SPECIAL COMMITTEE ON ARTIFICIAL INTELLIGENCE IN A DIGITAL AGE (AIDA)

Exchange of views with Thomas Jarzombek, Commissioner for Digital Industry and Start-ups, German Federal Ministry for Economic Affairs and Energy

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Exchange of views with Dr. Anna Christmann, Coordinating Member of the Bundestag Study Commission on "Artificial Intelligence"

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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 hearing opened at 13.54)

1-004-0000

Chair. – We can proceed with the first point of substance on today's agenda, which is the exchange of views with the Commissioner for Digital Industry and Start-ups, Mr Thomas Jarzombek. A few words of introduction and then I'll go very quickly through the rules of the discussions, which are the same as for the previous meetings. But I wanted to say at the beginning, and also to invite Mr Jarzombek to introduce his first remarks with that in mind, which is that we have right now this clear engagement on artificial intelligence (AI) at European level. It is evident in the work that we do, not only in the special committee and through the creation of the special committee, but also if we look at the activity of a lot of other standing committees in this Parliament. So clearly AI is now top of the agenda.

We also look at what happens in Member States: the national strategies that have been adopted by many Member States, the coordination that already starts to take place between governments. We also took note of the joint position paper of the 16 governments, which was adopted and circulated about two weeks ago. So again, clearly, there is this momentum generally on digital and specifically on AI at European level. So beyond the, let's say, German experience and also given the fact that Germany holds the rotating Presidency of the of the Union, I would invite Mr Jarzombek to give his introductory remarks for 10 minutes, after which we will follow with the 10 speakers that we have listed for this agenda item and, as per our tradition by now, each slot for the question and answer is allocated four minutes – two minutes for the question and two minutes for the answer. I would, as always, ask you to stick to the time so that we respect the slots foreseen. With that, Mr Jarzombek, a very warm welcome to our Special Committee on Artificial Intelligence in a Digital Age (AIDA) meeting. You have the floor for 10 minutes.

1-005-0000

Thomas Jarzombek, *Commissioner for Digital Industry and Start-ups, German Federal Ministry for Economic Affairs and Energy*. – Mr Tudorache, honourable Members of the European Parliament, ladies and gentlemen, I intend to do my bit to ensure that German too continues to be an active official language in this forum by using that language to speak to you today. Both on my own behalf and on behalf of Federal Minister Peter Altmaier I would like to thank you for this opportunity to exchange views and ideas – in a virtual setting, which to my mind is entirely fitting for your committee's remit.

Germany has held the Council Presidency for four months now, and the COVID-19 pandemic remains a central challenge and continues to set the agenda for our major priorities during the Presidency: combating the virus, containing the pandemic and reinvigorating Europe's economy. It is important that we steer Europe on to a growth path now that will help us to remain competitive and protect jobs in the long term. This includes investments in climate protection, innovation and digitalisation, which are the keys to the successful future that is the end goal of all our current efforts.

Europe's economy can only recover if we boost Europe to new heights as a place where people want to do business. We have made it clear that we have this task in our sights with the Council Presidency's motto – 'Together for Europe's recovery'. The main focus of our attention is therefore on tackling the crisis and its consequences, accelerating the rate of economic recovery by boosting the strength of our internal market and our businesses, and driving forward the

shaping of the digital and ecological transformation. These are our three priorities, and they also include artificial intelligence, which is a focus of our Council Presidency's digital policy.

I am sure that everyone attending this hearing today is already well aware that AI is a crucial future technology that will serve as a launchpad for tomorrow's champions of innovativeness and competitiveness – across all the different sectors of industry. It is not the only one of its kind; there is a whole group of similar technologies capable of ushering in far-reaching change, from blockchain technology through to quantum technologies.

With that in mind, I would at this point like to congratulate you on the establishment of a new Special Committee on Artificial Intelligence in a Digital Age, which will undoubtedly also serve as a precursor for some of these other cross-cutting topics. Artificial intelligence must be discussed on a horizontal basis rather than being siloed within an individual committee; the German Bundestag has been aware of this for some time, and has recently established a Committee on the Digital Agenda, which – as a cross-sectoral committee – also reports on a range of other cross-cutting topics. Anna Christmann, who is scheduled to speak immediately after me, is a member of that Committee on the Digital Agenda, and I am sure that she too will have good things to say about it.

This is the best way to ensure that we do not lose sight of the forest for the trees when discussing individual measures. It is important not only to recognise and discuss the basic opportunities, but also to ensure that something is actually done about them. In our opinion, this is the crucial factor. Other nations are very good at the 'doing' part and have made significant leaps ahead in this area, and Europe too needs to step up its efforts.

The huge potential inherent to AI technologies means that it is more important now than ever to exploit Europe's potential to its fullest, for the benefit and well-being of everyone.

We need a European approach to AI that addresses the opportunities and challenges of this technology in keeping with a human-centred approach. The European Commission's White Paper on Artificial Intelligence presented a concept for achieving this European approach to AI. Many of the Member States, as well as other interested parties including research institutions, associations, trade unions, NGOs and individuals, have been involved in the subsequent consultation on this White Paper.

In September, the Council Presidency led a first policy debate among the Member States on the White Paper, within the Council Working Party on Telecommunications and Information Society. During a debate on the topic of AI and the data economy which took place at the informal meeting of telecommunications ministers held in mid-October, the digital ministers agreed on the need to develop a shared European approach to AI that is built on the twin pillars of innovation and trustworthiness. We must strive towards the shared goal of viewing innovation and trust as two sides of the same coin when it comes to the European approach to AI and a digital internal market for AI.

Our goal must be AI that is 'Made in Europe'. It is crucially important for us to strike the right balance between promoting technological innovation on the one hand and tackling challenges on the other. And if you will forgive me for saying so, I sometimes have the impression that more effort is put into tackling the challenges than into addressing the opportunities and innovations, which is why we have made it very clear that we are in favour of an innovation-based approach.

It goes without saying that both of these factors are vital if we wish our standards, research and applications to be competitive and successful on the global stage. The ramifications of the COVID-19 crisis – particularly over the past few weeks – have made it abundantly clear that

AI can help us to overcome fresh obstacles, and how important it is for AI applications used in this connection to be trustworthy.

Ultimately, experience from the field of data protection teaches us that purchase decisions are not motivated solely by data protection considerations, but by other factors such as usability and effects, and this is something else that we must never forget as far as AI is concerned.

In the joint declaration drafted at the informal meeting of telecommunications ministers held in mid-October, all 27 digital ministers agreed that it was time to take the next steps towards the establishment of a European data ecosystem. The European Cloud Federation, driven by the GAIA-X platform, will serve as a key foundation for AI innovation in Europe. Building a shared and genuinely European approach will provide us with an opportunity to take the helm in this area and to act as a source of inspiration and join the race at global level. It will allow us to shape AI-related developments to our advantage, with a view to ensuring that AI protects human beings, underpins innovation and progress in our society and respects our rules and values.

With the Council, with the Commission, and also with you, or rather – speaking as a fellow parliamentary member – especially with you: at all these levels of EU governance, the German Council Presidency wishes to lend fresh impetus to a forward-looking approach to AI and future action by the EU. We are therefore following the European Parliament's debates with great interest. I am very grateful for the opportunity to attend this hearing today, and I am looking forward to a very interesting discussion.

1-006-0000

Riho Terras (PPE). – Thank you very much for the introductory notes, and I think the German Presidency is the right country to lead us in the technology innovation. As you properly mentioned, artificial intelligence (AI) is more discussed. Even our Parliament now has focus, through this committee where we are sitting right now, and of course it is needed, because we have a strong competitiveness disadvantage against China and the US, especially because they have been able to invest in the area of artificial intelligence, research & technology and even start-ups. Europe's efforts are fragmented, scattered throughout different nations, and it is very difficult to get focus. My question is – and I bring an example from the defence industry 2017. We have created the Permanent Structured Cooperation (PESCO) – Germany was one of the leading countries there. We have created defence funds in order to focus the defence industry, to spend more money and to bring together public and private interests and have better competitiveness. Why not use the same kind of structure in order to accelerate all the discussion and all the development in the area of artificial intelligence?

1-007-0000

Thomas Jarzombek, *Commissioner for Digital Industry and Start-ups, German Federal Ministry for Economic Affairs and Energy***.** – A permanent structured cooperation (PESCO) for artificial intelligence (AI), I believe, is quite a good idea because I believe also when it comes to military systems, it's absolutely clear that AI has a huge impact on all of this, and when I've spoken before about the opportunities and that we have to look more on opportunities. Then on the downside of this new kind of technology, I believe, when it comes to the military applications, then it's really necessary also to have a very sharp look on the downside of all of this and to find here a really acceptable regulation all over. But I believe, in the end, if you look at the whole ecosystem, then when I go a little step further and look at what the German initiatives are to foster the start-up ecosystem, and it consists of five columns and one of these columns was public procurement. And if you look at Silicon Valley and how it all started there, that's been because of the military expenses – not only financing but also procurement, and I believe that using the military sector, especially for procurement when it comes to AI

applications and to find opportunities for SMEs and for start-ups, this would be the right strategy to foster here the complete ecosystem.

1-008-0000
Svenja Hahn (Renew). – Thank you, Mr Jarzombek, for joining us today at this hearing of our new Special Committee on AI.

I do not need to remind you that the topics we are working on are also of huge significance for the German Council Presidency. Most importantly, they constitute a reference for a future EU legal framework on artificial intelligence, which will ultimately apply throughout all the Member States.

In my group's opinion, however, what matters most of all is that we should have a uniform EU-wide framework of standards and rules. Harmonisation of these areas throughout the entire internal market is the only way to ensure that our economy flourishes and that citizens benefit from these developments. Particular care should therefore be taken to avoid stand-alone solutions and fragmentation of the internal market. The best way to achieve this is an equally high level of consumer protection and citizens' rights, and so if we genuinely want to push forward digitalisation and artificial intelligence, we must prioritise the planned data strategy – with intelligent data security concepts.

Encryption is another vital ingredient. To be quite honest with you, I am shocked by recent reports that the Council is currently debating a 'master key' that is intended to decrypt any kind of encrypted communications, since I do not believe that the right to privacy and protection against wholesale surveillance or citizens' right to an appropriate level of cybersecurity are matters that are open to negotiation. Bringing mandatory upload filters in through the back door and rendering protected communications impossible is nothing more or less than an attack on freedom in the European Union. We must tread very carefully in this area; it goes without saying that we need to mount an effective fight against terrorist crime, but we must not give up our fundamental rights in return. In particular, we must not jeopardise the security of personal data and of trade and business secrets.

And so my question to you is as follows: what do you have to say about this initiative? What part is the German Federal Government playing in these attempts to curtail citizens' rights? What is the Federal Government's position on the planned data strategy and on the matter of cybersecurity? What is the German Federal Chancellor's opinion on the master key? Has the initiative been coordinated on an interdepartmental basis within the German Federal Government?

1-009-0000
Thomas Jarzombek, *Commissioner for Digital Industry and Start-ups, German Federal Ministry for Economic Affairs and Energy***.** – Dear colleague, thank you for this bunch of questions that you placed here. In the end, it is absolutely clear – and that's what I said – that we have to look at the opportunities and not only on the downsides, and so I would like to see here more discussion about opportunities, not only about questions on what about the customers and what about privacy. It's clear for the German government that privacy is key, as we have always mentioned, and we have a regulation in Germany that, in single cases with a judge, it is possible to get access to end-user devices, but only in very few cases. This is a good regulation from my point of view. Nevertheless, I think it's important when you look at the whole question of regulations on the General Data Protection Regulation (GDPR). The question, from my point of view, is: is this transferable on a one-on-one basis on the regulation that will be upcoming of artificial intelligence (AI)? And what we see is that in the beginning of GDPR, the huge companies – the tech giants from Silicon Valley – lobbied against GDPR, but right now they believe that it's an opportunity for them, because it's a hurdle – a hurdle for start-ups and new players to enter the market. This shall not be the role model for the regulation of AI. I think it's

very important that it's clear, that it's easy and that it has the same opportunities for small companies, for start-ups as it brings for the tech giants, and this is, from our point of view, very important.

1-010-0000
Ibán García Del Blanco (S&D). – Mr Jarzombek, I have been listening to you with much interest. The 'Made in EU' concept that you have used is very interesting and in some ways summarises very well what we are trying to do with this framework of ethical principles applied to the development of artificial intelligence. It is not a question of hindering development, it is about giving added value to the products and applications being developed within the European Union. And in that respect I understand very well your call for us to look at the opportunities rather than the downsides, but it is also true that there are problems and risks inherent in the development of these applications and we must address them.

On that basis, I would like to ask you, first, how you intend to enable European small and medium-sized enterprises to adapt to this threshold of requirements in the application and development of artificial intelligence from an ethical standpoint?

And, second, more specifically, how can we guarantee the participation not of consumers or businesses but also of citizens in this development, in this design of an ethical framework, a framework of rules for governance of artificial intelligence? And from the public authorities, also speaking constructively, how can we also guarantee that those aspects that are *a priori* not as profitable for development in economic terms but are profitable from a social perspective are also developed and researched? How can we ensure that development also takes place?

1-011-0000
Thomas Jarzombek, *Commissioner for Digital Industry and Start-ups, German Federal Ministry for Economic Affairs and Energy***.** – This is a further question on how to make or to organise the regulation, and I would give that question back to you, because, formally, it is a process of the European Union and of the European Parliament, especially, to find the right mechanisms to integrate everybody in the creation of legislation, and also on the update of that, because I believe that, if we tackle all of these questions of technology, they are moving so fast forward that you cannot make today a regulation and lay back and say it was a perfect job and now next time we get over it in eight years. Continuous action is what is necessary, and we are open on that – on the whole process of integrating the people of Europe. In the White Book we made a good example of that, but it's also an interesting question for the European Parliament. But in the end, you have to find regulation schemes that are usable, and if you make it too complex in the end, there is always the danger that it takes very long, and I think that's what we are seeing when it comes to artificial intelligence (AI). In other parts of the world, not only in the United States but especially in China, you'll see such a fast movement right now there that I don't think that we have the time for debating over years and years for the right set of regulation. And there might not be some uncertainty, because it's important for investors, for entrepreneurs, for start-ups, for the big tech companies that are existing right here, that they have clarity about the right framework, where they want to place their investments, because otherwise the danger would be that the development goes outside the European Union. Therefore, what I'm planning for is to be here very fast, very agile and very clear, and also with the framework that's applicable not only for the big players but also for the small ones.

1-012-0000
Alessandra Basso (ID). – Mr Chair, Ladies and Gentlemen, I would first like to thank the Commissioner from the German Federal Ministry of Economic Affairs for visiting us and presenting his views on the subject.

I would, however, like to highlight a competitive situation that I believe is very important for the development of artificial intelligence in Europe. Start-ups from Europe are having to face a high-tech market that is already highly concentrated, with six companies – Facebook, Amazon,

Apple, Netflix, Microsoft and Google – that have a combined capitalisation of approximately USD 6 850 billion, and therefore access to enormous financial resources that cannot compare to the resources and realities existing across Europe.

The risk for potential European start-ups is either that they will be irrelevant in the global marketplace or, even worse, that they will be acquired and incorporated by these giants if they develop successful businesses. Even free access to Big Data would probably not be enough to see an adequate number of new businesses emerge in the artificial intelligence sector and especially to ensure they remain independent.

Do you not consider that it would be necessary to introduce barriers to entry into the European market that are not limited to the antitrust policies currently applied or the data management obligations within European territory or a golden share system limiting the possibility of transferring strategic companies to operators outside the EU?

1-013-0000

Thomas Jarzombek, *Commissioner for Digital Industry and Start-ups, German Federal Ministry for Economic Affairs and Energy***.** – Thank you very much for that excellent question. I believe, in the end, it wouldn't be a realistic perspective from the standpoint of the European Union to stop Facebook, Google and others from providing the services here, because they all consists out of artificial intelligence (AI) elements more and more and more, and so therefore I believe this is not a realistic perspective. The more realistic perspective is a different one. We have to create our own champions, and this is the focus of our ministry here and of the work of the German government. Therefore, at first, I can say a huge thank you to the European Union for the excellent initiatives around the European Investment Fund. When we started some years ago we had a very successful partnership with the European Investment Fund in creating a start-up ecosystem, and when I look back now since for years, Peter Altmaier now is the secretary here, and we started with EUR 4 billion that we invested in the start-up ecosystem. We doubled that in this period. Now we made additionally EUR 2 billion for the Corona facility, and in the end we are starting on 1 January with our new EUR 10 billion start-up fund – the Future Fund. This is only the state's share of this fund, and so we have a multiple of two when it comes to private investments all over, just with this Future Fund. We will enable, additionally, EUR 30 billion for the start-up ecosystem. That's the biggest fund and the biggest initiative by far all over Europe.

So you can see that the German government really is serious on building here the next level of players. I see this is also happening with a similar strategy in France and in other countries. I think this is the right way, and we have to enable the use of data. This is the further point. We need more initiative for talent, also for talent from outside of the European Union. We have to enable more female founders, that's very important for us. We need to make better procurement from the government in these kinds of technologies and we have to organise better tech transfer from our scientific organisations. This is, in a nutshell, the strategy of the German government, and again, let me say thank you for the very fruitful cooperation with the European Investment Fund on that.

1-014-0000

Alexandra Geese (Verts/ALE). – Greetings, Mr Jarzombek! Thank you for joining us today.

I would like to start by saying that your response to Ms Hahn's question may well have been perceived as lacking in substance by some of those attending this hearing today. I too would be very interested to hear more about your views on the topic of encryption, and so I would not be at all insulted if you were to use a minute of the time for my question to provide a more detailed response.

That aside, I am delighted to welcome you to our hearing today as a recognised expert on start-ups. You referred to the subject of female founders in your previous response, and that is in fact the very subject I wish to discuss. Any debate on opportunities should start with an acknowledgement of the fact that women in the digital sector represent a huge source of untapped potential in Europe. Only 17% of those working in the digital sector at present are female; the figure for artificial intelligence varies according to the data used, but is never more than just over 10% or 15%.

You referred to funding, and venture capital funding is indeed a particular problem. According to the Diana Report by Babson College, for example, 97% of venture-funded businesses have male board members or CEOs, and all-men teams are four times as likely as diverse teams – let alone female-led teams – to receive funding from private venture capital investors.

Things are not much better in the public sector, which – with its publicly funded banks – is intended to serve as a counterbalance. Taking Germany as an example, a paltry 12.5% of investment managers within the state-owned development bank KfW are female, despite the fact that the bank was assigned precisely that task and is responsible (among other things) for disbursing the start-up rescue package worth EUR 2 billion. The European Investment Bank can at least boast a figure of 29%, for which it deserves due praise.

After all, we know that female founders are given less money if all-men teams are in charge of making the decisions. And qualitative research has also shown that women are asked very different questions and treated very differently during these meetings.

This issue is particularly significant in the AI sector. It has been proven that companies with a diverse workforce are more successful and attain greater commercial success; that aside, however, AI has such an enormous impact on the development of our society that it is absolutely vital for companies and teams to be diverse.

And that leads me on to my question: instead of repeating the tropes that are heard all too often in these debates – more women need to study IT, women are to blame for choosing to study the wrong subjects – we must acknowledge the clear truth of the matter, which is that this is a top-down problem rather than a bottom-up one. And so we need to change the underlying structures.

My question to you is as follows; in your personal opinion, in the opinion of the Federal Government and based on your experience in supporting start-ups, what are the different approaches we could adopt to tackle this problem? Which of these approaches has the German Federal Government adopted, both during and before its Council Presidency, with a view to changing these structures and promoting the presence of women in AI companies and newly founded start-ups?

1-015-0000

Thomas Jarzombek, *Commissioner for Digital Industry and Start-ups, German Federal Ministry for Economic Affairs and Energy***.** – First, let me please stress that on all the questions on justice and internal affairs, you'd better go with the colleagues from the ministries of justice and internal affairs, because I'm the start-up coordinator. I'm not integrated in these cases. So, this is the first thing.

The second thing is your question about female entrepreneurship, and I already mentioned that we have an initiative for start-ups that consists of five sectors, and one of these five sectors is female entrepreneurship. Especially for the next year, we will make a national initiative here, and I would like to see this as a role model maybe for a European initiative too, because I believe you have two problem fields. The first field that we see is that there are too few women founding companies, or starting companies. The second is the question of what you already

raised about similarity, bias and how the investment committees, etc., are positioned. For the first thing, we have a whole bunch of ideas that we are discussing right now with female entrepreneurs. We started a social media campaign on that also to listen to female founders, what their experiences were, what they are suggesting we do, and we will come over, as I already mentioned, for the next year and I believe that we have – It's not enough to explain everything in detail here today. Also, it's not possible in two minutes to do that, but we have a whole bunch of measures for that.

When it comes to this gender bias question, I also believe that diversity is key, not only between male and female but also between different colours and whatever and backgrounds of people, and I think a successful innovation ecosystem can only consist of different people with different ideas and different backgrounds, and my aim is always to open up doors for the ones that are different, that are new, that want to challenge the established format and therefore, also for the second field, we have a lot of measures that we are discussing. I would like to cooperate with you on that and I would be very glad if we find the opportunity next year to talk about our initiative and maybe what other countries are doing and if there could be ideas out of that that can scale-up for the European level.

1-016-0000

Geert Bourgeois (ECR). – Mr Chair, Mr Jarzombek, thank you very much. I share your opinion. The EU needs not only to catch up, but also to be extremely ambitious and aim for global leadership. To make this possible, we need start-ups, scale-ups and SMEs.

Developers say there is a significant shortage of accessible data in the EU. What policy do you believe is needed to resolve this problem?

Do you also agree that we need to allow these developers to put developments to the test without too many regulatory hurdles in regulatory sandboxes and innovation hubs – in a protected environment – so that new creative developments can be realised?

Lastly, I would like to know what policy you are pursuing in Germany to make sure artificial intelligence is also put into practice within existing SMEs. I am thinking here about small companies that can see no potential in artificial intelligence and for which it is simply not part of their DNA. I therefore believe it is important not just to set up new companies, but also to try to get existing SMEs on board with these developments.

1-017-0000

Thomas Jarzombek, *Commissioner for Digital Industry and Start-ups, German Federal Ministry for Economic Affairs and Energy***.** – I totally agree that data is key when it comes to artificial intelligence (AI), and therefore I believe it's very important to push forward the data strategy of the European Union, and it's also absolutely necessary to have a common data space here in Europe. Our initiative on that is GAIA-X, and we are very thankful for the support from the European Union and also from other European Member States and that we successfully it could found this new organisation, which is located in Belgium, to start GAIA-X. I believe that the interesting point of GAIA-X is that it is not new clouds built by the government, it is a frameset, so this makes the difference. It is a frameset where we don't build any kind of services but we bring players together – the medium-sized players that are in Europe on the way – and we help them to make a better proposition here and also to find a rule-set for players coming from outside the European Union which they shall adopt to. And right now, it seems as if this could be successful, as you see that even companies like Microsoft are starting services or that they announced to start services within this GAIA-X framework. This is quite good, and I think that's important, also, the premium data from IOT. What I appreciate very much is the PFI Directive from the European Parliament, and we believe that open data and an Open-X approach is absolutely necessary for innovation in the whole software ecosystem but especially also when it comes to AI. These experimental rooms that you mentioned is something that we

tried to deliver also on our national strategy, as we call it *Reallabore-Strategie*, where we want to enable companies to start also with new ideas in an old regulatory framework. When you said that these old companies also should be enabled, we agreed to that, and this is the reason why, in our national AI strategy, we have implemented a lot of AI trainers, especially for SME companies to give them an idea of what AI is and how they can adopt to that.

1-018-0000
Pernando Barrena Arza (GUE/NGL). – My thanks to Mr Jarzombek for your presence in this special committee. Given the portfolio of your ministry – industry and energy – I would like to know your opinion on some issues related to your main role tasks. Artificial intelligence development can surely furnish developments to limit our energy consumption, render our transport sector more efficient, etc. However, an often-forgotten consequence of the rise of artificial intelligence are the environmental costs, as the digital transition is not so immaterial as we generally believe it is. So it would be great to know if, according to your point of view, is the rise of artificial intelligence, including the development of IT, in line with the goals of the Green Deal? It seems that extraction of raw materials in European soil will be necessary and that labour safeguards would be needed, and we cannot forget that recyclability of ICT devices is also a key issue to be developed to avoid a massive carbon footprint.

So my question is basically, how can digital and green transition nourish one another? May we get a first approach from you?

1-019-0000
Thomas Jarzombek, *Commissioner for Digital Industry and Start-ups, German Federal Ministry for Economic Affairs and Energy***.** – I believe that a question about raw materials and recycling of these is not a specific AI question. I believe that there are mechanisms that are created inside the European Union and I can only suggest to scale that up, because this is really important to get a better use out of all these raw materials. So I agree on that.

When it comes to the question of power consumption, which is often discussed, and it's clear that with AI you need more data centres and maybe you need more processing time on that and therefore it is logical that this will lead to power consumption, our aim is, within the GAIA-X initiative, to find a classification about the efficiency of these data centres. I would like to see here a common approach on that, because I believe as a customer today, especially as a business customer, when you decide for some cloud services like AWS or Eze or whatever, you don't have a clue about how efficient their data centres are. This is a part of our GAIA-X initiative to make it transparent with the classification so that the customers know how efficient these data centres are, and I believe this would be a huge impact on the question of enabling more green IT on that.

1-020-0000
Jörgen Warborn (PPE). – Mr Jarzombek, I thank you for coming here. It was very interesting to listen to your introductory remarks. Just like you, I am a passionate fighter for start-ups and for SMEs, and I am convinced that it's only with the small businesses on board that we can become truly successful in the digital age. That requires a lot of work, of course, both by Member States and by the European Union. Unfortunately, SMEs and start-ups today are particularly hard hit by bureaucratic burden, legal uncertainty and regulatory fragmentation between Member States, and this of course hinders many small businesses from daring to follow through on their business ideas. This is not a loss just only for those individual companies but for society as a whole, missing out on technological advancement and new artificial intelligence (AI) services that make life better.

What I fear is that the upcoming legislation will have a mindset that is too defensive, thereby leading to continued over-regulation of start-ups and AI developers. I think we must be more forward-leaning, optimistic and ambitious instead, and therefore I really appreciated your introductory remark, which I think was in that spirit. The German voice will, of course, be very

crucial in defining the European mindset on AI. So I would like to hear what regulatory changes you will fight for in the years ahead to boost AI development among SMEs and start-ups. You mentioned five different areas, and I think you have covered it well, but I am interested in hearing a little bit more about the tech transfers from the universities especially.

1-021-0000

Thomas Jarzombek, *Commissioner for Digital Industry and Start-ups, German Federal Ministry for Economic Affairs and Energy***.** – Thank you very much for these two aspects. The first thing is I totally agree with you that bureaucracy is a problem, especially the smaller a company is and the younger a company is, the harder they can handle the bureaucracy. If you have a large enterprise company with tens of thousands of employees, they have a big legal department and they can handle even complex regulation. But if you look at a small start-up, with 5 or with 10 engineers, for them, without having a single lawyer in their team, it's nearly impossible to make them self-compliant to some kind of regulation, even from the European Union as well as from the Member States as well, looking at my own country. Therefore I believe that reducing this bureaucracy is key, and also to make the rules more simple and more easy to get compliant to them. This is something I would really like to appreciate.

The second thing is your question about the tech transfer and, to be honest, this is a field that we are working on right now. We have these large scientific organisations, for instance Fraunhofer – they were the inventors of the MP3 format – but in the end, the iPhone wasn't a European product, it's an American product. We see some success stories. We also see some less successful stories of building start-ups out of these scientific organisations, and therefore we started a process here inside the government of how to make better start-ups out of these organisations. And there is the question of who is the right team for funding these new companies, do they consist only of engineers? But you also need some business guys and maybe you need some guys with a track record in building companies, what is the right share for the founders, what is right share for the scientific organisation, do you need investors and in what scheme? And so there is a process we set up here inside our government, and I would like to get in a dialogue with you once we are further there. So this is one of our aims for the next year.

1-022-0000

Alex Agius Saliba (S&D). – Thank you, Commissioner, for being with us today. In the digital world, Europe is finally ready to take some bold steps and regulate big tech US giants. Further, with the collapse of the transatlantic data protection agreement and Europe moving to keep its data in the bloc, the tension between Europe and the United States has been drifting the two further apart.

First of all, how do you see the coming months under the new US administration? Do you think that there will be positive movements for the united transatlantic front or regulating big tech companies while also preserving the idea of the free and open internet and also avoiding any possible digital trade wars?

My second question: big tech giants like Amazon, like Google, like Facebook have been the new modern public abilities of our time, providing essential services to people, and as such, they need to act accordingly, in a transparent and accountable manner. Unfortunately they regularly share people's highly personal data in ways that the internet user has little control over, and AI and algorithms are used to attract people around the internet and create sensationalist content. Such practices are not acceptable under Europe's privacy standards – the General Protection Regulation – yet they still happen. So how can we properly enforce European rules, especially when it comes to these big non-European companies which are, on top of that, in a dominant position and also have the ability to leverage globally at a global scale and have access to large amounts of personal information?

My last question: can you elaborate more on the recently-leaked texts on the ePrivacy Regulation and if these concerns are being addressed in this text?

1-023-0000

Thomas Jarzombek, *Commissioner for Digital Industry and Start-ups, German Federal Ministry for Economic Affairs and Energy***.** – Thank you very much for the complex questions that you raised. Let me begin with the last one. I believe it's impossible in two minutes to discuss the whole e-privacy texts. I believe there would be a better situation for discussing also these, but we have all these questions in mind.

The second is the question about the privacy shield. We are truly concerned about the fragmentation of the internet. That does not mean only things around privacy, that means more that we see that in China, in Russia, in other parts of the world, they are starting to segment the internet. We believe that the free flow of data and a free communication is absolutely necessary for a free and open and peaceful world. We have concerns about all these developments, and right now we have a dilemma. The dilemma is, on the one side, that there cannot be any kind of question that every company has to fulfil all the European rules and laws. But on the other side, we see that right now a movement with the US governance – we come to a situation that maybe at some point, you have a segmented Facebook, a European Facebook and the American Facebook and a European Google and an American Google, and this wouldn't be any kind of good development. I can describe the problem; to be honest, there is no simple solution. I have no idea how the new US government will handle this, but if you look back all over these years, and in the Presidency of Barack Obama, there was the same mentality in the United States. I don't believe that this will change in some way once now there is a new president coming into office. I agree with you that the enforcement of the GDPR is necessary, but I don't believe that you can enforce everything, because we have the strategy of opt-ins, and one problem of the GDPR is that everything is nearly possible once the user opts in, and the users opt in to a lot of strange things because they just want to have a service and they don't reflect everything that's happening behind, and therefore this is something that shall be discussed once the GDPR is evaluated.

1-024-0000

Susana Solís Pérez (Renew). – Mr Jarzombek, I believe we have a consensus that to meet the challenge of artificial intelligence we need a people-centred approach, ensuring that the fundamental rights of citizens are respected. However, we cannot achieve a position of global leadership if we do not also ensure the competitiveness of our companies, especially by encouraging start-ups and SMEs to adopt artificial intelligence. I think you said it very well today, we need to find that balance between trust and innovation.

And today you have made some recommendations for SMEs and start-ups with regard to financing, reducing bureaucracy or making it easier for them to participate in public procurement, but I would also like to refer to these innovation facilitators, such as innovation hubs and sandboxes, as regulatory mechanisms that will make it easier to test products and services under conditions that are safe for users, and that also reduce risk for businesses in these developments and are more competitive.

This will allow us to provide regulatory bodies with first-hand information and enable them to facilitate the adoption of new legal provisions in the future and thus ensure technology transfer. I believe the benefits are clear, but what is happening is that, in the European Union, the development of these mechanisms is very limited and is restricted to certain sectors such as fintech, with the result that many countries are adopting their own legislation, which may lead to further fragmentation of the internal market.

So my question is whether the German Presidency intends to promote actions for the adoption of legislation by the European institutions, or at least common recommendations for all Member

States, in the context of sandboxes or innovation hubs, especially in technologies related to digitisation.

1-025-0000

Thomas Jarzombek, *Commissioner for Digital Industry and Start-ups, German Federal Ministry for Economic Affairs and Energy***.** – Thank you very much for your questions. These digital innovation hubs are an initiative of the EC, and therefore we are open for all good ideas around that, and I agree with all of the things that you said. It's necessary to foster such kind of initiatives, to open them up, but one thing I want to stress, as I'm a huge fan of this concept of regulatory sandboxes, or *Reallabore* as we are doing that here, what we also often experience is that, especially from the investor's side, we hear we need clarity about the possibility to scale-up our business models, and as long as you're only living within this regulatory sandbox, without a concrete and clear perspective of scaling these things up outside the sandbox in real regulation, then I think investors will start more with their initiatives outside the European Union. Therefore, it is really important to have more simple and more clear regulation on all these fields of artificial intelligence (AI) and also when it comes to GDPR and whatever. I think this is really a core perspective. When I look at the ideas of regulating AI, one thing maybe is the question of how many classes are necessary. Do you need a system with, I don't know, five classes or whatever of risks, or do you need only two? My experience is the more risk classes that you have, the more ideas and concepts and modules in the end will find themselves in one of these risk classes and will have bureaucracy when it comes for documentation and whatever. Therefore, I believe that AI will be some – this is not rocket science. It will be found in every kind of routine, in every module, in every software product, in every cloud product, and I believe today, in most of them, it's already integrated. It's important not to make it too complex, because if you make it too complex, in the end, these technologies will be used outside the European Union, and this is the biggest danger that I see. Therefore, it's absolutely necessary to open up as much as possible without any kind of documentation and obligations and whatever, to make it simple for entrepreneurs and for companies to bring their innovation to the real market.

1-026-0000

Chair. – Thank you very much Commissioner Jarzombek. It's been a very useful exchange. Thank you very much for the straight answers that you gave to the questions we had. Listening to you, I would like to pick up on one word, as a conclusion of mine before I give you the floor for a few minutes for your own concluding remarks.

That word is opportunity. It's a word did you used yourself; a lot of the colleagues used it as well. It is a word that I also believe in a lot. Beyond the challenges and concerns that I think we all see and that we all have in relation to the development of artificial intelligence and how it impacts on our privacy and how it impacts on individual rights, and so on and so forth, I think we have to understand that AI as a technology is ultimately an opportunity, an opportunity that we have to learn to master, that we have to learn to harness for the benefits of our society, of our citizens, of our industries big or small. So therefore I found your approach and your answers quite encouraging, quite refreshing. I share a lot of the positions that you've put forward.

The second issue is awareness – awareness for some of these SMEs that we want to take up AI – of these benefits and these opportunities. This is also a challenge and a debt that I think we have as politicians within parliaments – national or European – or in governments to make sure that AI is actually seen and understood as an opportunity for citizens and SMEs alike. I'll stop here. Thank you very much for accepting our invitation. I will give you the floor for few more minutes for your closing remarks.

1-027-0000

Thomas Jarzombek, *Commissioner for Digital Industry and Start-ups, German Federal Ministry for Economic Affairs and Energy***.** – In the end, I don't have any further closing remarks than what I already said to all your questions and in the beginning, and so I can only say a big

thank you for the opportunity for this dialogue today. It was very interesting for me. I would like to share our common views also in the future. I believe that it's good to have all these discussions also on a parliamentary level. I can say congrats for this committee. I think this is the right step and this is the right organisational form. I wish you all the best for your work and also to stay healthy.

1-028-0000
Chair. – Thank you very much, Commissioner. I'm sure that we'll have further opportunities to discuss and exchange on these things, even beyond the timing of your Presidency.

Now we move on to the second and last point on the agenda, which is the exchange of views with Dr Anna Christmann. Thank you very much for the last-minute availability to replace Ms Daniela Kolbe. I will give you the floor in a second for your introductory ten-minute slot and then we'll move on to the questions. We have ten speakers on our side, colleagues who have questions for you. We will go with a format of two minutes for the questions and two minutes for your answers and, depending on how we sit with time, we may be forced for the last few questions to actually take them as a group.

A few things that I wanted to say myself at the beginning, which is maybe to start with a word of praise for the work that the Bundestag has done with a report on AI first of all, with a special commission, the study commission, that you have yourself established in the Bundestag. As you see, we are following suit in a way with the establishment of the AIDA Special Committee here in the European Parliament.

I read the report and found some of the traditional topics of debate that we also have here at European level. I think it's understandable that we coincide on some of the ways in which we see the challenges, and in which we see the concerns as well as the opportunities. I very much echo your call for a European AI strategy and I also very much echo your call for better interdisciplinarity and for innovation spaces. I also share the views in your report relating to the challenge of actually providing an appropriate definition for AI, the first building block for being able to regulate. But maybe the one thing that I liked the most in your report is your call for moonshot goals and moonshot projects, because I think that in these days and in this approach where we tend to fear a lot our competitors across the oceans, and how we are behind in the way we manage personal data and maybe how we are behind in the race, including on AI, with China or the US, I do think also, and share very much you observation in your report, that we need these moonshot goals. We need these projects where we need to think big, because if we set ourselves these types of goals, these types of projects then it is by striving to achieve them, as difficult as they may be, or as far as they can seem to be, it is the only way to leapfrog and to actually be able to catch up in this race and find ourselves in due course where I think we all at European level wish to be. So again, that I found a most appealing part of your report.

With that, Ms Christmann, I thank you once again for being available and I give you the floor for your first ten minutes.

1-029-0000
Anna Christmann, *Chair of the Bundestag's Study Commission on Artificial Intelligence*. – Good afternoon from sunny Berlin! I hope you can hear me clearly.

I have had to step in at the last minute as a replacement for Daniela Kolbe, the Chair of our Bundestag's Study Commission, who is unfortunately ill today. My name is Anna Christmann. I represented the political group Alliance 90/The Greens in the Study Commission, and I am delighted to be able to attend this hearing of the European Parliament's AIDA Committee today and discuss our outcomes, since – as you mentioned in your introductory speech – European cooperation on artificial intelligence is a huge task facing Europe and one that the Study Commission also identified as a priority. Germany's Study Commission recommended in very

clear terms the development of AI that is ‘Made in Europe’, and for that reason too I believe that today’s exchange of views and ideas with the AIDA Committee is a very important one. I would like to say a few words about the way in which the Study Commission went about its work and to mention some of the topics we discussed; I will keep it brief so that we have plenty of time to exchange views afterwards.

The Bundestag’s Study Commission carried out its work over two years and a total of 25 meetings. We submitted our final report on 28 October, and we discussed its outcomes last week, on 5 November, in the German Bundestag. A study commission appointed by the German Bundestag has a very special composition; half of its members are parliamentarians from the Bundestag, while the other half are external experts representing the fields of science and business as well as civil society. The Bundestag therefore attaches a great deal of importance to the work carried out by its study commissions, and I cannot overemphasise how much we parliamentarians benefited from the expertise of these specialists. I believe that consulting experts from the fields of research and business would also be an important and unquestionably beneficial activity for the AIDA Committee. At the very start of our work these experts provided us with an introduction to artificial intelligence technologies, which meant that we were always in a position to take due account of the various impacts in the different sectors.

Our working method involved splitting up into project groups dealing with specific sectors, which was another idea that proved its worth. Since artificial intelligence has an impact on all parts of society, we decided to establish project groups that would be tasked with investigating certain areas in greater depth, including business, state and health as well as work, mobility and media. Another pertinent detail is that we consulted more than 100 external experts in total, and tried our best to keep up with current developments.
I am glad to say that our report contains a special section on the COVID-19 pandemic, which is perhaps also helpful for the current debates. The Study Commission also examined the question of how new technologies such as artificial intelligence could help us to face the huge challenges that have hit all of Europe, and we made a number of recommendations on how artificial intelligence can be used to mitigate the impact of a pandemic.

The main purpose of our report was to issue policy recommendations, and we endeavoured to formulate and present these recommendations in as much detail as possible for the different sectors. I think that we hit the mark with at least a few of these recommendations, and I hope that they will be reflected in political developments at German and of course European level so that we will see their fruition over the next few years.

I would like to touch on a number of other topics now, starting with the common European strategy. Our Study Commission’s report is characterised throughout by this spirit of European cooperation. We made it absolutely clear in the report that Europe needs to build a skills base that allows it to develop and apply AI itself, so that it has the power to set its own rules for AI. In order to do so, of course, we need the corresponding European digital infrastructure. We explicitly lent our support to activities in the field of European cloud computing such as the GAIA-X initiative, which is already partly backed by Germany, France and other partners, and to a shared European framework for handling data and making these data available to AI researchers and businesses involved in the development of AI applications.

What also matters in this connection is supporting European research in a general sense, for example by means of flagship projects and assistance for European research networks, so that Europe as a whole is in a position to write the rules and to embed our values, our fundamental rights and our ideas about data protection in such a way as to allow us to work together to develop AI applications ourselves and to hold our own against other parts of the world engaged in the development of AI applications which might not uphold our values in all respects.

The whole topic of AI for sustainability and climate protection is a second cross-cutting thematic priority. Our Commission wanted to make very clear that AI holds enormous potential – it can make wind power installations more efficient, it can drive forward the energy transition and it can promote sustainable innovations, for example. Yet the flip side of the coin is that AI also consumes a lot of energy. Our Commission also investigated the question of energy-efficient computing centres and computing centres that operate on renewable electricity.

As regards the topic of work and the economy, we highlighted the need to strengthen the ecosystem for AI start-ups. Support must be available for companies wishing to use AI applications, in particular SMEs. The business landscape in Germany is unique in its diversity, but this means that the expertise needed to benefit from these new technologies is not available in all companies. We believe that these are the companies that need assistance. At the same time, however, politicians should also lend their support to moonshot projects in the field of AI. The goals we set should be ambitious enough to allow new AI-based innovations to be developed that might be genuine game-changers.
Looking at the matter from the other side, we spent a lot of time examining the potential impacts of AI applications on businesses, and were repeatedly confronted with the need for transparency and employee involvement when AI solutions are introduced into businesses. This holds particularly true when we are talking about HR management and the need to ensure that AI applications are not used to manage employees without their knowledge. The need for transparency and involvement as regards company-based AI applications brings us back to the topic of European values again.

Another area we investigated was the whole issue of AI and education. In our report, we insisted on the need to step up work under the education policy with a view to familiarising the general public with the topic of artificial intelligence – so that we can build a broad skills base in the population, so that people can spot AI technologies in action, and so that people are in a position to decide how the results or recommendations delivered by intelligent systems can be used in their respective sector.

Another priority we identified was the question of who should be responsible for developing artificial intelligence, and the need for diverse teams in this area. There is often a risk of discrimination, and particularly of gender-based discrimination, for example if data sets do not contain enough data about women. Discrimination of this kind is more likely to occur if too few women are working on the development side of things. This is the reason why our Commission explicitly recommended that particular support should be offered to women wishing to enter the sector and play their part in development efforts.

If I may, I would like to conclude by returning to the topic of healthcare; one of the Study Commission's priorities – partly but not solely because of the pandemic – was to highlight the potential advantages of artificial intelligence in the healthcare sector, for example when diagnosing and fighting cancer. The recommendations issued by our Study Commission also emphasised the importance of AI with regard to nursing and elderly care. Yet one fact emerged very clearly in this connection: we need a solid basis of data to underpin the corresponding medical developments, and so another of our recommendations was that trusted data pools should be built for the purpose of collating health data that can subsequently be utilised by research and businesses.

That brings me to the end of my introduction. I look forward to the remainder of the debate, and I would like to remind you that our comprehensive report covers many other topics that I have not been able to touch on in my speech owing to time constraints. I would, however, be delighted, either today or at some point in the future, to continue the discussion on these points with anyone who finds the time to read our report.

1-030-0000
Marion Walsmann (PPE). – Dr Christmann, I would like to start by expressing my very warm thanks for stepping in today on behalf of Ms Kolbe. Please let your colleague know that the AIDA Committee wishes her a speedy recovery.

The final report by the Bundestag's AI Commission is enormously useful as a source of inspiration for our own work within the European Parliament. We are currently doing at European level what you did at national level. I hope you will excuse us for not yet having read the 800-page report in its entirety – enough time still remains for us to do so. The executive summary alone was extremely informative for us.

I would like to thank you for the clear overview of the project groups. I very much welcome the clear list of areas for action and recommendations set out in the report, because it is important for us to adopt a structured approach to a complex topic that has implications for so very many facets of citizens' everyday life and holds such high potential to improve their lives, particularly in this era of COVID-19. Viewed from this perspective, AI can genuinely play a huge role in containing and managing pandemics.

With an eye on the clock, I intend to limit myself to a single question relating to the legal framework for AI. The final report states quite correctly that even today AI applications are not operating in a legislation-free environment. I believe that we need a legal framework for AI applications which is limited to closing the legal loopholes in European regulations, and which adheres to both sector-specific and risk-based principles. This is the only way that we can succeed in striking the right balance between stronger consumer protection on the one hand, which would raise the level of trust in new applications such as AI among EU citizens, and avoiding fragmentation of the internal market on the other hand, which would boost innovation by SMEs and start-ups. Calls for an EU regulation on AI, or in other words a more tightly demarcated concept than the legal framework I have just described, have been heard from certain quarters of this House. What is your position on this matter?

1-031-0000
Anna Christmann, *Chair of the Bundestag's Study Commission on Artificial Intelligence.* – Thank you for your question. The Study Commission's report does not contain a definitive solution to the controversy over the risk-based approach or the question of whether we should regulate on a sectoral or cross-sectoral basis. This is the issue in front of us; it is a fascinating one, and one which is also a topic of heated debate at European level.

The Study Commission's report refers to the fact that Germany's Data Ethics Commission recommended a risk-based approach based on multiple levels or gradations rather than a binary choice between 'no risk' or 'high risk'. The debate in Germany is framed on the one hand by this recommendation, and on the other hand by an awareness of the debates at European level and the White Paper, which has now been published. The Study Commission was not able to reach a common position on this issue. Certain groups in Germany believe that we should follow an approach based on the two risk levels that have now been proposed at EU level. Others – and my own group is among them – believe that we really need more risk levels so that we can regulate in a differentiated manner.

At any rate, I think that we must await further developments in this area, and we will certainly be following the developments at European level with great interest, in particular the work that must be done to identify sectors where regulatory loopholes exist. The question of liability, which is another of the topics covered in the Study Commission's report, is certainly an interesting one, particularly when it comes to loopholes that make it difficult to attribute liability if a system ultimately does something that it was not supposed to do. Germany has already adopted regulations closing many of these loopholes, but perhaps not all of them. In my opinion, a major task that lies ahead of us involves firstly carrying out a very comprehensive examination

of these loopholes, and secondly establishing a general framework and approach determining the risk levels that apply. Sadly, our Study Commission was not able to reach a definitive conclusion on this matter.

1-032-0000
Evelyne Gebhardt (S&D). – Thank you, Mr Tudorache. I would also like to pass on my best wishes for a speedy recovery to Ms Kolbe.

I noticed that the crucially important question of whether a risk-based approach should be adopted was left very open in the Study Commission's report. In my opinion, the system must be based on multiple levels of risk. An automatic lawnmower operating as part of the Internet of Things poses very different risks to a recruitment procedure in HR, which in turn poses very different risks to an autonomous vehicle – and we are talking about not only physical risks, but also psychological risks or problems relating to fundamental rights, as with the HR example. I believe that this requires very careful discussion, and I would like to ask Ms Christmann to speak in a little more detail about the outcome of this debate within the Study Commission.

Liability is also a matter that cannot be left to chance. Parliament's Committee on Legal Affairs has already seen a heated debate on the issue of whether a risk-based approach is necessary or whether it would be better to introduce a definitive list of areas where the use of AI imposes a presumption of liability, and autonomous vehicles are the obvious example. Ultimately, of course, this still leaves open the question of where such a presumption should apply. Which leads me to my question: did the Study Commission also tackle these issues during the course of its work?

1-033-0000
Anna Christmann, *Chair of the Bundestag's Study Commission on Artificial Intelligence.* – Thank you for raising the issue of risk classes again. This is something that I hinted at in my previous speeches; it is no exaggeration to say that the Study Commission's debates on this topic were heated, and ultimately we were unable to reach a consensus on this fundamental question of approach. We did, however, reach a consensus on the whole question of the wider regulatory ecosystem that is needed, and I believe that this is another important factor, alongside a clear system of rules.

As far as intelligent systems are concerned, we were very much in agreement on the need to upskill existing regulatory authorities, such as those whose remits include preventing discrimination, settling matters relating to liability or granting heavily regulated approvals in the healthcare sector and so on, because it is not always possible for these authorities to gauge exactly which new regulatory changes a new technology will entail, and how existing rules can be applied to such systems. And so we were broadly of one mind as regards the wider regulatory ecosystem, and my take-away from the broader debate at European level is that many other people understand that the surrounding rules – rules on standardisation, transparent ethical criteria and of course skills – are just as important as clear rules on the topic of AI itself. This is a view that many people subscribe to, and I believe that making progress in this area is a major challenge that we must tackle – hence our clear recommendation to this effect.

The Study Commission as a whole was not able to reach a clear agreement on the procedures to be followed in respect of risk levels; as I said, I believe that this is a major issue that remains to be settled. Personally, I always find a certain amount of reassurance in the fact that the areas where AI might potentially pose the greatest risk are the areas that are typically most heavily regulated at present in Europe. As I see it, this means that the task facing us over the next few years will be to adapt these existing regulations to new technologies.

1-034-0000
Svenja Hahn (Renew). – Dr Christmann, thank you for having stepped in today at such short notice, and please pass on my greetings and best wishes for a rapid recovery to your colleague.

The work done by the Bundestag's Study Commission on Artificial Intelligence is indeed truly remarkable, and I would like to repeat the sentiments expressed by my fellow Members; there is a lot for us to take away, and many lessons that we can put to good use in our own work. Since the start of the year, Parliament's committees have been working on the topic of regulating artificial intelligence. We are naturally faced with similar questions in the course of our work, and the decisive question as far as I am concerned, and as far as the Group I represent is concerned, is as follows: what can we do to promote rather than obstruct innovation in Europe? Of course, the focus must also be on start-ups and small and medium-sized enterprises.

How can we create opportunities without at the same time adding red tape? Artificial intelligence should be regulated on a technology-neutral basis, and only known problems should be regulated. In particular, given that unilateral action by Member States in this area creates more problems than it solves, how can we establish regulatory consistency throughout Europe?

Thank you for your comments on the risk-based approach, which was another topic on my list. I just have one or two more questions concerning your work in the Study Commission. First of all, how much time did the Commission spend on the question of national or European legislation? Where should any legislative efforts begin? What conclusions did the Study Commission draw in this respect? What are your recommendations for minimising the regulatory burden on start-ups and SMEs?

You also referred to the issue of liability. Parliament has responded to this question by speaking out in favour of a list of applications that are believed to pose a high risk. This list should be updated on a regular basis, not least in the interests of legal security. What are your thoughts on the matter?

More fundamentally, are there any important lessons that the AIDA Committee could learn from the Study Commission's problems or experiences? What would you do differently if you were to start from the beginning again with the Study Commission's work? Could you perhaps pass on some useful tips?

1-035-0000

Anna Christmann, *Chair of the Bundestag's Study Commission on Artificial Intelligence.* – Thank you for your questions. If I may, I will tackle them in reverse order, since there are quite a lot for me to answer in a short time. What would we do differently if we were to start from the beginning again? Many of the members of the Study Commission would have liked to see more debates and the involvement of a broader cross-section of society. In my opinion, this is something that could also happen at European level.

We could find out which aspects of artificial intelligence genuinely worry European citizens, and we could try to explain what this technology is really all about, perhaps alleviating some of the concerns raised by depictions such as the Terminator films, and we could highlight very distinctly the areas in which artificial intelligence might help people. I would have been very happy if our Study Commission had done more to stimulate a public debate of this kind. It is certainly an area where the EU could usefully get involved, and I would be delighted if the general public were given an opportunity to learn more about the work being done by the AIDA Committee. That is all I have to say for now regarding the Study Commission's method of working.

The question of how regulations should be designed to ensure that they do not stand in the way of innovation is of course being debated in many quarters. The Study Commission chose to endorse proposals that argued in favour of creating regulatory sandboxes that would provide companies or research departments with a certain amount of freedom to trial new ideas without

the usual rules applying. I believe that this recommendation by the Study Commission is crucially important, particularly as regards transfers, or in other words B2R and R2B partnerships. Our report places a huge amount of emphasis on the fact that mutual exchanges of ideas should be stepped up and that a certain amount of freedom should also be granted in order to trial out any resulting new ideas before decisions are taken as to whether the applications or outcomes mean that regulatory action is necessary. What matters is granting and supporting that initial freedom, and this is what we recommend in the strongest terms in our report. That is perhaps all I have to say on this question.

1-036-0000

Alessandro Panza (ID). – Mr Chair, Ladies and Gentlemen, thank you for the opportunity, and thank you also to the rapporteur for being here today. I would like to raise an issue that has not yet been touched upon, except perhaps marginally, even in the previous panel. There is an issue of social inequality that could manifest itself with the introduction of artificial intelligence. Let me explain: in 2016 approximately 47% of rural areas did not have an adequate internet connection. Italy is ranked 68th globally in terms of download speed, with Germany 42nd. There is a whole series of infrastructure limitations that could create further division within Europe between urbanised and rural areas.

I would not like to see a new trend towards hyper-urbanisation, especially in terms of environmental sustainability, due to the presence of networks capable of supporting artificial intelligence technologies, which we know to be technologies with a significant component of next-generation internet, in particular 5G technology.

There is also much talk within the European Commission about the question of community resilience. The COVID-19 emergency has demonstrated the natural resilience of communities, for example, of Alpine populations and in mountain areas, where people from the cities have taken refuge, with regard specifically to the possibility of working, where this was possible, with an adequate connection.

This has to be taken into account by virtue of the fact that, for example, in terms of distance learning, to enable all students to have the same rights, the same methods and the same access options, this possibility must exist. I therefore ask whether adequate consideration has been given to the digital divide and the repercussions this may have on the implementation of artificial intelligence at European level.

1-037-0000

Anna Christmann, *Chair of the Bundestag's Study Commission on Artificial Intelligence.* – Thank you for your questions. They relate to a recommendation set out very clearly by the Study Commission, namely that significant obstacles must be overcome prior to the successful application of artificial intelligence. Particularly important obstacles include digital infrastructure, skills and data access. We refer to these three factors at various points in the report as vital prerequisites for the use of artificial intelligence in all the areas of our lives.

A challenge that Germany continues to face is the expansion of the digital infrastructure to the point that every last school and institution and also rural areas are well connected, with enough bandwidth to use the internet, so that technologies such as artificial intelligence really can be used everywhere. This is a crucial point – infrastructure expansion must be the first item on the agenda. This applies in Germany just as much as in other regions of Europe, and of course there are European regions that are lucky enough to be a great deal further forward even than Germany. However, it is fair to say that achieving equitable expansion is a task that will continue to occupy all of us.

It is absolutely true that we cannot use technology to solve the problems facing society, of which there is of course no shortage. We made this very clear in our report's summary. Attempts

are frequently made to use artificial intelligence to solve society's problems, even problems that existed long before the technology was developed. Yet a technology cannot solve all of the challenges facing society; on its own it cannot eradicate inequality or prevent discrimination, for example, because these are often society-wide challenges that we must tackle together. In some cases AI might get us a little closer to the solution, but we have to take care to ensure that it does not lead to greater inequality. To put it another way, it must not of course supersede the political assemblies that are still necessary as a forum for tackling society's challenges together. I believe I have said enough on this point.

1-038-0000

Kim Van Sparrentak (Verts/ALE). – Thank you for being here today, Ms Christmann, and exchanging views with us. We increasingly see that artificial intelligence (AI) influences the workplace and the social domain and we often discuss how AI and technological developments might take over jobs in the future. But we already see that automated tools are used to optimise, for example, productivity in the workplace. This all sounds very useful and efficient, but in practice this leads to a total surveillance of workers. Examples vary from extreme time management and exact monitoring of the time spent away from tasks, including bathroom breaks, to installing tracking software in workers' computers to monitor their activity or even monitoring workers' facial expressions or where their gaze is focused. Moreover, online platforms, such as Uber, track their workers' behaviour, such as logging off when they feel prices are too low, and recently drivers have started a lawsuit against Uber because they think the algorithm fired them without any human intervention. I think these are disastrous developments in social fields that we really need to protect our workers against. What concrete policy action do you feel is necessary in this area, and what steps is the Bundestag Study Commission on AI taking in this field?

1-039-0000

Anna Christmann, *Chair of the Bundestag's Study Commission on Artificial Intelligence.* – Thank you for raising the issue of work and employment. One of the Commission's project groups worked on this very topic, and investigated in great depth the points you just mentioned. We did in fact make a clear recommendation – hence my reference to this fact before – that employees, or ideally a works council representing them, must always be consulted and involved when AI is deployed in companies, and when decisions are made as to the types of AI that should and could be used to handle staff administration and HR management.

From the perspective of the Study Commission, there are also certain inviolable boundaries. For example, tools that gather data about factors over which an employee has no influence – tone of voice, facial expression and so on – must never be used as a basis for sorting employees into categories of any kind. The use of these tools by companies would therefore be entirely out of the question. Yet AI tools already exist that claim to be able to make all kinds of deductions from the tone of someone's voice or the way that someone talks – during a job interview, for example. The Study Commission on Artificial Intelligence made an unequivocal recommendation that tools of this kind should not be used, and that the deciding factor otherwise is that employees must be involved in joint decisions about the use of AI in companies and provided with access to transparent information.

Apart from that, we naturally spent a lot of time examining the issue of how AI will change jobs, and the question of whether unemployment will increase or not is a very controversial one. As the research currently stands, it is not really possible to make any meaningful predictions about increases or decreases in the employment rate; all that we can say is that the labour market will undoubtedly be transformed. In view of the fact that jobs will disappear in certain sectors while new ones appear in others, the Study Commission recommended the introduction of extremely comprehensive concepts for continuing education with a view to ensuring that people working in industries that might be affected by automation can retrain and

access the support they need to find other jobs. That is why the Study Commission also spent a great deal of time thinking about the future of jobs.

1-040-0000
Sandra Pereira (GUE/NGL). – We thank you for the results of the study on the effects of artificial intelligence in various sectors and we understand the importance of the social and economic impact of the creation, development and introduction of AI technologies.

The study referred to transparency and all the information that must be provided to workers, but I would like to focus on the question that, for us, is central to this discussion, namely the impact of technologies on the world of work and on workers. Up to now, whenever there has been talk of technological development, the digital economy, artificial intelligence or the fourth industrial revolution (Industry 4.0), this has always been to launch further attacks on workers' rights, the law of the jungle for working hours and the destruction of jobs. Instead of eliminating inequalities, the development of artificial intelligence may even help to accentuate existing ones. It is therefore essential that this discourse and this trend be reversed and the advancement of technology must not be seen as an opportunity for increased exploitation and profit accumulation by a minority, but as a means of promoting progress and social justice.

At the same time as talking about technological development and artificial intelligence, we must also talk about reducing working hours, reducing job insecurity and reducing onerous work.

When we talk about the digital economy, robotics and Industry 4.0 as contributions to increasing social productivity at work, we must also talk, alongside those factors, about salary increases and improved living conditions for workers.

This is the debate we need to have and with this we contribute to a more just world and to social progress. I would like to hear your opinion on this.

1-041-0000
Anna Christmann, *Chair of the Bundestag's Study Commission on Artificial Intelligence.* – Thank you for your question, which builds on what we have just been discussing.

I have already talked a little about the future of jobs, and we have also discussed the type of jobs that will be affected by AI. I believe that this is relevant because it has an impact on everybody; even people with graduate jobs are likely to see those jobs changing in some way. New jobs will be created, but they may well involve precarious employment conditions such as cloud working and similar arrangements. It is sometimes the case that AI promotes their emergence – this was something we discussed in the course of our work – and this is where the traditional social security systems must come into play.

We touched upon the issue of the impacts on these security systems, but we did not make any recommendations in this area, since this goes beyond the boundaries of AI itself and thus surpasses the scope of our Commission's mandate. I think that there is another, bigger question to be discussed here: how can the nation states – or the EU as a whole – design social security systems which in certain cases compensate for these labour market distortions, and which if necessary also take account of the fact that the proliferation of machines causes value to be created in a different way. Yet as I said before, we merely touched upon these issues and did not make any related recommendations, since this would have taken us far beyond the limits of the question at hand, namely how work is directly changed by AI.

And so I would like to reiterate that our most pressing recommendation was to expand the provision of continuing education at all levels and to provide people with the assistance – financial and otherwise – that they need to educate themselves further, even if they are

employed at present and regardless of their current life circumstances. This was the most clear-cut recommendation our Commission issued on this topic.

1-042-0000
Chair. – We are running out of time, so for the last round of three speakers I will have to take the questions altogether and then give Ms Christmann the opportunity to reply to the three questions altogether. So for EPP: Mr Riho Terras, and then S&D: Ms Maria-Manuel Leitão-Marques, and for Renew: Ms Susana Solís Pérez. We will take them altogether. Mr Riho Terras for EPP, you go first please.

1-043-0000
Riho Terras (PPE). – Thank you, Dr Christmann, for discussing with us this very interesting, very broad report, which is also very ambitious. I have noticed that you had a dedicated project group on artificial intelligence (AI) and government, a special working group on the issue of public safety, national security and IT security. So my question would be: could you please elaborate on the findings vis-à-vis AI and cyber security? What are the challenges facing us in the cybersecurity domain in the rapid development of AI?

1-044-0000
Maria-Manuel Leitão-Marques (S&D). – Congratulations for the initiatives to Dr Anna Christmann who is here with us. It is a very interesting initiative of the Bundestag. Your reports mention standardisation several times regarding interoperability of *[inaudible]*, of ethical rules for artificial intelligence (AI), for instance. However, it's not always clear that those standards should be set at European level. Do you agree that Member States should set those standards at European level? Instead of having different national standards which would harm the single market, it's very important also for our companies in order to have a chance to become competitive on a global scale. And my second question: I would also ask you about AI in the public sector. In your opinion, what is the role of public institutions – public services in general – and these extensive data sources on promoting the use of AI (the good use, of course), and how should we promote the uptake of AI technologies in public service to prevent and anticipate problems – instead of solving them – in health problems like diabetes, also long-term unemployment, gambling addiction – I can give you so many examples – and doing it in a harmonised way across Europe? I totally agree with you when you refer to an experimental approach also in public sector to prototype different uses of AI in the future. Thank you very much again for your presence in this very interesting discussion we are having together in the committee.

1-045-0000
Susana Solís Pérez (Renew). – Ms Christmann, congratulations on this report because I believe the recommendations could be very valuable in terms of driving this common European strategy.

I would like to ask you about one of the most controversial points. Reference has already been made to the definition of what are and what are not high-risk applications of artificial intelligence. I think the approach is right, but there are many concerns and I would like to know your opinion. Questions have been raised, for example, about whether the fact that high-risk applications must make it through a prior analysis could create a competitiveness issue for our companies. Or whether this definition – the current definition – based on uses and sectors, could be too broad and lead to uncertainty or limit the expansion of technologies. Or also, because the definition of high-risk applications seems to be very focused on products and services, how we should address this, and also how it would affect the public sector.

I know that your report does not address this in depth, but I would like to know your opinion, what proposals Germany has to promote appropriate legislation about artificial intelligence applications considered to be high risk and what we can do to maintain a balance between competitiveness and security when legislating for these applications.

1-046-0000
Chair. – Dr Christmann, I am hoping that you have noted down the three questions from our colleagues. These are our last questions and also again, looking at the time, I would kindly ask you to wrap up the answer to the three questions as well as your concluding remarks in one go.

1-047-0000
Anna Christmann, *Chair of the Bundestag's Study Commission on Artificial Intelligence.* – Thank you for your questions. Some of them related to the role of AI in the public sector, and so that is perhaps a good place for me to start. This was a priority for our work within the separate project groups on 'AI and State' and 'AI and Administration'.

The state must unquestionably act as a role model in this area, in two different respects. Firstly, it too should trial AI applications and pinpoint areas where they are both feasible and useful. This was one of the recommendations issued by the Study Commission – that the state should test out AI applications and highlight sectors where they can create added value.

Clear rules must of course be put in place to govern these activities, and this leads on to the second way in which the state can act as a role model: it should make clear that AI must not invade people's privacy, deprive people of their right to decide for themselves or discriminate against certain groups of people. The state must set out all of these rules in very clear terms and adopt special criteria to ensure that they are followed.

In our opinion, the public sector should model the following approach: AI applications should only be permitted if they follow clear rules, are extremely transparent and promote human well-being; they should be prohibited if they might also cause harm. So much for the recommendations issued by our Study Commission.

As regards the question of when exactly the risk should be deemed so high that a preliminary review or risk assessment is needed, I think this is an absolutely crucial question – who should take such decisions, at which point and how? Our Commission was not able to reach a final decision on this matter in the time available. I do not believe that the majority of AI applications require prior reviews of this kind. Yet in my opinion and in the opinion of the Study Commission, there will certainly be scenarios in which they are required. We might cite the military or police sectors as examples, since they are both highly sensitive areas where preliminary reviews should be considered as a matter of course.

And if I might be permitted to conclude with a brief aside, previous speakers have already referred to European standards. I believe that standards of this kind – on AI, on data, on interoperability – are crucially important, and we are also seeing the need for this during the current pandemic with regard to health data exchanges. Common European standards as a basis for all of this are therefore an essential prerequisite for the successful development of AI in Europe.

This is exactly what our Study Commission in Germany wants – a robust European version of artificial intelligence that is based on our values and that benefits both humans and the environment. I am delighted that our Commission has been able to make a few recommendations in this respect which I personally think are very worthwhile, and that we have been able to discuss them today. I very much look forward to following the work done by the AIDA Committee in future, and I would like to extend my sincere thanks for the opportunity to share views and ideas with you today.

1-048-0000
Chair. – Thank you very much, Ms Christmann, and again please extend our thanks and our congratulations also to your colleague, to Ms Kolbe, and our wish for a speedy recovery. In many respects, the work that you have done over these 25, I understand, committee meetings

is, in a way, an example of how we should also be working in this special committee. I don't know whether we'll have time for the 25 meetings that you had, but certainly we will try to go as profoundly as we can through the very challenging issues that you yourself in your study committee have also gone through. Again, thank you for your availability at the last minute. As you saw, our colleagues were very interested in and thankful for your participation, and we'll have, I'm sure, a chance to interact again in the future.

With that, we close the points of substance on today's agenda. It leaves me only one final announcement, which is that the next meeting – I also said it in the announcements at the beginning, but I'll say it again – the next meeting is on 2 December from 9 to 12. We will have three hours for our artificial intelligence (AI) in health, a special hearing, and soon, you will hear more of the detailed programme and the concept for the hearing once it has also been discussed with the coordinators.

Thanks again to the technical team for their patience and hard work in making these meetings possible, and thanks again to the interpreters for their time and for, again, working here in these difficult conditions.

(The hearing closed at 15.51)