive, so it's not enough to think about just one part of it.

I will speak very briefly on that and then hopefully answer some questions if I'm allowed to. What I see on the status quo side is that in Europe we have a lot of good university research, especially on the applied research-side. I think it's also clear that top-notch players are in the US and Asia because they have the necessary funding both in infrastructure, which is key, and of course also in headcount funding, that means how people are paid.

We in Europe have a unique research funding scheme, but it, in my opinion, prohibits the use of AI in adjacent fields. So we could also do more in applied AI because, right now, we also need to define AI research challenges in order to support other research fields with AI, which is an issue in my opinion. And I think the transfer of knowledge into the industry only works when people are moving or when people are interacting directly and this is somehow not as good as it is in other areas.

On the recommendations, I think we need to have targeted investments into lighthouse research. We need to have broad sponsoring of applied AI across all sciences – so not making that a mandatory research topic but basically sponsoring data scientists and developers in other areas, and we need, in my opinion, to enable more the transfer of researchers into companies – small ones, big ones, whatever – and back to university, so that we have more interaction.

When we talk about improving data access, I have to speak about privacy and the reason for that is the following: I think you can hear that everywhere from people who are working in the field, that there is no data that doesn't potentially contain person-related information What we see with the General Data Protection Regulation (GDPR) is that you have to define a purpose for why you're dealing with the data when you collect data and you have to delete the data when the purpose is no longer there.

This is the contrary to innovation. Innovation basically allows you to think outside the box, do creative experiments, come up with previously unknown things – and that's obviously a contradiction to what the GDPR demands.

What we see as well is that when we talk about data processing, even anonymisation of data is a risk for companies as it could be treated as unlawful or because it's also a processing of data and because there is no guarantee for anonymisation to work under all circumstances, and that poses risks and companies have to deal with these risks then.

The consequence is that in Europe, in my opinion, the development of privacy sensitive products especially is much more expensive than in other regions and therefore, things that are sensitive have to be imported from other areas of the world and cannot be developed in Europe.

Here are my recommendations: I think we need to support the creation of privacy-sensitive AI products to create a fair market. We need to allow anonymisation and treat automated and privacy-preserving AI training activities as anonymisation tools. So, if an algorithm doesn't expose privacy related data afterwards then the training should be perceived as anonymisation as well, and we need to create spaces for experiments and innovation that companies and start-ups have access to.

When we talk about this, the third pillar is acceptancy, of course, and I think there is in the public often a debate about prevention of this topic – use of AI. So there's a lot of focus on avoidance of dilemmas as well. I think we also see that in industrial AI projects, many of those fail due to lack of support in managing the change, based on employees and also the management. And overall, my perception is that AI is seen as a means to drive economic interests foremost and that corporates are somehow positioned against the interests of people and I think this, in my opinion, has to change.

So, I think we should have an ethical discussion that is centred around values, but these values have to be applied to specific-use cases and here, when we talk about risk, when we talk about regulations, I think we need to nail it down to specific-use cases and not try to broaden that and to have an overarching regulation.

I think that we need to invest more in enabling workers and their representatives to drive this change. My perception is that when we talk to workers' councils, when we talk to the unions, there's a lot of interest but there's also a lack of knowledge that is needed in order for them to play the role that they need to play.

And I think that the third point is, in my opinion, that public agencies and governments need to invest more into AI. They need to have a structural approach to identify cases where AI can benefit everybody so that we can create examples for societal benefits of AI – to break the perception of AI being something that corporates use to oppress people.

With that, I just want to reiterate again that if we want to have a competitive Europe I think we need to have the right people. We need to invest in the brains. We need to get access to data in a meaningful way and we need to work on the acceptancy of AI in society.

1-010-0000
Chair. – Thank you very much, and this concludes our panel. We now move to the Members. I'll remind you that it's two minutes for questions and two minutes for the answers, and do please be specific about the addressee of your questions.

We'll start with the EPP. Ms Anna-Michelle Asimakopoulou, you have the floor for two minutes.

1-011-0000
Anna-Michelle Asimakopoulou (PPE). – My question is for Mr Khalil Rouhana. Mr Rouhana, AI, as you've mentioned, is a key driver of digitisation, which allows businesses to innovate, which opens markets and investments and creates new jobs. And over the years, the potential of AI to generate business value has become quite apparent, with companies making significant investments, which are expected to reach close to USD 100 billion by 2023.

Now, we already know that at the moment, Europe is lagging behind China and the United States when it comes to AI, both in terms of adoption and the ability to get financial impact from it. So if Europe is to catch up, my thesis is that we need to make major investments. We need to forge strong alliances, working together worldwide with like-minded partners to get past our fractious disagreements on privacy rights, data flows, competition rules and taxation. And in fact, just last December, President von der Leyen introduced this new EU-US agenda for global change, where tech and AI are prominently featured.

Europe calls on the US to seize this once-in-a-generation opportunity to create this new global alliance and meet the strategic challenge posed by China, and this suggests specifically that, with the United States, we use our combined influence to create a transatlantic technology space, which will form the backbone of a wider coalition of like-minded democracies.

So, my questions related to this are the following:

Firstly, where do we stand with the creation of this transatlantic Trade and Technology Council, proposed by the European Commission? If you could let us know if there's any movement on this.

And secondly, what would be the overreaching principles of such a partnership and its agenda specifically, as this relates to our priorities on AI?

1-013-0000

Khalil Rouhana, *Deputy Director-General of DG CONNECT, EC***.** – The TTC (Trade and Technology Council) is in the making and we're discussing with our interlocutors in the US on the scope and the mode of operation. So it is a work in progress.

On cooperation with the US and like-minded economies for artificial intelligence, we have the initiative that was started by the French and Canadians that is now progressing, with a large number of like-minded economies joining with the ambition of creating a common approach to ethical AI and its development. So we support this initiative and we think it would help us develop a common approach to this issue.

On the technology side, indeed, the new administration in the US has also intensified the interaction with the EU around what could be technology cooperation, in particular in new technologies like artificial intelligence, and we think that would be important for the future, and work is ongoing to make sure that under the TTC we create a successful cooperation framework in this field.

For the EU, our work needs to be also on building our strength, as I mentioned, in the technology and in ensuring that our industries engage in new technologies and artificial intelligence, in particular, to make sure that we have a strong industry in Europe and that we have also the right knowledge and skills.

Europe's strength is in what we call embedded digital technologies, and it is recognised worldwide, and in professional digital technologies, and there we think it's a huge opportunity – the fact that we are strong and this feels like a huge opportunity for Europe to engage in AI and bring its benefit to all sectors of the economy and to also engage our governments in adopting AI and ensure its wide use.

So that's the way we see, if we want to be a trusted partner, we need to be a strong partner, and that's why this coordinated plan and this new legislative framework will be very important for us.

1-014-0000

Miapetra Kumpula-Natri (S&D). – Thank you, Chair. I guarantee that the Committee on Industry, Research and Energy (ITRE) is doing a lot of work on competitiveness and has started work on the Data Governance Act (DGA). I'm happy to be shadow rapporteur on that. But the even better news is that we have already voted on the data strategy, which will be in the plenary on Thursday this week, and I was rapporteur for that. We call for interoperability and standards; these really are the buzzwords we need to work on more. We see the DGA as a kind of a European Schengen for data flows and sharing, as rapporteur Niebler has said. So we need governance that will enable data flows and take it away from the silos, whether it's public or private or in the companies.

But we also consider data sovereignty. Like the GDPR is protecting personal data and our people, we also need rules for the smaller players to take part, and possibilities for existing and new European companies to scale-up and take part in this data economy.

My question, then, goes to the Deputy Director-General and also to Estonia. How do you see what we are actually doing now for interoperability and standardisation? As far as I can see, the innovation board proposed under the DGA doesn't have the power to set standards or well-functioning, well-formed random projections (RPs), which are still needed if we really want to make the data spaces happen. Will the Data Act later be stronger on this point? But now we have the innovation board proposed, then the standardisation ideas under GAIA-X, a data space system support centre, which was mentioned in the digital Europe programmes. So are we doing our best to create a market for data to be used?

1-015-0000

Kristi Talving, *Deputy SG for Business and Consumer Environment, Estonia***.** – Yes, you just suggest also our main points. We hope really that the future data act will address the issue and help us with the interoperability of the data and semantic interoperability of the data more specifically. The semantic side should not be forgotten and nor should the standards, which are really important for the private sector specifically. What we do in Estonia is we try to test as much as possible cross-border projects. We have really good work going on with Finland, with data sharing and register interoperability. So what I would like to mention in addition is, just let us test and try cross-border pilot projects, and when it works cross-border with a few countries, it works also across all of Europe.

1-016-0000

Khalil Rouhana, *Deputy Director-General of DG CONNECT, EC***.** – Indeed, the Data Governance Act creates a framework for data sharing, and in particular, the first pillar – the secondary use of data and the governance structure around it – will support interoperability. The data act will also complement this for what concerns interoperability for business-to-business and business-to-government interactions.

In addition, indeed, the data support centre that we will start this year, with the first course on the digital Europe programme, will have as its major priority ensuring interoperability for cross-border data spaces. We will invest, from the EU side, close to a billion euro in building these common data spaces, notably in areas of public interest with special focus.

The largest part of the investment will be on ensuring interoperability with the development of metadata standards or semantic-based metadata standards for the different areas and APIs to ensure the cross-border access to data across the Union. That concerns the health data space, it concerns the green data space and it concerns also support on industrial data spaces that we already started across all sectors of the economy. But it also includes data spaces for mobility for transport.

What we also prioritised is the investment in data spaces to come under the Resilience and Recovery Package. We think that the 20% to be dedicated to digital will bring also a wide opportunity for investing in this key infrastructure of the future, which is our common data spaces and the data infrastructure, from computing to cloud infrastructure to common data spaces that are interoperable across the EU.

1-017-0000

Svenja Hahn (Renew). – My question is going to Mr Khalil Rouhana. I think we've been hearing a lot of good input and we've been talking a lot in this committee about regulatory framework to choose for AI, and I absolutely believe it will determine the success that you will have in this field. We have worked on several positions in the committee and we've seen many divides here in this committee as well, and the House has already agreed on several major positions. But of course we have still some positions that are open and that are quite controversial, and for my group, Renew Europe, we have several key points that are very important for us that we want to ensure to be seen in AI and data regulation.

So, with a goal in mind that we want to put Europe on the forefront of digital innovation in the world, we want to come with a framework that provides legal certainty to foster scientific and economic innovation. We want to ensure that there's no additional unnecessary burdens on SMEs, on startups, but we want to empower them to actually compete with big-tech giants and at the same time, we want to keep high standards in consumer protection. So, all these goals we will only achieve if we manage to have shared European standards and a really whole single market, because fragmented national legislation will not lead us there.

But of course, we have heard today from many of you who are quite sceptical as well about horizontal regulation. I think we really need to look into what horizontal actually means and what needs to be done in specific regulation, because I think we cannot forget that we have functioning legal instruments in place. So the challenge is really going to be making those instruments fit for the digital age in order to apply to new technologies, without any limitation. This means, as well, closing loopholes or updating our current legislation, and one horizontal approach alone will not be appropriate to cover all challenges of emerging technologies. That's why I think we're really need to look into details.

But coming now to my question to Mr Rouhana: we're happy that you are with us from DG Connect here today and we are, of course, very well aware that you're not going to disclose too many details here today. But nevertheless, I wanted to ask you about the general stance and how we should ensure coherent legislation across sectors. Which role for our future European framework on AI will an update of our sector-specific legislation play in your opinion? And how do we ensure to regulate, in a coherent way, without trying to apply a one-size fits all approach towards any kind of AI? And what are your main takeaways from the stakeholder consultation with the Commission's AI White Paper concerning the risk-based approach? How important is it to define the risky use cases within sectoral legislation, and do you consider there should be more than just two risk levels necessary? Thank you very much. I know these are a lot of questions.

1-018-0000

Khalil Rouhana, *Deputy Director-General of DG CONNECT, EC***.** – It is indeed a challenge to see how the horizontal framework would fit with the sectoral legislation that exists already, and this is the work that we have been doing since a year now. That was an important question and it is a concern that came from the consultation on the White Paper. We've been working with all our colleagues across the Commission to make sure that the horizontal framework is well articulated with existing legislative frameworks and, if I summarise this very quickly: we have two main issues when it comes to risk. First, the risk on safety – when it comes to high risk on safety that impacts our lives in particular, and the high risk that we consider for fundamental rights, mainly discrimination, bias or human dignity that has a direct impact our

lives as well. These are the two types of high-risk that we identified in the White Paper in any case. And if we look at safety, there is the main existing legislation – the Product Safety Directive, the Machinery Directive – that we took into account, and our approach is the following: the horizontal framework will define the main obligations, and these will be then used by the *(inaudible)* legislation using existing conformity assessment bodies when they exist, so we do not overburden the industry with additional obligations and frameworks for compliance and processes for compliance that would be in parallel. Therefore, we rely a lot on existing legislation, and the framework will explain how this will work in a simple and efficient way.

When it comes to fundamental rights, there as well we have the main principles for fundamental rights. But there are fundamental rights that are already in secondary legislation in the Member States, and we take this into account, and we see also how this will be articulated and we saw that there, there might be the need for creating compliance – processes that do not exist today. So this is the way we consider it, but they don't need to be applied ex ante, they could be applied ex post. These are the options that we have considered. I will not say more; this will come in the next week.

1-019-0000

Alessandro Panza (ID). – Signor Presidente, onorevoli colleghi, molto è già stato detto questa mattina, quindi, alcune domande peraltro sono già anche state fatte e le risposte già comunicate, e quindi mi concentrerò su altro.

Inutile dire che nel panorama globale l'Unione europea, soprattutto facendo un raffronto tra i due principali attori di questo teatro sull'intelligenza artificiale, che sono la Cina e gli Stati Uniti, sta rimanendo indietro, però volevo capire quali erano le prospettive, e in parte mi è già stato risposto, tenendo conto ovviamente innanzitutto della sicurezza, ma anche dell'operatività delle piccole e medie imprese.

Volevo fare una domanda al dottor Wieczorek e capire quali erano e se c'erano delle prospettive anche per un coinvolgimento su larga scala di un progetto di coinvolgimento di tutti i poli di ricerca universitari a livello europeo, anche qui per dare sostegno all'impresa quando si parla di maggiore conoscenza e maggiore divulgazione su quelli che sono gli aspetti concreti e operativi dell'intelligenza artificiale, e quindi su come possa essere riportata poi, diciamo così, al grande pubblico l'utilità dell'intelligenza artificiale.

La seconda domanda invece è per il dottor Rouhana: capire se appunto nell'evoluzione dell'accorpamento della raccolta dei dati, visto che in questa mini plenaria ne parleremo anche nei due anni di entrata in vigore del GDPR, se alla luce di quello che sarà, appunto, il coinvolgimento dei dati sull'intelligenza artificiale, non sia utile o necessario rivedere in qualche modo la normativa sulla tutela dei dati, proprio per evitare che questo diventi penalizzante per il settore produttivo, ovviamente stando nel quadro di tutela e di rispetto dei dati e della sicurezza.

1-020-0000

Sebastian Wieczorek, *Vice-President, Artificial Intelligence Technology, SAP SE; external expert in the study commission on AI in the Bundestag***.** – Yes, I will try to be very brief. I think the universities, in my opinion, play a central role, and there are two parts. When we talk about bringing AI expertise to companies, I think what is needed is that the European universities are scaling up in creating these talents that are needed in industry. I don't think it's realistic that just by teaching people working in companies, we will get these AI experts. So the universities have to provide these experts, and we need more of these students for understanding or for educating the society. I think they're also playing an obvious role here, and here I would hope that universities are also applying AI in their adjacent studies, so they're showing how AI can be applied to engineering subjects, to even link with humanitarian subjects as well, so people

get an understanding of what could be achieved with AI, and here again the universities need to invest more into AI, even in subjects that are not IT related.

1-021-0000

Khalil Rouhana, *Deputy Director-General of DG CONNECT, EC***.** – We have seen that the GDPR is a key asset. I want to clarify one point on Europe vis-à-vis the United States and China, as several MEPs have been repeating 'Europe is lagging behind. Europe is lagging behind...', but it is just at the beginning of its development, and Europe has strengths. Indeed, we have an excellent community of researchers. We have very strong industry that uses digital and, when it comes to embedded digital, Europe produces more than 35% of the world production, and embedded digital is just as big as package digital and platforms, etc. These are hidden treasures in Europe that we need to build on, because AI added value will come from these industries and future providers. We have the data and we started at the start of the data revolution as well. Industrial data will be the big thing for the future and Europe has strong industry. So, I think the opportunities are still ahead of us, provided that we make the right investments and have a legal framework, like the GDPR, that creates trust in the digital transformation.

If the latest events have not shown us how important it is to have a lawful development of the digital economy and society, then we must be blind. We're not seeing what's happening around the world. Creating a trustful development of digital is essential for the digital transformation. That's the European way and that's also a key asset for our industry. Europe is known for having trustful products and services, and that is a key asset for us, a key brand that we need to keep on developing. That's what I would say about the GDPR and its influence.

The proposed Data Governance Act brings certainty on how can data be shared. We see that it's feasible. The Data Act will complement this, and the investments that we are making in creating these common data spaces will enable us to have the data needed for our industry and economy across Europe.

This is our data strategy and we are implementing it through the legal acts and the investments that we have proposed. I really want to repeat the importance of the recovery plan and the investments that will be done across Europe in building up these data spaces. In areas of public interest, we need to remind ourselves that our public sector is where we recycle half of our GDP. It's a very important part of our economy and society.

1-022-0000

Alexandra Geese (Verts/ALE). – Good morning to everybody. My question goes directly to Deputy Director-General Rouhana, and I would like to pick up what you just said previously about trust. And my question is: how exactly do you create that trust with the legal framework the European Commission is coming up with? And how do you see that focus on trust as a factor of competitiveness that allows European companies to compete effectively?

And I would like briefly to explain where I come from. Because we are speaking about competitiveness for European companies, and especially for SMEs, but we are ignoring market reality in this moment. We are speaking about it as if there was a level playing field, but there is not a level playing field, because US and Chinese companies have had a head start because they could benefit from very strong public investment to drive technological innovation, and what they actually did – their great achievement – was to turn that publicly-financed technological innovation into a business model that's called surveillance advertising basically, and that generates huge revenue, and that revenue in turn allows them to collect a lot of data to invest in new research and basically to buy up any new company that could threaten their business model.

So how do we deal with that in Europe? And I think that there are two ways. One is to focus, as Deputy Director-General Rouhana correctly said, we have all the industrial data, so we have to create a good space to leverage that industrial data, to focus on industrial production of sustainability – that is, artificial intelligence for machines and for objects. And I think we need to distinguish that segment of artificial intelligence very clearly from the artificial intelligence dealing with people, where we have a huge risk in terms of data protection, in terms of surveillance, in terms of bias. And that's the bad news. Mr Wieczorek, you said AI is often perceived by workers as a corporate tool just to break people, to control people. The bad news is that the way AI is currently shaped in the US, this is true: if you are not middle or upper class white male, AI will be biased against you. Therefore, I would like to see a European framework that makes sure that AI for people really respects fundamental rights. I don't like to speak about ethics; this is about the enforcement of fundamental rights we already have, and I think this can be a factor of competitiveness for European companies. We really need to distinguish ourselves in the European market against the US not to speak about China. So that's my question: how do we do that in Europe, Deputy Director-General Rouhana?

1-023-0000

Khalil Rouhana, *Deputy Director-General of DG CONNECT, EC***.** – The legal framework that we will be proposing, we've been working on with all stakeholders for more than a year, since before the White Paper. Remember we had the high-level expert group on AI that brought together 50 experts from industry, from academia, from civil society, from different sectors to discuss ethical AI development. And the report they produced is unique in terms of completeness, in terms of analysis, in terms of practical considerations as well. This is what guided us and this is what guided our White Paper.

Therefore, we hope this legal framework will create the trustful environment that you are calling for. It is the European way and I think it has its strengths. If we maintain that line, we will ensure the successful development of AI in Europe and an EU contribution to the development of artificial intelligence that lives up to our expectations, that is in line with our economic weight, that is also in line with the level of education and the level of expertise of our companies.

This is what we're aiming at, and it is the European approach that we would like to share with like-minded economies. This is what we put on the table for our discussions with the United States. This is what we put on the table for discussions with Japan, Australia, Canada – all like-minded economies with whom we have very good interactions. This is the way we see the development of AI.

But for that we need to invest in the development of technology. We can preach about trustful AI and have a legal framework, but if we don't have the companies and the technology in Europe, we will have a limited impact on the world scene. That's why our investment in excellence is very important. Looking at the EUR 135 billion that will come from the recovery plan, if we manage – and we see this developing in a very good way now – and the Member States manage in their recovery plans to ensure investments in excellence, investments in the uptake of AI in areas of public interest, I think we have a good chance of making the European way a successful way forward.

1-024-0000

Jörgen Warborn (PPE). – Thank you, Chair. I want to start by outlining the situation Europe is in. Only four of the top 100 AI start-ups are European. The figure speaks for itself in saying that we have a big problem when it comes to competitiveness. It's clear that our report from this committee must give a sense of urgency.

My first question goes to Ms Firth-Butterfield. We can see that the EU is lagging severely behind when it comes to private sector AI investment. A report from Stanford states that

American companies invest some USD 25 billion a year, Chinese companies USD 10 billion, but European companies only USD 2 billion yearly.

So my question is, what should we do about this? What legislative framework do we have to put in place to spur investment in AI? When benchmarking, what are your best tips from the countries that are doing better?

My second question is for Mr Rouhana. I very much welcome the Commission's commitment to create 200 digital innovation hubs. They will lift the general level of AI deployment and development broadly. But we also need to focus on the very top, on excellence, on pioneering, on a global beacon for AI development – something clearly European and truly global. Currently Europe has no AI ecosystem that can compete with the attractions of regions like Silicon Valley, Toronto, Boston or Seoul in terms of AI research. One recurring proposal from stakeholders I've met, and we've heard it from the panellists today, from Dr Wieczorek, is to designate a European AI lighthouse. It should be a cluster for AI research and development, an ESS or a CERN for AI, located in the region that currently has the most competitive position and thereby the greatest potential to catch up with the global giants. I believe we should commit to a long-term and very substantial investment in that region to attract the brightest minds and a lot of private investments. It would be interesting to hear Mr Rouhana's views on this.

1-025-0000

Kay Firth-Butterfield, *Head of Artificial Intelligence and Machine Learning***.** – Thank you. A great question and, as I said, the first thing is that, at the moment, companies fear the regulation that may come. They don't know what it is. Once there is certainty then I think that they will begin to understand how to implement AI within their companies and within the law, and that certainty will release a certain amount of investment.

I think that it's also really important that you help companies implement AI. One of the other speakers mentioned that companies need to understand, firstly, how to implement AI in terms of organisational change and, secondly, they need to do it in relation to their workers, through education and training. And thirdly, they need to be thinking about product design from the beginning of that product design, right through to sale and beyond.

The last thing I would say is you need to be attracting venture capital investment. That's why Silicon Valley does so well and, indeed, other places in America don't do quite so well. And encouraging universities to bring forth companies, as they can be a great source of young companies.

1-026-0000

Khalil Rouhana, *Deputy Director-General of DG CONNECT, EC***.** – The development of the lighthouse for AI is indeed in our plans and we have started preparing for it. In our 2020 budget, we supported the creation of networks of centres of excellence in AI and we see that they are now clustered around four big centres across Europe, with networks that we have created to establish the ecosystem across Europe. Our plan is now to scale up the investment in these centres. And we'll see whether in the end we have two, three, four or one. But our ambition is indeed to scale this up and build up the lighthouse for AI in Europe.

Another of Europe's strength is cooperation. What we have observed with time is that when we have specialisation and cooperation, it enables us to build strength and excellence very quickly. This is indeed what we are proposing: centres of excellence with networks around them that can feed the centre and help diffuse the knowledge across Europe.

Indeed, I think venture capital comes with a dynamic business environment, and it's another big part of our strategy around the hubs, but also around the ecosystems and clusters of business development across the EU.

1-027-0000

Maria-Manuel Leitão-Marques (S&D). – Good morning, thank you for your presentations and for your insights.

I totally agree that we need to stimulate an EU-wide data economy. And as someone said before, we need start-ups and also the relevant investment in interoperability, as never before. But, of course, having data, app creators and experts, it's clear that you are missing the right incentives. We lack the capital to fund innovative ideas and we lack the right regulatory framework.

So, I would like to highlight three main aspects and questions for the Committee, of course, and also Mr Wieczorek.

The first one is that of course we urgently need to harmonise rules on AI in the single market in order to inspire trust in companies and citizens. It's very important. Will this be solved by the Commission's proposals and what is the time frame?

The second question is about greater flexibility for small-scale innovation and this is very important. We need a regulatory sandbox for pilot AI projects to safely experiment, iterate, improve and grow into successful ventures. This is very important to show our citizens and companies that this is possible and they can trust AI-based products and services.

My final question: we need greater integration for our public and private AI efforts and we need funding frameworks that incentivise partnerships between those who know the problems, those who can bring the solutions and those who support it with dollars. I would like to know what kind of incentives is the Commission planning for these special aspects, for instance inside the recovery plans – not only for the private sector, but also for the public sector in order to develop partnerships between our scientific community in data and AI and our public and private sectors?

1-028-0000

Khalil Rouhana, *Deputy Director-General of DG CONNECT, EC***.** – This many-to-many connections is essential for innovation to grow between the users, suppliers and the academic community, and that is at the heart of our support for research, innovation and cooperative projects. And in our proposals for the Recovery Plan, we also highlighted the importance for what we call multi-country projects, where this many-to-many connections happens also across borders.

If you look at the priorities for the Recovery Plan that we proposed to the Member States, they include a large part about the integration of the latest digital technologies, and AI in particular, in public administrations, the health sector, environment, governments in general, transport, mobility etc. So, we think it's very important.
The point I want to make is that Europe is now fully engaging into a digital transformation, something that we have not done before, and it is the opportunity with the Recovery Plan, with the big impetus that we're giving to digital now, to make sure that we have a successful and a competitive industry in the future and we can build on our strength and we have strength, and to say that we can indeed make that successful transformation.

This is what we're supporting. Just to say that an important part of our investment in AI will go to testing and experimentation facilities – what we call world reference testing and experimentation facilities – in health, transport, energy, industry, and these facilities will be open for SMEs, for start-ups, to come and test experiments, develop new applications, with sandboxes, to make sure that we do not stifle innovation.

It's a large part of the investment, it would be close to EUR 200 million that we put from the EU side now. We asked the Member States to co-support with us using money from regional

funds, from the Recovery Plan or from national funds, to make sure that these testing and experimentation facilities develop and are really world reference in terms of use of AI.

1-029-0000
Sebastian Wieczorek, *Vice-President, Artificial Intelligence Technology, SAP SE; external expert in the study commission on AI in the Bundestag***.** – I think on experimental spaces, I think there's a lot to say about this. In my opinion, what needs to be done is to think about what we actually want to protect when it comes to data.

I think data protection is somehow a misleading term because data is the carrier of information, but what we want to protect is that privacy or personal information is not used against people, and I think the term that was used, 'surveillance advertisement', is a very good one and I think that we all want to avoid these kinds of business models.

I think that when we need to process data, sometimes data that contains person-related information – for example if we want to detect humans in dangerous situations, whether they are protected by helmets or not – in order to create such systems, you need to have data where humans are in pictures – where they are annotated not to identify whether they're male or female, or who they are, but in order to create these kinds of systems – and we need to create spaces where it's about protecting what we're doing with the data but not protecting whether there's person-related information in the data and therefore there is no data even to build up these applications, because otherwise, as I explained, these applications can only be built in other countries outside of Europe.

That's the issue that I see and I think I made some recommendations on what could be done in terms of treating, for example, AI as anonymisation but there are probably a lot of other ideas that could be thought of in order to establish these experimentation spaces and I think it's regardless of whether that's for start-ups, or for bigger companies or for SMEs.

1-030-0000
Chair. – Thank you very much, and this concludes our first panel. I would like to really warmly thank Ms Talving, Mr Rouhana, Ms Firth-Butterfield and Mr Wieczorek for their contributions to our hearing and for bringing their perspective on the first topic of today's discussion, which was the governance, the regulatory framework and, as I was saying at the beginning, the ingredients necessary to boost our competitiveness.

2. Panel II: the perspective of Business and the Industry

1-031-0000
Chair. – And now we change perspective with our second panel. We are going to look from the angle of the client, in a way the client of what should be competitiveness in the sector. We have four panellists: Professor Volker Markl, Chair of Research Group at TU Berlin, Database Systems and Information Management, Director of the Intelligent Analytics for Massive Data Research Group at DFKI and Director of the Berlin Big Data Center and Secretary of the VLDB Endowment. Quite a title, Professor Markl. Then the second panellist, Ms Moojan Asghari, Cofounder/Initiator of Women in AI, Founder/CEO of Thousand Eyes On Me. Then the third panellist will be Ms Marina Geymonat, Expert for AI strategy at the Ministry for Economic Development in Italy, Head of Artificial intelligence Platform at Telecom Italia Group. And the fourth panellist, Mr Jaan Tallinn, founding engineer of Skype and Kazaa as well as a cofounder of the Cambridge Centre for the Study of Existential Risk and Future of Life Institute.

Same rules afterwards: exchange of views with our Members; two minutes per question, two minutes for the answers. And then at the very end we will have concluding remarks from our AIDA rapporteur, Mr Axel Voss.

So we start the second panel. I hope all the panellists are connected. Professor Volker Markl, we start with you, you have five minutes.

1-032-0000
Volker Markl, *Chair of Research Group at TU Berlin, Database Systems and Information Management, Director of the Intelligent Analytics for Massive Data Research Group at DFKI and Director of the Berlin Big Data Center and Secretary of the VLDB Endowment***.** – Thank you very much for having me, and what I want to talk about is *(inaudible)* the perspective of research and developing big data and resolutions and I want to talk first about the topic of people, then about data, then about infrastructures, and then briefly about what is, in my opinion, broken, and also about ecosystems.

So if you talk about people, and some of it has been already discussed before briefly about that, but I just want to emphasise again that an important part obviously is that we have to educate people *(inaudible)* both data literacy and other forms of competences, but although of course with respect to excellence where universities have to play a big role and we have to, for that reason, since AI is an important sector of production in the future, in particular data, we have to invest massively in education and research in meta-systems and applications of big data and machine learning, particularly data literacy and data programming, data management and algorithmic data in terms of statistical methods.

That should be done both in university curricula and *(inaudible)*, not just in computer science. What's important is to bring this to all curricula and in all subjects, because you need that in digital amenities, you need that in psychology, you need that in office engineering, so all other skills but even to some degree already there in high schools. And at the same time with respect to people we have to make sure that we retain people and we have to strengthen, concentrate competences and we have high- competence centres like *(inaudible)* in Germany and others, and I think it's very important to strengthen those.

With respect to data, we have already talked about access. That is important with respect to open source, open data and even sharing in reducing barriers, where I see secondary use, interoperability and privacy issues. And those I think are a lot of activities that are happening already. However, if they talk about the next topic, which is infrastructures, that's where I see that we regularly make big mistakes and that's where I also see one issue, because in order to build infrastructure we have to first see government as a partner and not just as somebody who dishes out money for projects, which is currently happening. We have to look at, you know, creating infrastructures, because complex software infrastructures for data have to be developed in the software market for design, fashion, and it's an investment, not a project.

And the problem that I see very often, you know, is creating lots of smaller projects, where we are creating something with lots of stakeholders, like GAIA-X for instance, where a heavily-distributed system does not meet the economies of scale and also prevents us to address, you know, other complexities that come from so many players and in the end will not help us to reach the sovereignty goal that we are striving for. It's good to reach intermobility of data, particularly sovereignty and the corresponding *(inaudible)* development maybe hard to reach.

So with respect to what is broken, *(inaudible)* perspective that I want to bring up of research funding and research project. So I would summarise that with four aspects: often it's too slow, it's too complex, it's not sustainable, and although we are hampered by some red tape, in particular, and Mr Wieczorek has pointed it out very well already, unreasonable data protection, where we focus on data protection instead of protecting ourselves from analysis, which is really what should happen in order to reach information *(inaudible)* where there's some kind of wrong understanding of data protection and privacy.

However, with respect to slowness, if we look at the proposal process, you know like FP7 or Horizon 2020, it takes a long time by that time and so a project can start, and at that time, of course, you know, it may already be late. It's too complex because it just has way too many partners, so most effective are usually projects with two or three partners, but the trend is bigger and bigger projects, which are reaching high complexity. And often with project funding there's no clear sustainability strategy and there is no concept of trust and reward with respect to *(inaudible)* memory and give trust to try something *(inaudible)* memory.

And last but not least, we need infrastructures, certainly we need ecosystems that reduce the red tape, allow for investment, create start-ups from universities and really have a single mission. So such *(inaudible)* AI sectors from the people, we need to concentrate people around *(inaudible)* and which can go beyond those *(inaudible)*. Thank you.

1-033-0000

Moojan Asghari, *Cofounder/Initiator of Women in AI, Founder/CEO of Thousand Eyes On Me***.** – My topic will be talking about inclusive data sets to have inclusive AI. If you want to have inclusive AI that benefits the society as a whole, we need inclusive data. As we know, data is the fuel of machine learning and AI algorithms. From one aspect, the bias in AI algorithms and applications is made by human bias, which is due to the human or teams building such technologies.

As we know, AI is the extension of its creators. If they are biased, then the AI will be biased. On the other side, biased data sets also create biased models and therefore biased predictions. The problem that we are facing in machine learning is that there are not enough inclusive data sets, and bias in gives bias out. There are severe implications for women and gender minorities, disabled persons and other minority groups, and we have seen many products and applications that were shut down due to their discriminative natures.

This issue is universal, meaning that this is not only for a particular country, but when it comes to the amount of data and the inclusivity of data available for machine learning, Europe is behind the USA and China. There have been attempts from the EU to come to an agreement with GAFA on data sharing and avoiding that the data from Europe is sent to the USA, but this does not solve the issue of data set availability for enterprises in Europe to develop AI technologies.
Talking about enterprise competitiveness in Europe, according to a survey by IPSOS, enterprises tend to fall into one of the two groups: the adopters, which are 42% who are currently using at least one of the AI technologies, and the non-adopters, which are 40% that do not use AI and do not plan to use it in the following two years. The remaining 18% of enterprises currently do not use AI but they do plan to do it in the next two years.

When adoption is considered at the level of each technology, adoption in the EU is still relatively low. It ranges from merely 3% of enterprises currently having adopted sentiment analysis to 13% for anomaly detection and process/equipment optimisation. Therefore there is no concentration of a specific technology that has particularly high uptake.

Talking about obstacles to AI adoption, successful adoption of AI means that enterprises can overcome any internal or external obstacles to adopt the AI technologies. Enterprises generally find internal obstacles to be a major challenge in comparison to external obstacles. The two leading internal barriers that enterprises face are characterised as AI skills and AI skill needs, and the cost of implementation. Lack of skills among existing staff represents around 45% of enterprises and difficulties hiring new staff with the right skills is 57%, and also cost of adoption and operational process: 49%.

The skills barrier is very unique in the sense that it does not depend on the size or sector of companies, but rather all enterprises compete in the same job market and therefore face skills shortages. Here the issue of gender becomes crucial as we lack technical diverse AI talents, meaning women, for example, and other gender minorities. And adding the diversity element to the map as a factor when hiring AI talents can be very challenging, and this is one of the main elements of competitiveness of European enterprises compared to other countries, such as the USA, where higher compensation can drag European talents to those markets. For example, at Women in AI, one of our missions is to help enterprises to source diverse talents across the world, and we work with corporations to fuel AI talents with educational programmes. We need more investments in educating new diverse talents and supporting universities and fresh diversity initiatives.

The second element in the enterprise competitiveness in AI is the data sets that many of the speakers already talked about. The diverse inclusive data set requires appropriate infrastructure to collect and store data, as well as policies to put in place related standards. As an external barrier, the regulatory barrier and data standardisation are the main barriers for enterprises. According to the survey that I mentioned, 29% of enterprises state that the need for new laws and regulations are a major barrier and 33% find strict standards for data exchange to be a major barrier.

33% of enterprises claim that the liability for potential damages when adopting AI technologies is also a major external obstacle to AI adoption. This can be more discussed in cases that AI results in an unbiased solution or a harmful application. Alongside such issues related to regulations and data standardisation, having inclusive data sets with proper standards is nevertheless crucial for the success of the adoption of AI. The balance to find between not having regulations and having too much regulation is very important to ensure that the data collection and storage are ethical and won't block the innovation at the same time.

I like what Ms Firth-Butterfield said, that regulating AI can be a difficult task, but putting in place ethical principles can be more useful. Big American companies today, such as Facebook, do not share their data with Europe. Setting up a European data space as an initiative to create data market means that the EU needs to encourage the collection and storage of diverse data sets to facilitate the adoption of AI technologies for enterprises and at the same time ensures the inclusiveness of these data sets.

The Data Act which we mentioned earlier in previous talks will be useful, but the creation and implementation of regulatory framework requires high vigilance and collective effort to make sure such standards do not add to the existing barriers and also keeping in mind the main question of how to make sure this will create inclusive data to create inclusive AI.

1-034-0000

Marina Geymonat, *Expert for AI strategy @ Ministry for Economic Development, Italy. Head, Artificial intelligence Platform @TIM, Telecom Italia Group***.** – Mr Chair, I've heard so many interesting things, I would like to speak about everything, but I'll stick to my four messages and I will try to stay within the five minutes.

Firstly, I agree with Doctor Rouhana about the high level of our European research: basic research and academic results.

The first point is how to bring this excellence into our industry. This is a really hard subject, and in TIM which is the telco company where I work in Italy, we've been doing so in the last 10 years, so I can tell you, it's really complicated. It's like building a bridge from industry into academia. What I think is that it cannot cost as much as hiring an external consultant that just comes and does the job, because it's much more time-consuming for the company as well. So

I believe that for every euro that we spend in working with universities, the government could give like another euro or two to help. Because in this way we can build really good projects and be able to compete. That's the first point.

The second is the importance of training. We've heard just before and also in all the previous talks how difficult it is now to reskill this amount of people working in companies. But what I think, working on AI in the industry for so long, I think that nerds – you know, people that really build algorithms – make up just a small percentage of the group, and these can be taken by the previous point: collaborating with universities. Then you need people who analyse data and understand and explore big data sets. You can learn to do so: even if you're in your forties or fifties, you can learn to do this, with 100 or 150 hours of training and the training on the job. I think the big companies should go in this direction.

Then there is another big percentage of time which is needed to reframe problems from the old expertise-based problems solved by semantics to the new data-driven solutions based on statistics, and that's the change of frame that needs to be done in order to use AI in a company. That can be done by anyone with just basic knowledge of AI, and this is also really important.

Next, I've been hearing a lot about small and medium enterprises, which are really important for us in Italy and the whole of Europe, and I think there are a couple of things to say here. Training should be focused also on showing small and medium enterprises how important their data are and how careful they must be when sharing their data.

I think that if I owned a small or medium enterprise and I buy some machinery, a tool, and then the vendor offers me the warranty and the maintenance and the predictive maintenance provided that I give them the data, I say okay, very good, I give you the data. And if I'm not trained about the basic principles of AI, I don't know that this is really dangerous, because a few big companies getting all the data from small-medium enterprises could come to know a lot of our distinctive factors, of our know-how, how we do things better than others. So we should be really careful about that. And that can be done by training, but also by the legal framework. So I want to have the right to say yes, I want the warranty, I want the maintenance, I want the predictive maintenance, but I don't want anything else to be done with my data. I want to be able to say: do not use my industrial data for any other use than helping me manage that machinery.

Lastly, the problem of public administration data. It's really a huge amount of data that can be given to the public. The point is that it's not only that it can be given openly to decide what data can be given, but also how this data is given. If you want to apply and to develop an AI algorithm, you need data to be exposed in a certain way. They must have a certain granularity. They must be divided into chunks so that an algorithm can do something about that. If you explore just an average statistic on a PDF, that's not really opening public administration data.

I think this is a key point, also for the development of new startups and also for university to have access to big data sets, where they can train their algorithm and come up with really good and new ideas for societies.

Of course, all the subjects that have been treated before, like ethics and GDPR and protection of privacy, are really important, but there is no time to treat all of them. I just came with what the industry really needs now, and it needs, more than anything, training and getting knowledge from the universities. I think also that populations should be trained so that everybody is aware of what AI can bring to their lives, so you get the information that is meant for you by algorithms, and deep fakes and fake news, all of this can be addressed with training, so for me. The key word here is training.

1-035-0000

Jaan Tallinn, *Founding engineer of Skype and Kazaa as well as a cofounder of the Cambridge Centre for the Study of Existential Risk and Future of Life Institute***.** – Thank you very much for inviting me here. Now I have to say something completely different. Once I accidentally wore an outfit like this to a black-tie event and someone there looked at me and commented, 'Well, you must be from the tech industry.' And indeed I am.

After helping to build Skype, which is, as mentioned earlier, the 'original gangster' of European tech unicorns, I have gone on to invest in over 150 technology start-ups and since then, I have also talked to and made friends with hundreds of top scientists and tech entrepreneurs, many in the field of AI. And before they were sold to Google, I was on the board of DeepMind, one of the leading AI groups in the world. So sometimes, I joke that if I run away, AI will destroy the world in the next 20 years, and probably someone I knew personally will have pushed the wrong button.

Now, today I'd like to argue that framing AI in terms of economy and economic competition is just much too narrow and would potentially miss most of its impact. If you think about things like face recognition, machine-optimised propaganda, predicted justice and autonomous weapons, the implications of these AI applications already go well beyond the economy. Not coincidentally, these applications are also controversial, and people are increasingly uneasy about AI for that reason. According to the Oxford Internet Institute's survey last year, in Europe 43% of people thought AI would be harmful, while only 38% believed it would be helpful. Now, granted, many are just concerned about their jobs and future income, but I bet that more and more people are seeing the bigger writing on the wall.

So what is this bigger picture? The essence of AI is automated decision-making. So I believe the correct way to think about AI adoption is it's a process of delegating human decisions to increasingly competent machines. In fact, whenever you see or hear the word AI, especially during this session, try mentally replacing it with 'delegation of human decisions to machines', and you will immediately get a better sense of the opportunities and risks, both in the economic as well as wider context. And the upside is clear: replacing slow-thinking humans with fast machines can yield sudden jumps in competence. On the other hand, as every leader knows, whenever you delegate decisions, you will also lose some control over outcomes. This presents a real strategic dilemma for our civilisation. It's not clear if we should delegate faster and bring forth the fruits of increased competence or take it slow in order to avoid joining all the other species on the planet in having precisely zero control over our future.

Framing AI as a delegation process also highlights the problem with competition. As we saw with nuclear weapons, global competition produces quick capability gains at the cost of being forced to continue even if you no longer want to.

I have so much more to say on this topic, as I've been working on it for the last decade, but I kind of need to start wrapping up here. Perhaps I will just say one thing. I was so happy to hear Alexandra Geese from the Greens say the observation that the AI safety community has increasingly realised in the last several years that we should probably differentiate between AI that's dealing with people and AI dealing with objects, or 'STEM AI' as it's called in AI safety circles.

To conclude, I urge you to consider the wider context. Instead of thinking about AI as a component in Europe's competitiveness, think about AI as the species-wide process of delegating human decisions to machines. Machines that will only get faster, smarter and more powerful, yet are and remain decidedly non-human.

Earlier I presented myself as a technology investor, but I expect my non-profit work to be much more impactful than my investing. I'm proud to support three such initiatives that investigate how to reduce risks from advanced AI, as well as smart technologies who want to do the right thing, not just the most profitable thing.

I believe something similar to be true in your case as regulators. Your long-term impact will probably be less about how you made Europe more competitive and more about how you helped humanity to safely navigate this complicated AI-delegation dilemma, a peak part of which is not letting the global competitive pressures tie our hands.

1-036-0000

Henna Virkkunen (PPE). – Thank you, Chair, and thank you to all the speakers. I think it was very inspiring to listen to you and everybody had very clear messages, and of course Jaan Tallinn's little bit critical perspective, I think that was also a good perspective for this discussion. My background is very much in the Committee on Industry, Research and Energy and I think that, in many ways, being competitive in AI deployment and with the help of AI deployment I found to be very much in the same building blocks as competitiveness in general.

Especially when we are speaking about the European Union, we need to build a borderless digital single market, and also a competitive and innovation-friendly and trustworthy regulatory framework. And we need to access finance and competitive taxation, cooperation between innovative companies and research institutions, as was mentioned here many times, and also industry-specific strategies, of course along with incentives and legal certainty for data sharing, which was also underlined here many times.

I'm especially happy that so many of you were also paying attention to the role of education and skills. Of course this is something for which the Member States have competence in Europe, but it's important that we can give also recommendations and share best practices between the Member States on this topic, because I think that is also crucial.
But I have two specific questions for our speakers. First of all, I'd like to ask Professor Volker Markl about data protection, because you mentioned that it's one of the obstacles for innovations in AI in Europe. And especially I'd like to ask a little bit specifically: do you have some examples in mind and is it because of our GDPR Regulation, or is it just because of the practices we have that there are obstacles because of data protection?

And then I'd like to ask also Moojan Asghari, because you are very much focusing on, and your expertise is in, women in AI topics, and you were speaking about a very important topic, about gender perspective and also biased data sets. But we also worry in the European Parliament that there is such a small number of women who work in ICT professions, only 18% in Europe, and we are trying to encourage more females to seek careers and professions in ICT and in AI. So do you have some good ideas on how we could also boost their interest in these areas and encourage more females to take part in these ICT professions in the future?

1-037-0000

Volker Markl, *Chair of Research Group at TU Berlin, Database Systems and Information Management, Director of the Intelligent Analytics for Massive Data Research Group at DFKI and Director of the Berlin Big Data Center and Secretary of the VLDB Endowment***.** – The first question was about data protection. The challenge is to an extent, of course the implementation, so with respect, for instance to a concrete example.

Data that was personal data that was acquired from social media networks where the first step was to anonymise the data, but that step is considered to be violating privacy, because the original data had, of course, personal identifying parts and just removing those on site was a privacy violation, if you wish. And for that reason, such a start-up that wanted to do that had

actually to leave, in this case Germany, and had to go to some other country in order to be able to do this kind of business. So, those kinds of issues.

We, of course, all have seen several others, like for example concretely now in our current pandemics – I am sure many of you are aware that we have in Germany this app that was supposed to do contact tracing for corona, where, however, due to privacy considerations and part of this is GDPR, part of this is how it's lived, the privacy consideration prevented the app from being effective.

So what we need to do, I think, is really to move towards protecting from legitimate analysis and, of course, taking action if illegitimate analysis of the data happens, but not per se protecting or preventing the data from being collected and being then analysed for legitimate use and in particular having some form of a trade-off to weigh the benefits and the risks of a certain collection of personal identifiable data.

1-038-0000

Moojan Asghari, *Cofounder/Initiator of Women in AI, Founder/CEO of Thousand Eyes On Me***.** – Actually one of the things that we are doing, and we just recently launched it the beginning of this year, in order to have more women involved in the discussions and mostly focusing on ethics and policy-making, we created a task force at Women in AI to gather some experts in a committee that we are working on training them on topics related to ethics and AI, and at the end of our programme, there will be representatives of our community going to organisations and corporations and helping them in implementing AI-ethical guidelines.

So this is one of the things where we actually are following guidelines and frameworks proposed by the European Commission, and this would be very interesting to see how we can have more women on board and also sitting at the tables of policy-making regulations, decision-making and all those discussions.
This is one of our main objectives in creating this expert group within Women in AI. Another thing that we did with the Swedish innovation agency VINNOVA was that we worked on a report and conducted many surveys and interviews with experts in AI and gender diversity to tackle the issue of how AI could contribute to close the gender gap and what are the barriers that we are facing, what actors should collaborate, and their report is now online. I will be happy to share it with you. This was a very interesting collaboration between government and non-profit such as Women in AI. So I do believe that the opportunities are numerous, and we are very open to collaborate.

1-039-0000

Brando Benifei (S&D). – Signor Presidente, onorevoli colleghi, ringrazio tutti i relatori per aver portato punti di vista molto interessanti e utili per il nostro lavoro sull'intelligenza artificiale e la sua *governance*. Un lavoro che ha tra i suoi obiettivi quello di promuovere e valorizzare l'eccellenza europea che esiste ed è forte nella competizione globale in questo settore.

Tra i moltissimi spunti ricevuti, vorrei porre, in particolare, una domanda a seguito di questi spunti alla dottoressa Geymonat: Lei ha parlato giustamente dell'importanza del trasferimento dalla ricerca di base all'industria, dell'importanza per quest'ultima di collaborare col mondo accademico. Il tema delle competenze è uno dei punti su cui c'è ancora bisogno di fare molto in Europa per poter competere a livello mondiale.

La Commissione ha presentato lo scorso autunno il nuovo piano d'azione per l'istruzione digitale, per supportare gli Stati membri nell'obiettivo di chiudere quel gap, ma le sue competenze in materia sono limitate. Un tema poi a cui si interseca quello di genere, ma non solo, in cui la scarsa presenza femminile in generale e la scarsa diversità tra gli sviluppatori di

sistemi di intelligenza artificiale genera condizionamenti o *bias* nelle decisioni prese proprio da questi sistemi. Si tratta di una questione molto seria.

Cosa si sta facendo, dunque, a livello nazionale, anche nel contesto del piano di ripresa, per migliorare sia le competenze specifiche per l'intelligenza artificiale con curricula necessariamente interdisciplinari per promuovere la diversità, per intensificare i contatti diretti tra università e industria, che Lei giustamente cita come una collaborazione fondamentale per la riuscita di un ecosistema competitivo sull'intelligenza artificiale? Quali possono essere, dunque, delle buone pratiche in tal senso?

1-040-0000

Marina Geymonat, *Expert for AI strategy @ Ministry for Economic Development, Italy. Head, Artificial intelligence Platform @TIM, Telecom Italia Group***.** – Thank you for the question, it is indeed a good question. I think that for the future, and that's already been said in the previous question, there are a lot of initiatives ongoing trying to bring more women into the groups.

And on what to do now? As I said before, I think that, at least in Italy, the number of women who are not in the ICT sector is much bigger than the others. So in the big companies now there are a lot of women working on different subjects with a different background. And what I think is that by teaching those women, with some masters, for example, of say less than one year, we can bring a huge amount of women into the multidisciplinary groups.

So I think that good groups for developing AI can be made by a small number of real experts who will come from universities, and European universities are already very good at providing highly skilled people. So we have to invest in those universities and keep those standards high, because AI is just at the beginning, as we said. We need to study and to push this forward so that we get highly skilled people from the university.

And then we should work to create multi-disciplinary teams and diverse teams. I think that the key point is to complement this key technology core with a number of other people working around analysing data and for example, checking for biases in the data sets. The problem of data sets with bias is actually there.

You don't need to be an algorithm developer to learn to use the data exploration tools that are necessary to explore those data sets that train the algorithm and it's inside those data sets that the bias is hidden. So learning to understand how to explore this data, how to find out biases, there are tools which are not so difficult to use. So even if you are not a natural born technician you can learn in less than one year.

So I think this is the key: to bring everyone around the table being able to bring their own expertise, their own special point of view and checking for diversity and gender equality inside the corpuses of data that train the AI algorithms. This is the practice that I would suggest, doing a lot of training inside the companies.

1-041-0000

Svenja Hahn (Renew). – My question is going to Marina Geymonat. As I said already in my first intervention this morning, I am convinced that we can make Europe a big player of a great advantage to the single market. That's why I believe a common legal framework is so necessary: that we have the same conditions and rules for companies but also for public bodies to actually tap the full potential of AI.

Moreover, I think we need a lot of coordination between Member States, and learning from the European harmonisation of many sectors in the last decade, we can see that this is the progress towards a single market and that the benefits lie there.

In that regard, I really want to ask questions to Ms Geymonat on cross-border coordination. I know that wasn't in your opening statement, but I see that you have some experience on that as well. So I'd like to ask you if you could give us one or two best-practice examples of good cooperation and technology policy throughout the EU that we could build on in the future.

And secondly, what is the most effective way of coordination in the EU that should advance when it comes to big players in the field of AI? Do you consider an agency on European level necessary, and if yes, what should the task be? And if not, how can we ensure a well-coordinated implementation of rules throughout the EU in another way, if there's not one European Agency?

1-042-0000

Marina Geymonat, *Expert for AI strategy @ Ministry for Economic Development, Italy. Head, Artificial intelligence Platform @TIM, Telecom Italia Group***.** – This is a huge question. I think that, first of all, the universities and the academia world should coordinate, and the way to do so – I think we're going in that direction, you know, trying to more and more exchange, for example, PhDs and have joined programmes to develop researches on special subjects. I think this is a good way forward.

And also, another way forward that I think is good to make universities work together across Europe is to enable big companies like ours to work with universities independently on the nation *(inaudible)* sides, so we should work with Italian universities but also any university across Europe. So I think that industry, in this sense, is a kind of important bridge that can help even different universities to work together and try to focus the big industry problem from an academic mind-set, so to solve it in a better way. And naturally, making it a European effort, a cross-border effort. So one way is to have the companies as the common ground where different universities can put their research jointly.

Another important thing would be to put together the efforts and try to have a unique point of development such as for – I didn't talk about it before but I think it's important also – all the harbour part, that would be something where Europe should invest. And the point here would be to put together all the efforts, put all our money on one horse and try to make it, for example, the European harbour in semiconductor research and development and production centre. This is an example, and how this can be done is, of course, by enabling all the nations and all the companies of the nations to be joined together into a kind of supranational body that can make research and development reach the objectives that are common and coherent with a common legal ground that you are defining in Europe. I don't know if I have answered but it was really difficult.

1-043-0000

Alessandra Basso (ID). – Signor Presidente, onorevoli colleghi, ringrazio anche tutti i relatori.

Ho due brevi domande: la prima è per la dottoressa Asghari. Io sono rimasta molto colpita dalla Sua carriera e vorrei farle una domanda su questo tema, anche se in parte ha già risposto, e la domanda è: come ritiene che l'applicazione dell'intelligenza artificiale al settore dell'educazione e della scuola potrebbe aiutare a superare lo svantaggio che esiste e che vede le donne profondamente discriminate e anche a migliorare lo sviluppo della creatività nelle scuole.

La seconda domanda è per il dottor Tallinn: leggendo alcune ricerche sono rimasta impressionata dal fatto che i ricercatori nel settore dell'intelligenza artificiale ritengono che ci sia un 5 % di possibilità che l'intelligenza artificiale porti all'estinzione del genere umano e che, entro 120 anni al massimo, tutti i lavori svolti dagli uomini potranno essere svolti dalle macchine.

Partendo da queste considerazioni, oltre che dal rischio che Lei espone di perdere il controllo del nostro futuro, secondo Lei è possibile impostare, e come, una guida per l'intelligenza artificiale o dovremmo arrestarne seccamente l'evoluzione, se questo fosse possibile.

1-044-0000

Moojan Asghari, *Cofounder/Initiator of Women in AI, Founder/CEO of Thousand Eyes On Me***.** – So if I understood well, the question is how training can help AI development and reducing the issues of bias and how it helps the creativity in terms of skills. So, we know that we don't have enough diversity in general in AI in skills that we have. Just giving you a number, so we have something in Europe (different countries are different), but we have between 10% to 20% women who are working in AI in STEM. So what happens is that these skills, there are not enough for the labour market that we are, and we are tapping, in Europe that all the companies, all the organisations are looking for them in order to be available and at the table of the companies that are building these technologies to participate, to create, to build these technologies, and that results in biased applications and biased products of AI technologies.

How we can use tech training and education to solve this issue is by starting very early. So, there have been many surveys and one of them we actually conducted it at Women in AI, is that we noticed – and we did that in France – we noticed that girls at the age of 15 do not go to tech or engineering, in general, STEM industries, and the reason is that that's the age they start to choose their major, and mostly they go to other majors which are not related to tech and, therefore, AI. And this comes from different factors. For example, the teachers or professors who are teaching them at school they are not *(inaudible)*, it's from our educational system that we are also biased. A good example is my own cousin, who is doing engineering in France, and she's the only person in the school and the professors, who are also men, told her, what are you doing here? Are you a tourist in the school? So I know that schools or training centres are different from one to the other, but these are basic fundamental issues that we have.

So to create a very inclusive training and educational system, we need to start from the very beginning; we need to think long term – for the next 10 years, how we can grow the skills to at least 40%, 50%, so these new talents will come to the companies and build AI, which is inclusive and trustworthy and out of bias. And it's not only about binary gender when we're talking about it, it's more – diversity has different dimensions. We need to think about different aspects of race, religion, and so on.

1-045-0000

Jaan Tallinn, *Founding engineer of Skype and Kazaa as well as a cofounder of the Cambridge Centre for the Study of Existential Risk and Future of Life Institute***.** – This is indeed a question, thank you for the question, it's a question that I kind of struggle with all the time, but at the end of the day, I'm an optimist. The reason why I spend so much time and money in what's known as the AI alignment domain is that I definitely do think that there is hope for solving these things.

I don't think that it would be easy to just stop AI development, just because there are so many competitive pressures, as we are talking about here. Almost all the people have talked about how can we push AI faster because there are competitive pressures to do so. We should realise that there are competitive pressures, we should acknowledge those.

At the same time, I think there are ways how we can make the regulation, and what's known as differential technology development, more nuanced, and see where do we put the emphasis. For example, as was already mentioned, I think it is highly valuable to think about and draw a distinction between AI that just deals with science and engineering and AI that deals with, for lack of a better word, the manipulation of humans. There are many reasons to do that and I think that regulators should be aware of that distinction and do that.

The other thing is to really start thinking about regulating compute. What's happening right now in AI is that aspect of a kind of excitement to push more and more compute towards systems that we don't actually understand. We just know that that there some high principles why they should get better, but we don't actually know what is happening, what kind of structural competition happens inside them.

The VP of Nvidia said that he expects, in the next five years, somebody to invest one billion dollars to train an AI, just one training run, that is two weeks to push electrons are around for one billion dollars. To me it sounds just irresponsible to do something like that. I don't know if that's going to happen but this is one thing that regulators should be thinking about: how can we constrain computation and just ridiculous amounts of money being thrown at potentially dangerous AI experiments?

And international cooperation is important.

1-046-0000

Damian Boeselager (Verts/ALE). – Thank you Chair, and thank you to all the speakers for your very interesting interventions. I think what we all care about is to somehow counter the threats and the risks of data also online when it comes to buyers but data quality, availability, and then somehow reap the benefits of AI. And so I just want to ask back, also to Mr Tallinn: one of the key risks that I see is that the whole data ecosystem, if I can say it, is currently very highly concentrated. So when we look at, for example, BT markets, obviously we can see that, and that's why we need the DSA and DMA, but this is also true when we look at, for example, the cloud market, where again, we see a high concentration.

And if we talk about competitiveness, I think we need to talk about this level of concentration, and so my question – because this, you know, there is this competitive pressure to *(inaudible)* – what can we do as regulators, back to you as a question, what can we do as regulators to break down existing barriers to entry into basic *(inaudible)* ensure that it is not just money and power agglomerated among a few?

That's my first question, and then to Professor Markl, in the same kind of spirit: how can we make sure that this market concentration in data market does not perpetuate itself into the AI market? And maybe also, since I'm working on the Data Governance Act in this regard, rather than creating a single database, do you think that the *(inaudible)* of the Data Governance Act of regulating data intermediaries, so data sharing services, and potentially creating stock exchange models could be an alternative to what you're presenting, or do you think this can't replace the idea of a single database?

1-047-0000

Jaan Tallinn, *Founding engineer of Skype and Kazaa as well as a cofounder of the Cambridge Centre for the Study of Existential Risk and Future of Life Institute***.** – I think they are two separate things: what can we do about the concentration of data and what can we do about the concentration of compute? And I think they should be treated differently.

On concentration of compute, it seems like very clear economic scaling laws allow for that. We've seen this in other contexts like Bitcoin mining, which is a very big example of something that was designed to be decentralised ending up very centralised because of economic pressures, benefits from scaling. I don't think I have a very good answer there other than just keep an eye on the big players and try to work with them in order to ensure that what they're doing remains safe.

With data, I think there are interesting things. One thing that I say to people is, remember that in AlphaZero, the 'zero' meant 'zero data'. I expect the data hunger of AI to be temporary. A friend of mine, Stuart Russell, who is a leading advocate of AI safety in academia, says, we

don't show 10 million pictures of giraffes to children in order to teach them what is a giraffe. So, in some ways, I think the data problem will ease over time, but I'm not very certain.

1-048-0000

Volker Markl, *Chair of Research Group at TU Berlin, Database Systems and Information Management, Director of the Intelligent Analytics for Massive Data Research Group at DFKI and Director of the Berlin Big Data Center and Secretary of the VLDB Endowment***.** – With respect to the overall concentration, I see it similar to how Ms Geymonat was also saying, and as I said before, so from a hardware perspective, we need to concentrate just for the sake of the economies of scale and also to reduce the complexity of the systems design, so there will be a clear concentration from that perspective.

If we talk now about data. The challenge that I see is that, as long as we're talking about big data – and of course there is conjecture: will we still have big data in the future or not? – so personally I think that the machine learning systems but also in general just to deal with actual changes in the data, we will always have to have some inflow of current data, and if we do that, then we have to realise that, no matter what we do with the processing, we will have to bring the data together at some point in time. Distributing out the processing, again, is something that from a technical perspective will provide a high complexity and challenge with respect to scalability. So that means that systems that try to have data brokers, data exchanges, will work for the small scale, but if we talk about large-scale data, that would from a technical perspective be a challenge.

1-049-0000

Geert Bourgeois (ECR). – Thank you Chair. So, the EU has a severe backlog in comparison with the United States and with China. Between *(inaudible)* 2018 the US invested 20 times more than the EU in AI and big data, and the Stanford AI index is confronting when it comes to private investments: EU 4.8%, US 55.8, China 23.5%, and on top of that, with Brexit, the EU lost one of its AI driving forces. So in my vision, the EU should make a shift in its budget and invest more in R&D and apply itself to data sharing.

I have a question for Professor Volker Markl. What do you think of the proposed European data strategy and the Data Governance Act, and what would be the focus of the coming data act? And second, which solutions do you see to invest more *(inaudible)* targeted with a long-term vision?

And then I have a second question I want to address to Ms Geymonat, concerning the development and rollout of AI. The development of AI differs from other more classic products in the sense that it has a better output the more it *(inaudible)* used. Trial and error is essential. Tools and instruments, legislative or others, could be used to enhance testing or market approval in order to embrace the specific characteristics of AI. To illustrate, in the US a pre-certification programme was introduced to facilitate market access for mobile health products. Could such a pre-certification programme be a solution?

1-050-0000

Volker Markl, *Chair of Research Group at TU Berlin, Database Systems and Information Management, Director of the Intelligent Analytics for Massive Data Research Group at DFKI and Director of the Berlin Big Data Center and Secretary of the VLDB Endowment***.** – So with respect to the overall long-term perspective, the way I see it, that currently, also with respect to regulation, I see that with respect to big data infrastructures, as we all know, we have the big players from elsewhere, and we really have a market failure here, because there's not much incentive for coming up with a European champion that could compete with the global players and help us with data sovereignty. The reason is that there is already an established set of players, and just by creating another offer, we will not have the demand.

So the only way to create demand is really by taking seriously the requirement of storing data in the European framework. I personally think that that would create a market demand that would help a European champion. This is something that in the Data Act would be very important really to enforce that. For instance, making sure that there is no excuse, like the Cloud Act in the USA prevents American companies from delivering data to the US services if needed, and we really should make sure that, if data is to be kept private, then the data cannot be hosted by companies that are subject to that.

I think this would be an important part. With respect to a long-term vision, what I see is that we should really invest in what I would call a data ecosystem that allows storing both of data, processing of data, and also the algorithm, so that data and algorithms can be in a space of open and shared innovation. At the same time, this would enable us to have a long-term perspective out of which an ecosystem can grow, where start-ups can build on AI applications on top of such an ecosystem. But the ecosystem really falls with having hardware. So it has to be built bottom up and it cannot be just, you know, a slide, which is what I often see in those discussions, which is really creating slides as opposed to the actual system.

1-051-0000

Marina Geymonat, *Expert for AI strategy @ Ministry for Economic Development, Italy. Head, Artificial intelligence Platform @TIM, Telecom Italia Group***.** – So, the question was whether a certification programme could be a solution with regard to the trial-and-error approach of AI, and so making sure that what we actually use is somehow checked. That is my understanding of the question. It's very interesting. Based on my experience, I think it's a good way forward. So far, I've seen a few start-ups finding good ways to certify the corpus of data which has been used in order to train the algorithm.

That's already a very good step forward: being able to certify that a data set is free from bias, is free from under-represented categories. Because that's another point: if things are rare then the algorithm does not learn correctly, so gets things wrong more often.

So certifying the corpus of data is a good starting point but I think there's still research to be done in order to come up with a serious certification framework for the whole system. As there are a number of considerations, for example during its operation the algorithm often gets retrained with dynamic data that comes from real life. So how do you check that data? You don't have a corpus that you can check and certify, so certifying retraining is not easy, nor is certifying behaviour. There are some companies already doing so with a kind of behavioural approach. You get the input, you get the output, you get a black box, and you don't know what happens inside, but you can at least check what happens across a number of inputs and outputs.

So I think a certain kind of certification is the right way forward, but there's still a lot of research to be done in order to make that possible to the extent that we can be sure of the output.

1-052-0000

Sabrina Pignedoli (NI). – Signor Presidente, onorevoli colleghi, il progresso esponenziale dell'intelligenza artificiale che, secondo dati recenti, potrebbe raddoppiare entro il 2035 i tassi annuali di crescita economica, deve porre al centro anche il tipo di sviluppo che vogliamo.

L'intelligenza artificiale apporta un impulso fondamentale alla produttività del paese ed è una potente leva di competitività planetaria, ma non deve essere una crescita per pochi, basata su un aumento del divario tecnologico, bensì un modo per sviluppare proprio quei territori dei nostri paesi che stanno morendo.

Diciamoci la verità, l'Unione europea non può competere con paesi come Stati Uniti e Cina a livello quantitativo, ma lo può fare dal punto di vista della qualità di questo sviluppo, sull'etica e la sicurezza dei sistemi di intelligenza artificiale, e aggiungo sullo sviluppo sostenibile.

Per questo, oltre a una legislazione sufficientemente flessibile per anticipare le innovazioni, ma rispettosa di criteri etici normativi a tutela delle persone, ritengo sia necessario un piano di sviluppo su base europea per valorizzare i territori. In Italia, soprattutto nelle aree montane e disagiate, assistiamo a un continuo spopolamento per mancanza di opportunità.

Questo fenomeno è comune alla maggior parte degli Stati, dove molte aree periferiche vengono abbandonate e le città si fanno sempre più popolose e caotiche. Viste le caratteristiche dei prodotti di intelligenza artificiale basate più sulla qualità che sulla quantità, si potrebbe pensare alla creazione di una rete di hub tecnologici interconnessi tra loro e con nodi di eccellenza che li coordinano a livello nazionale ed europeo.

Quindi, chiedo, potete suggerire o se ci sono al momento allo studio delle strategie per valorizzare i territori, anche attraverso investimenti destinati alle aree periferiche, valorizzando piccole imprese anche pubbliche che lavorano nell'intelligenza artificiale? Rivolgo questa domanda alla dottoressa Geymonat, ma mi piacerebbe avere un parere anche da Tallinn, se possibile.

1-053-0000

Marina Geymonat, *Expert for AI strategy @ Ministry for Economic Development, Italy. Head, Artificial intelligence Platform @TIM, Telecom Italia Group***.** – It's a key point. In fact, as you notice, since the beginning another number of technologies have been quoted: when we talk about AI we always speak also about connections – 5G, IoT, blockchain. So these are all surrounding technologies which are really important, and particularly I think that 5G is the technology that will enable both an industrial and then further deployment of the AI.
So I think that, absolutely, putting together this new normal that we are now used to live, so we have had, of course, the necessity to learn to work and collaborate from remote, and the 5G deployment that is coming in these years, since last year and for the next years, I think that what you mentioned is really possible and is also absolutely desirable. So I think that the technologies coming together with AI will enable exactly what you said: the distribution of a number of small hubs that can collaborate across the telecommunication network to work together on AI projects and not only AI projects. So my answer is yes.

1-054-0000

Massimiliano Salini (PPE). – Signor Presidente, onorevoli colleghi, avrei voluto rivolgere alla dottoressa Geymonat alcune domande legate al tema dell'educazione alla consapevolezza sull'utilizzo dei dati, perché la principale criticità mi pare proprio questa: è vero, abbiamo bisogno di infrastrutture digitali imponenti, abbiamo bisogno di data set affidabili, abbiamo bisogno di un cloud europeo e con GAIA-X andiamo nella direzione corretta, abbiamo una serie di tematiche legate alla portabilità dei dati, all'interoperabilità sulle quali la battaglia sta continuando, però il problema è l'indisponibilità che caratterizza molto spesso i nostri imprenditori, soprattutto i più piccoli, a condividere i loro dati.

E quindi il primo tema formativo, l'educazione di cui hanno bisogno i nostri imprenditori è capire che cosa significhi condividere i dati. Però mi domando quale sia la causa vera di questa loro indisponibilità, perché il talento non manca, allora perché non condividere questi dati? Io credo di poter dire che, almeno per molti dei paesi europei, all'origine di questa sfiducia da parte degli imprenditori ci sia la consapevolezza che il loro tentativo talentuoso d'impresa è osteggiato troppo spesso dallo Stato, il principale nemico del talento ed il principale nemico di quella disponibilità a condividere dati – *data sharing* di cui parliamo spesso – è l'opacità dello Stato, la poca trasparenza, anzi l'atteggiamento con il quale molto spesso l'amministrazione pubblica interpreta quella vivacità come un'interferenza negativa.

Allora, non crediamo che forse il primo strumento per facilitare quella consapevolezza negli imprenditori sia aprire, come qualcuno ha detto in passato, un po' esagerando, come una

scatoletta di tonno, lo Stato e renderlo trasparente e chiedergli di essere ospitale verso i tentativi dei nostri imprenditori.

Ma questa osservazione, alla fine la rivolgo al signor Tallinn perché – chiedo ancora due secondi signor Presidente, Le chiedo scusa – Lei ha detto che la fame di dati si esaurirà e ha fatto un esempio molto interessante. È vero, credo anch'io che la fame di dati si esaurirà perché la nostra esigenza è quella di andare sempre un po' più indietro. Abbiamo fame di dati come se fossero l'origine della nostra capacità innovativa, ma alla fine abbiamo bisogno di capire anche cosa c'è all'origine dei dati e all'origine dei dati c'è quella propensione innovativa di cui parlavo e credo debba essere tutelata.

1-055-0000

Marina Geymonat, *Expert for AI strategy @ Ministry for Economic Development, Italy. Head, Artificial intelligence Platform @TIM, Telecom Italia Group***.** – I think that it's a key point, what you said, and I see it in two ways. The first is that I think that the skilling and training about data usage is still very much needed: even for very expert small and medium enterprises that are really good in their business, there is still not so much training and education about the real benefits of data usage and sharing. This is the first point, and this aims at two things: one, to understand what data is good to share and what data is not good to share or with whom it's good to share data and with whom it is not good. Otherwise, as I said before, there is the risk that very important and competitive related data are shared even without any awareness just because you sign a contract, and that's the first point.

The second point is the one that you addressed, and it's really important. I think that you are right, especially in the way that the public administration, the government, should be the first to offer availability of a huge number of data that can be shared with the population and that should be well described, should be easy to understand by people and then, technically speaking, should be formatted in the way that enterprises can make good use of it using AI algorithms. But these are all separate things. Governments should explain what data they share and they make available. They should explain how to access them and then give them correctly: that's the good example. If enterprises and startups can access correctly to a huge amount of very useful government data, because you can imagine any application if you imagine government data to be available transparently.

So this is the first point. And after that, they will understand that even sharing their data can bring value to the ecosystem. But as far as they don't see the value in the ecosystem, they will not start by sharing their data, because they would say: why should I? So I think you're right: the transparency and having the governments first sharing and having their data accessible is the first step to gain this trust also somehow: getting the trust that if they share data they will benefit of it.

1-056-0000

Jaan Tallinn, *Founding engineer of Skype and Kazaa as well as a cofounder of the Cambridge Centre for the Study of Existential Risk and Future of Life Institute***.** – Thank you very much. I'm not sure if the question came through correctly through the interpretation.

I don't want to diminish the importance of data. I just want to point to a couple of things.

One is that the metaphor of data as a fuel for AI is just wrong. The reason you need data is that when you train a model in your AI, you are effectively performing a search to see what model is a good fit for the world, and you need data to constrain the search process. If you constrain the search process, you will have to do less work in terms of computation, but this highlights a trade-off. The more computation you have, the less data you need to find the correct model.

But the other thing is that, in some ways, the data hunger of current AI is just ridiculous, and I claimed that this is temporary because we know that humans do not need that much data. A lot of people in AI research basically recognise that that there is a problem and one of the top problems that we need to work on is to figure out how to make AI less data hungry. If they are successful, this naturally means that the importance of data in order to make AI more effective will diminish.

1-057-0000

Ibán García Del Blanco (S&D). – Buenos días, este ha sido, desde la primera hora de la mañana, un panel muy interesante y tengo que decir también que muy reconfortante, porque el planteamiento general de todos los ponentes sobre competitividad y aspectos éticos es que no solo no son incompatibles sino que los aspectos éticos y una perspectiva ética pueden ser un valor añadido para la investigación y para el emprendimiento europeo en su competitividad en el exterior, cosa que comparto absolutamente.

Por centrarme en alguna cuestión, dado que me han surgido muchas inquietudes con todas las intervenciones, me gustaría, en primer lugar, comentar el asunto que ha salido aquí. Y celebro, por cierto, que el Grupo Renew, por fin, entienda la necesidad del establecimiento de una agencia pública que, de alguna manera, vele por cuestiones de carácter social y público allí donde el mercado no puede llegar o necesita ayuda.

Mi pregunta iría directamente a la señora Geymonat. Me gustaría preguntarle si cree realmente en la necesidad de tener algún tipo de agencia pública. Y también cuál sería el papel, en este caso, del sector público de la Unión Europea y de los Estados nacionales desde la perspectiva del establecimiento de una agencia técnica, una agencia pública sobre inteligencia artificial.

A la señora Asghari me gustaría preguntarle si tienen algún tipo de estudio sobre la pérdida de competitividad que produce precisamente tener ese sesgo tan importante de mujeres que no se incorporan a este sector.

Y, finalmente, me gustaría preguntarle al señor Tallinn si conoce la propuesta que el Parlamento Europeo ha realizado sobre inteligencia artificial y ética y qué le parece, si cree que nos quedamos cortos, si nos excedemos o cuál es su visión sobre todo esto.

1-058-0000

Marina Geymonat, *Expert for AI strategy @ Ministry for Economic Development, Italy. Head, Artificial intelligence Platform @TIM, Telecom Italia Group***.** – I actually didn't get the translation, so I hope that my Spanish is good enough to have understood the question correctly. So the question is the role of the public, let's say agency, that takes care of the data and the data sharing or what would be the role in a nation of this public agency. I think that this is important, this is needed for both the educational part that I already spoke a lot about, and also for being a kind of trusted third party when we come to data sharing – you know, it's good when you need to create an ecosystem between companies.

At the beginning it's not clear who can trust who and what data can be shared, and it's not easy. And the legal part is very clear to all of us, all of you, but not so easy to understand for everyone. So I think that an agency would be really important as a kind of a trusted third party, both to give advice and education and training, but also to keep the data somehow as a broker, as a guarantee that the data is currently used and correctly shared, that anyone gets what it gives, at least. I hope that I have answered.

1-059-0000

Moojan Asghari, *Cofounder/Initiator of Women in AI, Founder/CEO of Thousand Eyes On Me***.** – If I understood, the question was about were the studies linked to the reasons of why we don't have enough women in AI and in STEM.

There are many, many studies that are conducted by various universities or research centres. I can talk about, for example, one of them which is a Stanford study, that they find the main reason of the lack of women in AI and STEM is due to stereotypes. That basically standard measures of academic performance are biased against women in quantitative fields due to the stereotype threats rather than actual ability or potential.

I can say, for example, that the author indicates that the people who face reoccurring negative stereotypes, basically, are not choosing to go to the environment – that they feel threatened, and having those stereotypes around them.

This is coming so close to what we call the confidence gap in terms of leadership in these areas. There are many studies, also there's a study from the Harvard Business Review, I can share the links in the chat with you, but it is a very cultural effect that we don't have enough women in AI and in STEM.

For example, one of the main reasons we don't have enough women in computer science came from the marketing stereotypes that when the PC's were marketed on TV, they were as a tool for men, for their work. Before, when we didn't have PCs, women were actually working more as a secretaries with computers. But then this tool as a PC became sort of a man's tool for work and it continued, and this really created the bias and stereotype around it.

1-060-0000

Jaan Tallinn, *Founding engineer of Skype and Kazaa as well as a cofounder of the Cambridge Centre for the Study of Existential Risk and Future of Life Institute***.** – Thank you. So I'm not very familiar with the proposed legislation, but I was part of the AI high-level expert group in the EU. So one thing that I saw there – and that's one of the reasons why I'm not familiar with the legislation, which I expect to be somewhat correlated to, or at least shaped by, the expert group's efforts – is a very stark distinction between people who are concerned about AI as it exists now, and the implications and deployment of things that were invented like three or five years ago and are now getting into the implementation phase, and people who are thinking about AI that will come but doesn't exist yet. We saw a very dramatic stand-off play out between the people who are concerned about the future of AI and people who are concerned about existing AI. These really are two groups that should be cooperating. But for bad human tribal reasons, they don't. I see as one of the big challenges that it's going to be hard to bring those groups together. In the EU high-level AI expert group, we saw there was an entire section about future AI that was compressed into paragraphs, which were compressed into, literally, a footnote. That sounds ridiculous because it's a tribal thing. One thing that I think is important to keep in mind is let's cooperate between people, cooperate more about people, cooperate more among people who are thinking about the implications of the existing AI and AI that doesn't exist yet.

1-060-2500

Chair. – And then we have a last slot for Renew, but I want to know whether Ms Svenja Hahn wants to take the floor again. If not, then we will consider the list complete, and I will thank our four panellists for their contributions to what was, I think, a very interesting conversation.

3. Closing remarks

1-061-0000

Chair. – For the conclusions as such, I would now give the floor to rapporteur Axel Voss and say you have a good five minutes to try and draw some conclusions after today's hearing. Axel, you have the floor.

1-062-0000

Axel Voss (PPE), *rapporteur***.** – I know this is still very ambitious to have the conclusion in five minutes, but if you don't mind, I would like to change to German right now to get this done, in a way, and thanks for giving me the floor.

Die zentrale Leitfrage, mit der wir uns hier beschäftigen, ist eigentlich: Wie können wir in Europa weltweit bei dem Thema der digitalen Revolution mithalten und auch zu digitalen Supermächten werden, sofern wir das denn auch so beabsichtigen? Aber ich glaube schon, wir sollten uns entsprechend auch unserer Rolle bewusst werden, inwieweit wir in der Zukunft dort auch mithalten wollen.

Der Fokus liegt hier eigentlich sehr auf den gemeinsamen europäischen Anstrengungen, wo wir rechtliche Klarheit brauchen, diesen gemeinschaftlichen Anstrengungen, der Sicherheit, auch dem Zugang zu den hochqualitativen Daten. Unter den gemeinsamen europäischen Anstrengungen sollten wir hier auf der Basis von Vertrauen und Exzellenz auch sehr ambitioniert vorgehen.

Wir wollen natürlich den Nutzen für eine künstliche Intelligenz über die gesamte Wirtschaft, aber auch die Gesellschaft erstrecken. Wir brauchen dazu auch den echten europäischen digitalen Binnenmarkt, wo wir mehr interaktive Zusammenarbeit in Europa brauchen, um auch die Entwicklung dieser neuen Technologien entsprechend voranzubringen.

Der Nutzen dieses wirtschaftlichen Potenzials ist etwas, was wir im Hinterkopf haben sollten, das wir nicht nur entwickeln, sondern woraus wir auch den wirtschaftlichen Nutzen ziehen sollten. Hierbei wird es wichtig werden, dass wir die Interoperabilität von Daten auch als Priorität ansehen, um Forschung, aber auch Entwicklung – hier von künstlicher Intelligenz – voranbringen zu können.

Dabei setzen wir als Gesetzgeber natürlich zunächst einmal auf einen ganz klaren rechtlichen Rahmen, wo wir uns auch auf die *High-Risk*-Systeme der künstlichen Intelligenz fokussieren sollten. Dieses System soll dann robust sein, wir wollen ein verhältnismäßiges und auch nicht zu bürokratisches Rechtswerk haben, wir wollen ein *level playing field* herstellen, was bei den Bürgern genauso Vertrauen schafft wie auch bei den Unternehmen, und damit einher gingen dann auch die Überlegungen zu dem diesbezüglichen ethischen Rahmen.

Bei der Sicherheit müssen wir sehen, dass wir nicht nur die Gerätesicherheit, sondern auch die Rechtssicherheit und -klarheit haben, dass wir die Gewährleistung der Verhältnismäßigkeit haben, die Innovationen, ausgehend von einem risikobasierten Ansatz, und natürlich unsere Werte, die dort Berücksichtigung finden sollten. Wir haben heute auch gehört, dass wir unbedingt den Zugang zu den hochqualitativen Daten brauchen. Die KI muss hier mit Daten vorangebracht werden, und hier stand besonders auch mehrfach die Datenschutzgrundverordnung im Fokus, die nicht immer in allen diesen ganzen Dingen sinnvoll ist, die manchmal behindernd sein kann, die manchmal auch eigentlich Innovationen eher schädlich gegenübersteht. Deshalb sollten wir uns auch mal konzentrieren auf diese Probleme, die sich daraus ergeben, dass wir, wenn wir bei künstlicher Intelligenz nicht auch diese entsprechend qualitativen Daten berücksichtigen, am Ende auch keine hochqualitativen Ergebnisse erwarten können. Hier wurde sich auch noch mal besonders fokussiert auf die *gender balance*, und auch da müssen wir eben bereit sein, in diesem Fall eben vielleicht auch mehr personenbezogene Daten bereitstellen zu können.

Es wurde oftmals auch die Frage von Investments angesprochen, wie notwendig die sind, nicht nur für gezielte Investitionen, auch *lighthouses*, sondern auch mehr Investitionen insbesondere für KI-Systeme, die insbesondere auch für *social benefit* da sind.

Die transatlantische Partnerschaft ist ein wesentlicher Punkt, der hier auch benannt wurde, genauso wie auch die Befriedigung unserer Bevölkerung. Und auch hier konzentrierte man sich noch einmal darauf, dass wir natürlich die Frauen als *gender balance* dort auch besser unterstützen müssen, damit auch sie mehr von dieser Entwicklung haben. Und insgesamt

brauchen wir dann die Datenräume vielleicht auch mit einer vertrauensvollen dritten Partei, und diese Datenräume sollten wir mehr fördern, auch Möglichkeiten, personenbezogene Daten durch Anonymisierung, vielleicht auch Pseudonomisierung dort voranbringen zu können. Und hinsichtlich der Forschung wurde noch einmal festgehalten, dass wir bereits ein hohes Niveau der europäischen Grundforschung und auch akademische Ergebnisse haben, dass das aber noch zu wenig Ausgründung führt. Hierbei sollten wir vielleicht die Aspekte von Ausschreibungen, Subventionen und Ausgründungen für uns noch einmal besser fokussieren. Summa summarum eine sehr gute Veranstaltung mit vielen Aspekten, die uns jetzt natürlich dazu führen, dass wir diese Aspekte auch in gute Ideen und eine gute Leitlinie für uns alle überführen.

1-064-0000
Chair. – Thank you Axel, very much: I would say a great summary of the topics, of the issues that have come out of today's conversation.

I would also stress the issue of fragmentation, something that I think in the first part of the discussion came out as a risk that many see as something that will drive backwards competitiveness in Europe. Therefore, there's something that we will need to very carefully watch over, and then for the rest, there will need to be investment, innovation, experimenting – pre-certification was an interesting topic raised, and the fact that this is a technology that relies very much on trial and error and therefore creating the space for experimentation is something that was raised and I found quite interesting.

I would not want to leave that element to draw my attention from one of Mr Tallinn's interventions, which is that this hunger for data, which has been always presented as a reality, as a fact, is something that he actually brought with a question mark, and whether in fact with better computing, we can actually overcome the need for so much data. And that is something that maybe we will have a chance to delve into in one of our future discussions either in a workshop or a hearing.

With that, I will close the hearing today. I will remind Members that on Friday we have a workshop on AI basics which announces to be quite an interesting discussion with our internal services, and then on 15 April we will have our joint hearing with INGE on AI and the future of democracy. So two upcoming interesting events. Do stay tuned for them.

And with that, I thank the interpreters for their excellent services and for bearing with us a few more minutes. Thank you.

(The meeting closed at 12.03)