

CEPR Competition Policy RPN Webinar

GEN AI & Market Power: What Role for Antitrust Regulators?

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With **Daron Acemoglu** (Institute Professor, MIT & Research Fellow, CEPR) will discuss insights from his new book (*Power and Progress*, with S. Johnson, Hachette 2023) with **Andreas Mundt** (President, Bundeskartellamt), **Joshua Gans** (Professor of Management, University of Toronto, co-author of *Power and Prediction: the Disruptive Economics of AI*, 2022), **Susan Athey** (Professor of Economics, Stanford Graduate School of Business and Chief Economist, US DOJ Antitrust Division).

Chaired by **Cristina Caffarra** (Keystone Europe & Competition Policy RPN Co-Founder and Steering Committee Vice-Chair).

Introduction by **Tommaso Valletti** (Professor of Economics, Imperial College London, Research Fellow, CEPR and Leader, Competition Policy RPN)

Webinar Transcript *(slightly edited for clarity)*

Tommaso Valletti

[...] 20 years ago we were talking about Internet digital platforms. Well, everything is happening again. "It's too early to assess. Let's wait. Let's see how it goes. The status quo is different". We are not 20 years ago, we are 20 years later, and market power has happened along with a few other things. So that's the starting point. We shouldn't repeat the same thing, which means probably in our assessment of Type 1 vs Type 2 errors the discussion should be tilted in a certain direction.

Some housekeeping before handing the baton to Cristina, the event is going to be recorded and once available it will be posted. So keep this in mind, the event is a public event and it will be posted online. Secondly, I really would like to thank CEPR.... All speakers and panel members have sent their own declaration of conflict of interest, if any. It's on the website. I will put it in the chat so that we don't have to repeat them again because time is limited, but it's very important that people declare any conflict. So now I pass the floor is to Cristina for introducing and chairing.

Cristina Caffarra

Thank you so much. Tommaso, I normally start with disclosure, but as you say, we've dealt with it on the events page. So I will dispense with that and like you, I am especially delighted to be chairing a panel of real royalty in economics and regulation. [...] We are now at a time you can describe as

peak hysteria around generative AI, Tommaso mentioned the existential threat, this idea that somehow has been around lately, that the robots will kill us all, which is all the more peculiar because it seems to come in part from people that should be “in the know”. There's been a 22 word declaration, almost a tweet, from AI Pioneers, scientists and business people, explicitly talking about the need to mitigate the risk of extinction from AI as a global priority alongside other social societal scale risks like pandemics and nuclear war, and people have been left scratching their head a little bit because this came from people who should be in the know. It happened much at the same time as the CEO of Open AI was going on a whistlestop stop tour of the world, essentially whipping up this vision that “we need regulation, but we need to have it my way”. And at the same time, AI ethicists and others have been saying, whoa, too much. Calm down. None of this hysteria. This is an attempt at decoy directing the conversations somewhere else, but there are real and present dangers of AI which are ultimately in front of us, which see. We have the implications for labour and workers of all of these automation, you have discrimination because discrimination is baked in some way in the data which are used to train AI, you have increased inequality. You have bias, misinformation, criminal use to harass and blackmail, and extort and coerce and defraud, interference potentially in democracies with all the rogue entities in states. Deep fakes, surveillance, facial recognition, and then the privacy violations which are very serious. There are already class actions that are dealing with that and trying to certainly tackle that and there is the massive scraping, the appropriation of data where content owners are saying this is effectively using my valuable content to train these models and I'm not getting compensated for it, and there is much more. So there's a tonne of discussion as Tommaso alluded to. Around what conceivable governance models one could develop and needs to develop quickly in order to deal with the harms without suffocating the innovation.

But as also Tommaso alluded to, the focus today is somewhat is different. We want to take a slightly different angle: when you think about something which is a disruptive innovation you think of something that tends to upend the status quo, which undermines the existing powers and shakes the foundation of the existing powers, creating opportunities for new players to come to the fore. Is this ultimately what Gen AI will do? Is it going to upend the status quo, what we expect to see there? We want to talk about market power, AI and market power. What role does it play and the reason this discussion is very much topical is that we know that in the supply chain we have these large foundation models which are at the top which have been trained and they are the input into thousands of applications in multiple fields from e-commerce to law to medicine. But the supply of these foundation model at this stage is concentrated and there are technological reason for it: you need lakes of data, you need forests of GPU, which is why NVIDIA is more valuable than Facebook. You need computer power. You need cloud and you need talent, which at the moment is not so widely distributed, is present in a select number of players. And so inevitably we've seen so far that these foundation models tends to be either developed organically or created with some form of association with some of the of the incumbent; and at the same time there is a huge number of small startups that are seeking to productize and create a huge number of products below.

So I'm getting to the questions we aim to discuss in in this hour or so: what does this structure mean for competition? Is this foundation level going to remain inevitably concentrated because of the structure of the technology? What does it mean when third parties need to have access to these inputs in order to develop and build using these models? How widely are these inputs going to be shared? Is licencing a model? is open sourcing a model? We know that open source is then closed. Then there are huge numbers of startups that are trying to productize, and we know when there is a huge number of startups, inevitably the merger wave eventually starts in in the next

couple of years, we expect to see a lot of acquisitions of these AI operations. So how do we feel about the kind of world that we are going to be facing and what will competition look like? Is it going to be real competition or are the big tech usual suspects going to basically say we compete against each other like crazy, but what does it really mean? There are papers that support the idea that we're concerned, FTC office of Technology has issued a paper saying, well, we need to remain vigilant. So has the CMA in the UK. How should we think about this? Having set the scene in this way, the first speaker and one that I'm also particularly delighted to welcome is Daron Acemoglu described not by me but by others as the most famous economist of his generation, certainly somebody who is incredibly prolific and has written recently a celebrated book - Power and Progress - which has attracted much attention already. I don't want to paraphrase in any way the incredible depths of this book, but this is a sweeping review of the last thousand years of technological progress. And essentially, you challenge the view that in some way technological process is like a tide that lifts all boats. There is serious potential for progress to exacerbate inequality, the distribution of progress has not been equal, and one shouldn't assume that it is because how progress ultimately diffuses depends on the institutional arrangements that exists, in particular, whether workers will benefit or not will depend on what kind of regulatory framework and other institutions are in place. I hesitate to say much because of course this is your book. Starting from that background, you talk at the end of the book about AI and again you are concerned about the potential for this in terms of what effects it will have on workers. But you go beyond that, you talk more generally about the need for regulation that must be multi pronged, we need to do something about the control of data, we need to do something about empowering citizen and you also say we need to get rid of monopolistic structures in the industry, which impedes the greater diversity in innovation, so with this background, where are you now specifically thinking about the impact of generative AI and where regulators such as Andreas such as Susan should be thinking about what regulation do we need and what is the role of antitrust in all this?

Daron Acemoglu

Thank you, Cristina, for that wonderful introduction and to you and Tommaso for inviting me. [...] As Cristina said, I'm going to talk about something that's partly inspired by my book. AI and antitrust in 10 minutes. So that's a tall order especially if I try to blend in ideas from the book, so let me jump into it. I'm going to do 10 question and answers in 10 minutes, but since that's a very short time I'll just give you the answers. I'll let your imagination do the job of the what the questions might have been to which. These are the answers.

- Yes, generative AI has great potential, so I am completely convinced that this is a very interesting technology that can bring lots of goods and has capabilities so we can build on that. But I think let's move forward.
- And yes, I believe that monopoly is everywhere in the tech sector. So here, perhaps I differ from many IO economists, and I subscribe to the duck test. If something looks like a duck, walks like a duck, and quacks like a duck, it is a duck. So if you have companies that have reached sizes that have never been in human history, and that dominate a particular line of business, they are monopolies. So we have to grapple with that. And that means all sorts of regulatory tools have to be considered, including antitrust. So this is absolutely on target.
- And yes, in my view this is getting worse with foundation models. Because there is a likelihood that we may go towards a duopoly. With Microsoft Open AI and Google as the two key players, even though open source and many other competitors are going to try to

get into foundation models, but the current business model of foundation models is very resource intensive. So that raises the possibility, does not in any way create a certainty, but it raises the possibility. These two companies and their models are going to be the dominant ones on which many others will have to build, raising all of the issues of vertical product creation and all sorts of other questions that are going to be central for policymakers and economists to grapple with.

- But no, I actually don't think monopoly power leading to high prices is the main problem that we're dealing with. You know, of course, that is a problem. But if the only issue was that because the foundation models are controlled by, you know, Google and Microsoft, they're going to charge higher prices, and as a result, the apps that are developed on them are going to be more expensive, that would be, of course a pity and it's something we can do something about, but it wouldn't be the end of the world. So we get many new apps. They cost a little bit more. We don't get quite the consumer surplus. Woe is us, but not the end of the world. The problem is the direction of innovation. The problem is that the current market structure is selecting a particular direction of innovation. And that has much more sweeping consequences. Taking the set of products and technologies as given and pricing them above marginal cost and thus losing some of the welfare triangle is not the main issue. There's the potential for doing much greater damage. No, this is not because of existential risk. In fact, like Cristina was implying, when all of these tech leaders are talking about existential risk I see it as either a blind spot or a ploy for making us not worry about the bigger risks. The bigger risks in my mind are in the labour market. Most of us earn our living in the labour market, so what happens to jobs is the most important issue. And the current direction of AI looks like it is going to follow some of the trends we have seen with digital technologies before. Failing to create the complementarities which human workers and skills, and instead going much toward much more towards automation, hence generating inequality, potential job losses, especially for workers without very specialised skills such as those with postgraduate degree.
- And no, it's not just economics. There is a real danger here that the current direction of generative AI could again continue existing trends that we saw in social media degrade political conversations. Increase the amount of misinformation and disinformation, with a much more powerful tool. Create a particular type of ecosystem in online forums where people are drawn on the basis of emotion rather than engagement. And hence generally act towards the exploitation of people in their capacities and duties as democratic citizen. It is this twin: Inequality and Elimination of good jobs in the labour market, as well as erosion of democratic capacity that I think are most problematic.
- No, I am not a Luddite. So I am not saying that this is in the nature of technology, nor that we should oppose technological change. The issue here is that we are not along the right path. What's great about technology in general and generative AI in particular, that it's a very highly malleable type of technological platform or what some economic historians used to call general purpose technology, meaning that you can use it for creating many apps, many different types of sub technologies and many different directions are possible. It is not complete idle talk. When people used to talk about social media and other online tools creating new democratic spaces today, it looks like very naive. When people in the 2000s said oh, online communication and social media are going to democratise communication. But that potential was there, and that potential is much greater with AI. When some people in the tech industry talk about generative AI being useful to humans in terms of getting better information, performing better tasks so generative AI... actually, I think the great potential that I mentioned at the beginning is precisely in being a human

complementary technology. The tragedy of our current age is that we have almost all information that is at least codified available in some form. But we do not have the processing power to decide which one we should retrieve, how we should interpret how we should process, and which types of information we should engage with in different forms. Generative AI has the capability to improve human interaction with information and hence generate a lot of tasks, not just for knowledge workers, but for electricians, for carpenters, for educators, for healthcare workers. So that possibility is there.

- But no, we are not going in the right direction. So we do need a redirection of technological change.
- And no. I don't think it is naive or unrealistic to think about the redirection of technological change. One view which is common among some economists and some tech leaders goes back to either to the view that technology somehow has a preordained path and we just have to follow it. No, I am denying that and I think history is quite a good guide on showing how malleable technology is. Goes back to a saying by Ferdinand de Lesseps of fame, from the Suez and the Panama Canal, which we discussed in this book where he said, don't worry, men of genius would arise and solve all problems. Who are today's men of genius. Maybe some Altman or Elon Musk. But no, I don't think we should trust them. So I think the direction of technology is malleable, but it's also a societal choice.
- And yes, as Cristina was hinting, antitrust has a very important role in this. For two reasons. One, because if we want alternatives. They are not very likely to come from a duopolistic or highly oligopolistic structure, especially one further empowered by killer acquisitions and these companies being a block other types of technologies that do not fit well with their business model. So if we want more alternatives that go more in a human complementary direction or more pro democratic direction, or create a more open competitive environment, I think we have to use antitrust tools including potential breakup of the largest companies which are too big and one other reason is because this type of power comes with enormous social power. And by that social power, I mean economic power, and also general social power. Tech companies have an enormous sway on public opinion, which I think is associated with their mega profits. And again, I don't think that creates a healthy environment.
- And no, finally, I don't think antitrust is the main tool as Cristina was also hinting in her introductory comment. I think antitrust is a very blunt tool and I think for the redirection of technology we need a suite of tools which should include exactly how data is used and accessed. We need a new interoperability type of approach as well as how do we compensate and how do we actually encourage more creation of creative data. We also need to provide explicit incentives, such as, for example, those that have been successful in the field of renewable technology, where we encourage more of the socially valuable types of technologies. And I think there are a number of tools for that and we may also need more tax policies to discourage the worst types of business models and create room for alternative business models. So I am actually quite favourable, although I think much more study is needed, to a digital ad tax that creates more openness for alternative business models based on things like Wikipedia or subscription models in the online space.
- Finally, I think we also need to rethink other tools that we have, like fiscal tools that currently create a very asymmetric playing field between capital and labour and going back to the job market and labour market inequality issues. I think equating marginal tax rate between capital and labour are things that we should definitely revisit. Thank you.

Wonderful. Thank you. I'll ask you to go back to some of these thoughts later in the second round, because I want you to elaborate more on this suite of regulatory tools that you have in mind. I'm also tempted to jump to Joshua, because I know Josh has thoughts about a lot of the things you have been saying. But I do not want in fact to turn this into a two-way conversation between you and Josh. I want to go to Andreas Mundt and hear from him. Andreas needs absolutely no introduction. He's a fearless regulator, fearless because he's pioneered literally a lot in antitrust. Last week, I think was a seminal moment, right? Because you had the ECJ judgement crowning the big push that you made to tackle the business model of ad-funded giants using our data, calling out the data protection violations, so that was an amazing judgement which has been hailed everywhere essentially as your success and that of the Bundeskartellamt. And of course, you also got a new competition tool that everyone is jealous of and they didn't get, so this is all going swimmingly in one way.

But let me just go to you in this discussion [...] Daron is clearly right that we need a suite of tools to think about this, how we deal with antitrust with AI in the near future, but also to quote Tim Wu, he wrote a paper recently saying let's just not focus on the more distant future, let's also think about the tools that we have in the box and what we can do with them now. Give us your thought ...

Andreas Mundt

Many thanks for having me on this topical issue and it's by the way, very worrisome from many perspectives. And if I could be very, very brief today I would say generative AI from the competition point of view makes it all much, much worse, and much, much more worrying. But I'm not leaving it there...

I think most competition agencies have been making use of computational methods for some time. And we will of course develop that.... We have started for example to analyse the behaviour of power plants with regard to the withholding of production capacity in the electricity sector which is an extremely complex issue and which you can only do with AI if you want to do it properly. Competition agencies today face another problem, the papers and the letters we get, more and more long and complex, difficult to separate the noise from the substance. So we are working towards the use of AI. On predictive AI, for example, four years ago we already analysed ranking algorithms in ecommerce, personalised recommendations price setting, all this stuff, we studied the risks for competition. Now it might be more complex. It might be more sophisticated. It's a different method, of course, but in a way, sometimes I have a deja vu moment and think. Well in a way I have seen it before, but maybe not to this extent.

So now on Gen AI. I would very much like to focus on three big points here that seem to be important. First point is: will AI companies have a potential to be competitors of big tech, or will they be soaked up by big tech and integrated in the business models that are already there? To preempt my conclusion, with what we know today, and this is why I say AI makes things worse: what are the pro competitive arguments? I mean, large AI models serve to a certain extent or could serve as new types of platforms maybe. A bit like new operating systems. And if they were new platforms, if they were operating a bit like your operating systems, they could develop of course, network effects, AI models with many users are very attractive for developers and plugins of applications and models, so if they have a chance to succeed to develop these kind of network effects, you might see some competitive advantage that might attract... might even be able to gain a lot of users and might work out some data advantage. So there are potential positive network externalities in another dimension, but we also could see of course our first mover advantages in this respect because they are in place, they have some advantage.

But to my mind there's much more of a potential to reinforce the power of the established players that we have the potential to replace them.

First of all, in many use cases, it's largely AI models which will be integrated into existing apps and business models because they make a huge difference for applications of search engines. If you think of office software, if you think of software engineering, whatever it is they provide the huge, huge setting forward.

The second part, all these already existing players, they have an enormous technical advantage because they have all the computational layers that you need for AI. They have cloud computing, they have the model layer, they have the applications. So in terms of this, they have such a competitive advantage to make use of AI. I doubt that anyone will be able to catch up with that, especially if you look at cloud infrastructure. Which is already very concentrated today, but in a way you need cloud infrastructure to make best use of AI. So who shall make use of it? Those who operate huge clouds and we know who this is. Another point is financial resources. It is reported that Microsoft spent hundreds of millions of dollars on Azure in order to establish the infrastructure for open AI. Who has this kind of financial resources? We also know who these companies are. And then what you need for AI is data. You need data, you need data, you need data. Has who has this data in real time. With a limitless volume. To the greatest variety. Those who have the financial resources, those who have the cloud infrastructure and those who have the other resources. So in a way, open source models might come as a help in this way, but given the structural features that I have mentioned, I think it is most likely that AI would serve most those who have the greatest power today and this is very difficult to fight.

The third point is you can see that on the M&A market, for example, if you look at the US market in the first half of 2023 \$9.3 billion were spent on M&A transactions in the United States, mainly investments on AI in the USA. In Europe, at the same time it was 1/3, a bit more than \$3 billion, and foreign investors outside Europe spend again \$1.6 billion to acquire startups in Europe. So what is the picture that we see from these figures? There's an AI surge in the United States. Venture capitalist companies invest in startups, mainly in the US. In Europe there are less startups. There is much less venture capital. There is less investment in if there is a potentially successful startup. It is very often brought from outside. So what I want to say, these are not very good messages for the competition that we might want to take up over here in Europe.

What is the role of competition agencies in this sense? I mean it will be again very difficult for us to correct a market development that is for example driven by investment. So again, there's imminent danger that when the markets are already consolidated, we can go against any form of envelopment, against self preferencing, unfair trading conditions. We have the DMA in place. We will see how modern this is. These are the new developments we see with AI and I am doubtful how much AI fits under the umbrella of the DMA. We have section 19A over here in Germany with a particular cross market concept perspective which is very important in these markets. But again it will be difficult. What is different this time? What should not happen is we clear mergers of which in 10 years, we might say maybe we would have better blocked it. I think that danger is much smaller than, for example, 15 years ago. We do not see many mergers. Over here in Europe, what we see are big tech and smaller AI companies and we are all of a sudden in a situation where maybe we have to assess these corporations and the smaller ones that are providing AI to make the big ones even better. We do not want to repeat that story that we have seen before of buying nascent competitors and then integrating them or killing them. We know all about this. It should not be repeated. I think we really must wonder what else we have as toolkits to discuss this situation. Or

let's put it this way. We have regulated the digital economy last year. Now again, the European Commission is about to be regulating AI. I'm not sure about this either because you're regulated something that you do not know yet very well, which might be very dangerous with regard to the potential that AI might have in the future. So again, I would say we know a lot more about the digital economy, but again the technical development goes so fast. And again, we look at the situation, which is very difficult to cope with and we really must wonder what else beyond competition law we can do in order to control AI in the future. We will do our job but I'm a bit doubtful that we have all the answers.

Cristina Caffarra

Many thanks. A number of lessons that I want to pick up on later, but essentially, you're totally right, the learning that we've had in this space is significant. The last 10 years have taught us a lot about the digital economy and the dismay that we all feel in the fact that we've not been able to intervene and somehow change some of the things that we see unfolding that we've seen unfolding. But then you're right. What is the implication for this? Is merger policy going to be an answer? Aren't companies updating and instead of mergers, are they doing some sort of agreements that are not captured by merger? And what does that mean? So all of this is something we'll return to because of course this is the substance of what we want to try and discuss even more in the second part. Let me now go to Joshua. I should say Joshua is a complete Renaissance man in terms of the breadth of his interest and the breadth of things that he's written about. He's also got a book on AI, which he should now lift and wave, a book he produced last year: Power and Prediction. Josh, you describe yourself as more of an optimist than Daron in terms of the implications of what you see, and in particular you think some gloomy predictions may not be so justified. However, you've also said in blogs and in writing that even if you're not so worried about AI in the same way as Daron is, "I do remain worried. We have an uneven distribution of power that does not provide confidence with socially optimal consequential choices will be made". And you also said, "I'm most intensely worried about the way choices are made in our political and business institutions". Over to you.

Joshua Gans

Thanks very much, Cristina. Yes, I appear to be much more of a technology optimist than Daron is though I think in his heart he's actually more optimistic. He's just got a level of grumpiness about him that that covers it up. With respect to artificial intelligence, I've written several books on this now. I've been blessed being here at the University of Toronto in watching it over the past decade emerge as a very significant and exciting technological area. So I've had about 10 years of experience looking at it, Susan's had even longer. She saw it at least 15 years ago when she was working at Microsoft and that gives us a sort of perspective about what is happening on and what is the speed of this thing. Even 10 years is a very fast speed, although I think the current discussion are based on six months of excitement about new tools that are available. But let me try and stay extremely focused on the issues of antitrust and competition policy. You know, at its heart, I feel my job as a competition economist in any technologically rapid, technologically improving world is to focus on technology, technological change and technology adoption. My concern is that existing incumbents would act to slow that down by certain means, and we've seen many examples where incumbents, for instance in the air travel reservation systems and things like that, you know, saw the Internet and slowed it down. And this was the thing that was in focus for antitrust. Daron has a recent a paper that many of the concerns about AI are not necessarily competition concerns but

about other consequences, and this is leading to a general philosophy that maybe we should slow this stuff down. But antitrust is not built for that. Antitrust is built to accelerate this, and so when we talk about using antitrust tools, that's what we're doing. And so we must recognise that, you know, ask an antitrust economist what's the best way to slow innovation down and say, wow, let's get a whole lot of monopolies control over at all. And not let anyone else in. That should slow that down nicely.

But I actually don't think that's sort of what is going on here. I think we're not seeing those same forces quite at play right at the moment, in effect, what we're seeing is quite a bit of entry. Let us not forget Open AI, despite its current size and excitement, is a new entrant. It was not a big incumbent firm. It did not spin out of Google or Facebook or Apple. It has a relationship with Microsoft, to be sure, but it's not a relationship that that by any stretch of the imagination is something that would raise antitrust concerns. It is there. There is no exclusivity, nothing like that going on. So in that regard and that's just and that's just the main example, all I've seen over the past decade is entry. So it is actually a fairly healthy environment and one of the themes of our book is that advances essentially in statistics have allowed AI to be made much, much cheaper. It is cheaper and more accessible. You know there are many different ways of being able to access the tools, and but for a few very specific domains where there's some data exclusivity of which those exists, it's been quite a healthy environment for competition. I get excited as a competition economist by entry. Entry is great. Entry is going on, that's good. If I get excited when the incumbents appear to be investing a lot in the new technology because they're fearful, either they see the opportunity of it or they're fearful of the competition. My concerns would be raised if they were doing things that would slow it down and whatever Microsoft's relationship with Open AI, doesn't look like it's slowing Open AI. Is the direction of all this in the right way and you know that's an issue that's come up again and again. Let me let me put it this way. It's not 100% clear. What competition? How others impact on that direction? Let me give you the example of social media. If I take the potted psychological view of the harms of social media on addiction and things like that, the biggest offender is a new entrant, TikTok. And that new entrance is fully a new entrance on the basis of artificial intelligence. That feed is AI driven, would not have been possible without it. And it's driving that attention, making it a very sticky application for users and that's all that sort of harms. And I I don't point that out to say that their entry was bad or whatever, although entrants are a little bit more immune to liability, product liability laws and other things because they might be just skirt around the edges. But it's not obvious to me that we can say anything about incumbents vs entrants in terms of additional harms. And in terms of the direction, the question is, what do we do?

You know, the broader question we need to ask ourselves right now is do we have a bigger problem, an antitrust problem now being created by AI than we did for some other technologies? Do we need to do something different? I disagree with everybody who's spoken thus far. Yes, we've got some big tech companies. But that's not new. We've always had big tech companies sitting overarching the next generation of technology coming in. When we talked about the Internet, I guess everybody's forgotten, but Big Tech was big telco. Big telco companies were going to drive that whole thing, and spent a considerable amount of energy making sure that that didn't happen because they were not rushing into this at all. So this is not a new situation. Is it any more difficult now there there's a lot of things to talk about? There's, you know, data access and other things. But the one thing that people have mentioned is it takes some investment. These large language models, the foundation models have required enormous volumes of investment in order to train those models. The question is: Does that automatically bake in a monopolistic situation for those

foundational models, and the reason I don't think that's the case is because we've got a tonne of new entry in that as well.

Now it's not clear that foundation models the one-size-fits-all model driving a whole lot of things is the structure of this industry. Instead, we see people saying ohh that that was thank you very much for demonstrating that these models can be so powerful. I think we can do it for a fraction of the cost. And we've got entrants, like Anthropic. And we've got Cohere here in Toronto who are doing those sorts of things. So I'm not sure that's an inevitable part of this industry. And at the end of the day, we are faced with the problem we face with antitrust in this environment is if we do want to engage in some enforcement activity, it is often too slow. It's too slow to be able to do that. We can block mergers. That's something we can do. Again, that's a hard issue. I tend to wanna block mergers that are between ones that are solidly looking like they're gonna be potential competitors rather than relatively minor complements. But there's so much uncertainty here and that uncertainty cuts two ways - the uncertainty might cut at saying, don't you know, be extremely aggressive in antitrust enforcement because we don't know what's gonna happen. The other uncertainty is don't be aggressive in antitrust enforcement because we you may be paying attention to the completely wrong things. For instance, you might end up with the unintended consequence of helping protect the very incumbents you're trying to expose to competition. This optimism versus pessimism is not something that we can resolve with evidence right now. These are based on our beliefs. But in that regard I, you know, having watched our antitrust economics has worked. Let's wait, let's wait and see what the real problems start to look at. You know, if our big incumbent firms look like they're trying to slow down things down, then we act. But while they seem to be going in the right direction, I'm more relaxed.

Cristina Caffarra

I knew you were going to be a contrarian, so there you go. I am intrigued by this view that there is so much entry in this space because while of course the names you mentioned, like Anthropic and so on are there and I'm looking to Susan to just enlighten us a little bit on the technology, there seem to be some easy facts. Some basic features of the technology that point toward economies of scale and network effects as Andreas has mentioned that tend to be historically concentrative forces. Yes, there is entry, but things tend to be ultimately fairly concentrated. And the question really is and we'll go back to it, we know that antitrust isn't a complete answer, but we've not really achieved very much so far and so I'm a bit puzzled at the idea that we should wait and see because we know what waiting and seeing has done, which is perfectly nothing. And so that is an interesting position, but we'll get back to it.

I want to go to Susan. Susan of course is an extraordinary economist. Incredibly accomplished but also at the moment the chief economist at the Department of Justice and has done a tonne of work on the interface of economics and technology and business. And Susan, you have studied of course, business model, economy, scale, network effects in these digital industries for a very long time. What type of competition? Just on the back of this discussion we're having here, how do you expect things to develop given the fundamentals of this industry? Yes it's true there is an absolute huge number of people leaving their current jobs and going to startups. There is enormous fragmentation at the level of productization. Are these new entrants? Are these startups going to make it? How are they going to make it? What is the shakeout that you see? What is the structure that you see being successful?

Susan Athey

Great. Well, thanks so much. Thanks for having me here. And like everyone else has said, it's a huge privilege to share the stage with such distinguished and thoughtful panel. So I want to focus my comments less on the biggest companies and more on the next layer and not just the startups creating services, but also the businesses that are adopting different applications of generative AI because now a lot of the themes I think are related, of course, but industry by industry, this is going to be a time of technology shifts and we've seen that even in history it can be very hard for anyone to come in and get a toehold. But the moment in which there's a technology shift creates this glimmer, this brief window where leadership can change and sources of advantage can change, so I think we really can take a lot from last past lessons and past mistakes when leadership changes emerged at a moment of tech shift and then how have leaders managed to hang on to their power through a tech shift.

And of course a tactic for hanging on to power through a tech shift is to buy a nascent competitor or to interfere with competitors. New competitors' ability to get distribution or to acquire customers, whether it's long term contracts locking up, creating switching costs and there's a really well established playbook at this point even in the digital markets for how this can happen. So we want to be on the lookout for those because we know now that when you miss an opportunity for leadership changes or for reestablishing competition, you may not get another window for a period of time. Another way that that this. You know, we can see the road of new competition and regulation of course is going to be crucial because of all of the different social societal impacts of AI. But we also need to avoid past mistakes of regulation and make sure that the regulation is encouraging entry. And here it's we have some really good lessons to build on already from, for example, the Biden administration has had an executive order and a whole of government approach to competition outside of the AI space so far, but making sure that all parts of government when they regulate things like safety are also taking into account there's long term benefits on safety from having competition. But also that the regulations need to be designed in such a way that they don't interfere with competition, and I think this whole of government approach has had a lot of successes so far and we can think about those lessons as being very important going forward. And I think that's especially important because we see small startups trying things and we're also going to be seeing non tech firms wanting to create their own internal applications but they may not have as much experience in the sector, it may not be part of their core business. And making sure that you know you can get started in this area, you can get started building your own use cases. Some of those use cases can end up getting commercialised and we've seen lots of examples of that. You build something for yourself and you realise that you can sell it, but also just for not having these companies have to rely as heavily on intermediaries.

Now I'm going to talk about a few more details about how I see the forces changing in terms of potential for competitive changes, industry by industry. Again, outside of tech, but let me talk a little bit in more detail about some. To make the comments a little more concrete, one thing that I think Daron and Joshua both allude to is the importance of the direction of technology research and one of the things that's really interesting about this type of research is that researchers actually are able to engage in this in research, in the space of foundation models. Now they have some huge disadvantages, the engineering of the very large systems, they don't have enough computing power. It's too expensive. They lack certain data. So there are huge impediments. But on the other hand, there's a very active area of either fine tuning open source models or developing models on smaller data sets that has been very active. There's 10s of thousands of research papers a year just for the last few years doing that kind of thing, and our students are regularly building and training, fine tuning these smaller models. And so one of the things that's

really interesting about that is that this is like general purpose innovation and in principle the research side and the social sector side can do general purpose innovation that can lay the foundation for commercial applications and lower the cost for more applications to be adopted.

And so when you put that together with firms adopting for internal use cases that might be more beneficial, like whether it's health education for patients or for trying to disseminate research, education and training, we want to make sure that it's possible for firms to do that without facing too many impediments and also that the researchers have the support they need to create those sorts of open source tools that that spawn social sector innovation. And that's something that I worked on a lot before I came to DOJ. on the commercial side, there's of course all these customer facing apps that we're familiar with, whether it's personal assistants, personal productivity, personal creativity, creating your own fabrics or clothes or wallpaper or whatever it is there is immersive entertainment. So there are lots and lots of new use cases. And I think we can reason about those. A couple of points I wanted to highlight there, even in those applications. The kind of barriers to entry and source of advantage are a little bit different, because if you can build on a foundation model, you may not. You may be able to buy things that you couldn't buy before, so in the older machine learning technologies you needed a lot of your own data in order to train your own AI models and in my experience trying to work with smaller companies, you had a hard time having enough data and what's really interesting now is that you can. You can get off the shelf and perhaps even open source something that's good enough to combine with a much smaller internal data set and get better results in terms of personalization and customization, so that changes the source of advantage from the big data sets to access to a foundation model and the ability then to customise it in your specific way. This really could make it more competitive and all the incumbents are gonna try to find ways to slow that down and stop it and maintain their market positions. But it's a precious moment to try to preserve that competition.

Finally, I just wanted to mention the internal operations of firms. There's a lot of internal operation, especially worker training, on the job training, helping people solve problems and troubleshoot, and also creating user experience for users. But like creating copy, creating user manuals, instruction guides, creating sales, marketing and advertising copy. And so on user experience design. These types of things are also areas where it's not clear what the industry structure will be. Will firms develop their own things in house or will they buy all? Software as a service and so where? Are the scale economies going to decline? Are they going to be inside a firm? Or they going to be these AI companies that you buy in a box and you don't actually have to build it yourself. And that and actually the AI in the box allows the business enough customization that they don't need to hire their own engineer.

And I'll bring that back to like a final thing about labour markets, even within the engineering space, it's not exactly clear how the demand will shift because there is maybe less need for everybody to have their own in-house like bottom layer AI teams, but a lot more need for people to be able to understand and interact with interfaces. For customising general-purpose software as a service for the purpose of a particular company, but already we can expect much more in competitive advantage. So I think just summarising industry by industry, there's going to be changes in the barriers to entry changing and the types of switching costs and the types of labour and worker bottlenecks. We're going to need to stay very much on top of that. So that we don't replay history in terms of concentration, the general economic playbooks are probably going to be similar, but the specifics and the tactics may be different. And so hopefully we will learn that we need to learn more quickly this time than we have in the past.

Cristina Caffarra

Wonderful. Thank you, Susan. This is great. I want to back to Daron, but I also want to ask people to raise hand and jump in as speakers because we have the final 20-25 minutes. So I don't want to just go serially through people. If you want to comment on each other, just do and. So what is interesting is that there is somewhat a different view emerging in some sense, even in this narrow panel in which Joshua and Susan are more optimistic on the opportunities for entry and it doesn't necessarily need to end in tears. There is quite a lot of activity in ways in which this could play out in a way that is. Not quite as negative. On the other hand, Daron, you have ended with a pretty dystopian view, potentially as a possibility, one in which we are maybe moving towards a duopoly in this space. Given the advantages of the incumbents. And your persistent concern remains the direction of innovation. It is something that you have essentially gone back over and over again, and it's something that you were saying. I've heard you say this, and I've used this kind of concern myself when giving talks: everything looks like an app, everybody's making an app because everyone wants to sell it to one of the incumbents, and so innovation is all app shaped. So how do you feel about what you heard so far?

Daron Acemoglu

Well, I think first of all, this is a fantastic panel and I've learned a lot. I agree with Susan's emphasis on how businesses are going to use, and we have to pay much more attention. The issue is how much flexibility businesses are going to have. Which Susan touched upon at the end, and that's of course again related to the direction of innovation. So and in that context, let me just take up and fantastic point that Joshua made, but build on it, which is: Is antitrust a tool for slowing down or speeding up innovation. I think that's a great question, Joshua, but I think again the issue is which type of innovation? So your discussion, which was very apt, left the question of whether entrants are going to follow the same model. Or where they're going to experiment with new models, new approaches and new social consequences implicit. So I think let's revisit that. For example, with a slightly less controversial topic, perhaps energy. So we can say great, we want more entrance. With new types of coal that are going to be much cheaper, so isn't that great? Well, no, I think we want new entry from renewables or better batteries. Because we know I think now all reasonable people agreed that carbon emissions are not a great thing. So it's not just whether you're going to get more entry or not. Whether you're going to get the right type of entry. So now I think the question becomes more complex again in. The energy field: are companies like Shell BP? Are they on the side of angels or demons? Well, it's a complex question because of social pressure they claim they are trying to contribute to clean innovation. When you look at their track record, except for carbon capture, they're not doing much and carbon capture is a very questionable technology. So I think the issue is going to be: What is the exact role of large companies? What are they defending and what are they allowing? And the issue in the context of tech again is going to come back to: Unfortunately, this techno optimism versus not. So if you believe that most directions are going to bring some benefits then we may say, OK, we don't have to worry too much about it. There are a few directions like, you know, killer robots or complete deep fakes that will make everything false on the Internet we have to worry about, but most other directions are OK I think. Perhaps we can reduce it to entry versus non entry.

And what does antitrust do to entry and speed? Not most directions are that beneficial, so there are a lot of directions which are currently being pursued that are not that great. So, especially if the instinct of many companies in the United States is to use Generative AI for job replacement,

that's going to be a problem. And if the instinct of most companies is to use Generative AI in the same business model as Facebook or TikTok, I think that's going to be a problem. I think the policies that I was mentioning are about opening up space for entry by new business models. And again, I think the examples that Susan gave are inspiring and very interesting. But when I look at the easiest way of monetization of Generative AI I think the examples are things like BuzzFeed. We're going to automate a lot of tasks. A lot of experimental and really cool evidence from Eric Brynjolfson, and others. Actually, the more productive users are more in human complementary, but you don't see a lot of that and you know, look at Microsoft. Their main monetization is, to put it into Bing. Why these lads? So that doesn't fill me with great confidence that this is going to be that different from TikTok. That's where I think you can interpret this as agreement with Joshua or disagree. I leave that out to Joshua.

Cristina Caffarra

Ohh well I have to hand back to Joshua at this point.

Joshua Gans

Yes. So let me try to clarify just a few things you know, just to set the stage out there, you know my competition economics career has been invariably more often than on the side of enforcement and stronger enforcement of antitrust 10 years ago. Cristina will know I came to her conference in Brussels every year and complained about how everybody isn't really trying very hard at antitrust, that's the problem. That's changed to some degree, which is good. And then secondly, on that same score, what is the future gonna look like. You know, 10 years time, 15-20 years time. We're gonna look back and say ohh it was back there in 2023 that these companies were formed that end up being the big monopolists. 20 years hence, almost 100% that is gonna happen. My problem at the moment is that I know that if had I been asked 20 years ago to forecast the same thing, I would have done a terrible job at it. For instance, you know I I love Apple, but there's no way I thought it was going to be the biggest company in the world 20 years ago. It's just very hard to tell. I actually think AI is going to create a problem and the problem that it creates whoever comes up with a solution for it is likely to be that next monopolist in 10 years time, and I'll flip that around to say this is what happened with the Internet. You know that was apparently going to be the Internet back when we were all in grad school. Susan, Daron and myself. That was gonna be the Internet and all of a sudden it turns out we're going to have the open internet. And then we said, oh, well, the big telco companies are gonna control the thing. Who controls the Internet? What did Google solve? Google solved the problem the internet created which was too much information. So they were able to get that monopoly. The other problem with the Internet, it was what desktops you have. Who solved that problem? Apple solved that and then others along the same line. Who solved the issue of knowing who you're Talking to on the Internet and are they sort of trusted? Actually the issue that Facebook solved was you knew who you were talking to most of the time for communication, which was an essential issue in how otherwise spam would rise. So we're going to see the same thing. We're gonna have a monopoly problem. Don't worry about that. But the problem is I can't tell what it's gonna be and I worry that if we take actions, we're gonna slow everything down to finding that out and working out who that's gonna be.

Cristina Caffarra

Let me jump off that and go back to Andreas, because what you're saying is, well, we're gonna have a monopoly problem. I can't tell you who the monopolist is going to be because it is going to be someone who's going to solve today's problem, but the question Andreas is posing is: how likely is it that the current incumbents are going to be effectively grandfathering that power going forward, rather than allowing for this new newbie monopoly that we haven't yet met? Who solves the problem and replaces them? That is the question. Are we looking at replacement or are we going to look at strengthening or amplification? I think that's the kind of thing that Andreas was referring to and grappling with. And Andreas, do you want to jump in and develop this point?

Andreas Mundt

Yeah, Cristina, I would like to. First thing is I firmly believe that of course a I can have a very poor competitive environment in many industries. That is going to happen and Susan has stated that there are fields where you can make use of AI and where you might have a pro-competitive effect. The problem is that we have one huge field and that is the Internet. If you take that as an overarching word for the digital economy, I'm very doubtful that it has a pro competitive effect. Of course, the energy sector is going to benefit from AI, and of course the medical sector is going to benefit from AI in many areas and I firmly believe that in these fields there's ample room for competition among different systems, different developers, different foundation models when it comes to the Internet. I think it is quite unfair to say that we see entry here. Of course we have seen the entry of open AI that is only the entry of a tool and this is not replacing anything. We must ask ourselves who is making use of this new tool. And if there hadn't been Chat-GPT, which had been active with regard to Bing and Microsoft, the kind of competition that we are talking about and I say no, it is not. This is an entry of a big company that another company is supporting so there is no competition. Another point I wanted to mention is think this time? We really do not have any opportunity to get it wrong? Because of the dangers that we see?

This time it is much different in terms of the intensity of what might happen. We really talk about disinformation to a point that nobody can distinguish anymore. What is true, What is false? We talk about many manipulations that we are not able to recognise. We are talking about false facts. That we are not able anymore to distinguish from the correct facts, we talk about the threat to democracy, to inequality. We talk about the replacement of jobs to a new dimension that we haven't known so much, so I really believe that we have all the incentive this time to get it right from the start and this is why I also believe you cannot only leave that to competition law, you must think of all these areas to find proper regulation. This is very much linked to problems in the society that we need to take care of before it is today.

Cristina Caffarra

Great. Now can I abuse my privilege as chair and say it would be a pity to have Tommaso on the line and not have his reaction or view to what he's heard. So Tommaso would you unmute yourself and let it rip and say whatever you think?

Tommaso Valletti

So what I'm going to say is that I want to, obviously I'm thankful to. Everybody, I just got a bit sad. Listening to Josh was saying that we are going to go from current monopolies to future monopolies? We don't yet know who these are going to be, and yeah. This worries me a bit.

Joshua Gans

I like the new monopolies. Yeah, it's new and exciting. Which monopoly will be next?

Tommaso Valletti

Sure if you're the monopolist, it's exciting. This is a good point for reflection. Josh is exactly right, we should ask ourselves, is this a model of innovation and competition going from monopoly to monopoly that as a society we are happy with? So it's a good reflection for all of us, and this panel has been tremendous to give different angles and people in the audience will have their own views. But let's think precisely. Is it a challenge for us, as social scientists are people interested in what direction society is actually taking? Think whether is this a healthy model for our future lives that the future way we're going to communicate, we're going to exchange, we're going to do lots of things and more and more things. Fine, so personally I am worried about that. I'm very worried. That's why I got. A bit depressed. This is my take Cristina.

Cristina Caffarra

OK. I want to give Susan a last few minutes to just react or maybe uplift us after this slightly depressed moment and the notion that we're going to be passing monopoly to monopoly, whomever they may be, I mean.

Susan Athey

Yeah, I do think it is possible to not have monopoly to monopoly and I think a lot, especially if there's a lot of economic benefit you can have, maybe it's a bit concentrated, but you can have multiple firms. There's some very well established playbooks, as I mentioned, whether it's locking up customers, long term contracts, creating artificial switching costs and acquiring nascent threats. And so I'm cautiously optimistic that we'll do better at using the tools that we have to retain some element of competition and we need to be very attentive to what are the new sources vs the old sources of data. Scale is always going to be an important incumbency advantage. But in some ways, we've enabled markets for data that didn't really exist before. So we're very worried and I think we all should be incredibly worried about future market power. But I'm also cautiously optimistic that I see regulators around the world educating themselves quickly and trying to stay on top of it. And I think just remembering what are the economic playbooks and using our tools earlier and more assertively gives me some reason for hope.

Cristina Caffarra

Wonderful. And we are on the dot at 5:30. London. I want to thank everyone and unless Tommaso you tell me there is a pressing question in the chat? my impression is the questions are all thoughtful, but they will take some time to unpack and read out. So I think this was a tremendous panel I cannot thank you enough for having found the time to come and discuss this, there are multiple conversations going on around this topic and each of you has somewhat different perspective, but each incredibly rich and incredibly thoughtful. So this is the beginning of a conversation, it is super important to send this signal and see we're not going to repeat history necessarily. Tommaso I'll hand over to you for the final word and on my side, this has been an incredible panel. Thank you so much.

Tommaso Valletti

Indeed, thanks everybody. Lots of questions and please have a look at them. They're very interesting. Somebody also said what about China, which is a big question. We should give it in mind. So great point and thanks again and. Hope to see you very soon. Bye. Bye. Thanks again.

Daron Acemoglu

Thank you very much. Wonderful to be with you guys.