Venture Capital and Antitrust

Transcript of Proceedings at the Public Workshop
Held by the Antitrust Division of the
United States Department of Justice

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Paul Brest Hall
Stanford University
555 Salvatierra Walk
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Opening Remarks

- *Makan Delrahim, Assistant Attorney General for Antitrust, Antitrust Division, U.S. Department of Justice*

MAKAN DELRAHIM: Good morning. On behalf of the Department of Justice, the Stanford Graduate School of Business, and the Rock Center for Corporate Governance, I want to welcome you to Paul Brest Hall at Stanford University. I am Makan Delrahim. I have the privilege of serving as the Assistant Attorney General for Antitrust at the Department of Justice.

Today's event is part of our ongoing effort at the Department to understand the competitive conditions under which online platforms operate. I'm thrilled to have Stanford as a partner in this inquiry. By virtue of its brilliant faculty and location in the heart of Silicon Valley, I can think of no better institution to engage with us in understanding the intersection of entrepreneurship, investment, and Competition Policy. Stanford has provided thought leadership, has organized this lovely venue, and has made sure that our panelists today will explore the most vital questions about how venture capital is working to spur innovation and competition. Without Stanford's critical contribution, this workshop would not have been possible; and its incredible faculty, including a number of our friends and alum from the Justice Department: Professor Doug Melamed, Professor Mark Lemley, Professor Grundfest, and a number of others. It's a real privilege to be here and be in partnership with Stanford.

I also want to recognize the incredible, incredible work in partnership with Stanford that a number of my colleagues in the Antitrust Division have engaged in. The team was led capably by, my counsel in the Front Office, Taylor Owings, and our Chief of Competition Policy, David Lawrence. And the project was really helmed by our talented Competition Policy attorney, Karina Lubell. You'll get a chance to meet all of them as moderators in our panels later today. Also want to thank and recognize Associate Deputy Attorney General, Ryan Shores, who's moderating one of our panels today and leading our investigations in this area. There're many others on our staff, both in the San Francisco Office and around the Division, who turned this workshop into a reality. And as you guys could imagine at this great institution, it really is a privilege to go into work every day with a group of incredibly talented, gifted, and motivated people to call as your colleagues. And it's a real treat for me to say that.

The author Charles Duhigg once wrote that "between calculated risk and reckless decision-making lies a dividing line between profit and loss." This is an ethos that venture capitalists know well. So must antitrust enforcers. We both care deeply about market conditions that encourage entrepreneurs to take calculated risks that benefit society. This sort of risk-taking is part of the success story for any American business. This is also part of our national identity. It's no surprise that market changing innovations in molecular biology and information technology alike are coming from the United States, and coming particularly from the Valley here. One of our shared goals today, I think, is making sure that the balance between risk and work, and hard work and reward, upon which our thriving market economy has been based, remain strong.

Another characteristic antitrust enforcers and venture capitalists have in common? We both spend a lot of time thinking about what might happen to business in the future. As the Supreme Court put it, our reviews of mergers "require a prediction of a merger's impact on competition, present and future." We measure harm based on how the market might respond to a merger or to a course of conduct. This is not guesswork. Neither is venture capital investment. Instead we both look at the market, draw from economics, and make educated predictions to the best of our capabilities.

The antitrust laws also forbid unreasonable restraints of trade. How do you know if a restraint is unreasonable? In most cases, you have to think about how it affects a firm's motivation and ability to compete. Then you need to measure the potential upsides against the possible downsides. This is similar to how a number of you in the venture capital community might evaluate an investment. What is the risk? What is the reward? Are we striking the right balance?

Moreover, the antitrust laws prohibit firms from using exclusionary conduct to achieve or maintain monopoly power. In painting a picture of monopoly power, antitrust enforcers predict how diminished competition will result in the monopolist raising prices or reducing quality. Of course, a common argument by defendants in antitrust cases is that the future of the market will not allow them to exercise monopoly power. Instead, they argue that disruptive innovation is just around the corner. It's an argument we have heard over the past 100 years. To address these arguments, antitrust enforcers often have to think hard about where innovation will really come from or whether it will come at all. That means thinking a bit like venture capitalists to assess whether a new platform or startup will actually be able to challenge those in power today.

In any case, whether a merger is harmful, a restraint is unreasonable, or a course of conduct is exclusionary, antitrust enforcers have to ask the same question: what do we do about it? In looking at that, we focus on trying to restore competition in the market going forward. That often involves asking what new competitors need to thrive in a constantly changing marketplace. It's a difficult challenge, but one familiar to many investors who support early stage companies.

Not only do venture capitalists and antitrust enforcers often ask similar questions, I think we share similar values. Dynamic competition should drive markets. Investment should go to the best ideas. Disruption can create consumer value. These are the principles I've continually returned to in both my tenures at the Justice Department and most recently as the Assistant Attorney General. I first outlined these principles in the New Madison Approach to the intersection of antitrust enforcement and intellectual property rights. They're also part of venture capital's DNA.

I also think we share similar goals. Venture capital is a critical part of healthy competition, according to antitrust theory and policy, because it makes monopoly prices unsustainable. After all, where a monopolist gains the ability to charge a higher price, a venture backed startup finds an opportunity to take hold and share in those rents. The health of venture capital and its promise of disciplining competition is therefore vital for American consumers and competition.

Venture capital, as most in this room know, also drives our innovation economy. It ensures that a good idea leads to an even better mousetrap. Incentivizing and rewarding this type of innovation is essential to spurring competition and disrupting monopolies, because even a single bet can uproot an entire industry. Antitrust enforcers and venture capitalists both depend on making sure that these types of bets and good ideas, and in good entrepreneurs, are encouraged and rewarded.

Of course, the ability to take advantage of investment, such as through better innovation or development of intellectual property, is the essence of a strong market economy, and that result is not frowned upon by the antitrust laws.

To take one such example that I find fascinating: Slack is a company that invented a better solution to an office communications problem, despite Microsoft's leading role in that space. Before its official launch to the public in February 2014, Slack faced a fragmented market in enterprise collaboration. But the market was one in which many giants competed. At the time, Microsoft, IBM, and Cisco each had a version of an office "social network." There was no clear front runner in the market, but Slack nevertheless encountered daunting odds. Financial analysts observed that Microsoft's Yammer, which functions similarly to Slack in many respects, was

"growing strongly in the nascent enterprise social market networks segment, experiencing year-on-year growth of 34%."

Yet through its integration with other useful programs and its accessible interface, Slack grew astronomically in daily active users, from zero to over eight million within five years. It did much better than many others in solving problems with team communications, showcasing how an entrant can gain footing in a market otherwise dominated by experienced firms. Notably, Slack would not exist but for the faith of the venture capitalists in the, product, and most importantly, in the people who make them. For this reason, the origin story of Slack is captivating.

Stewart Butterfield, the founder of Slack, had once been the CEO of a company called Tiny Speck. He spent two years and raised $11 million to build an online adventure group. But by 2012 it was clear: The game was a failure. Butterfield made plans to shutter the company and return the money to investors. Yet, Andrew Braccia, partner at the venture capital firm Accel, refused to accept the refund. Along with a few others, he encouraged Butterfield to keep the remaining five million-dollars and try something new.

That something new was Slack, which went public in June 2019 with a value of $19 billion at closing. Of course, one of the questions for our panelists here today is whether the success of Slack is an anomaly at odds with trends in the venture capital market. Slack's ability to IPO and provide an independent source of competition to other technology platforms is an example of a venture capital system working to create a healthy economy. There is some evidence we will hear about later in the day that these IPOs are increasingly rare. We as antitrust enforcers need to understand this evidence, and if there are any causal explanations at odds with the anti- trust laws.

The decision to continue to invest was, I presume, due largely to Mr. Braccia's faith in Mr. Butterfield, as he later explained, "The reason we invested in Tiny Speck was because we were investing in the team. I told Stewart, 'If you want to continue to be an entrepreneur and build something, then I'm with you.'"

Why this determination? Perhaps because venture capitalists understood the wisdom once observed by Brooks Atkinson, Pulitzer Prize winning American theater critic He said, "This nation was built by men who took risks, pioneers who were not afraid of the wilderness, businessmen who were not afraid of failure, scientists who were not afraid of the truth, thinkers who were not afraid of progress, dreamers who were not afraid of action."

As many of you know, I came to this country as an immigrant. My parents were the ultimate entrepreneurs. They risked everything for a better life for me and my two siblings. They picked Americas many other generations have and will hopefully continue to do so. That's because, among many other freedoms we're guaranteed in this country, our system of free markets provides the most promising returns on investments and hard work, education and creative thinking. Our market economy, when it is free from unnecessary regulations by the government and free from illegal monopoly restraints by private actors, provides a risk-return rate that is the key to prosperity and dynamism. I know this resonates with many in this room, and frankly probably many in Silicon Valley.

As we engage in our discussions today, I'm hoping to learn answers to several questions. First, what does the venture capital community know about the likelihood of future disruptive innovation that could challenge today's technology giants? Second, are any of today's digital platforms so dominant, with such a capability to restrict access to inputs or to distribution of products, that investors are not willing to develop products that rely on those platforms? Third, where are we in the lifecycle of market, of the market for data about how people interact with websites and with their phones or wearables? We're engaged in a national debate about the value

of keeping that information private. But do we have a sense of what, that information might be worth in different markets and how consumers may be served by rules that allow the collection and use of that data? Fourth, what tools does the venture capital community use to evaluate the strategic value of a transaction that we as antitrust enforcers can utilize to think about whether a transaction is premised on creating value for consumers versus preventing competition?

Before I turn the podium to our first panel of the day, I want to encourage all of you to take note of the email address we have set up for this event, which is posted on the slides up here, ATR.VCworkshop@usdoj.gov. We hope that today's discussion will be so dynamic that you will want to get involved by emailing any thoughts, or maybe even your concerns about anti-competitive conduct you have witnessed, to our DOJ email account. You are, of course, welcome to request anonymity and confidentiality. It'll be our DOJ staff receiving these emails only. We will also be using this email throughout the day to keep track of the audience questions. Each panel's moderator will draw from the inbox to pose audience questions to their panelists, so feel free to have your phones out during this discussion and use the email address to ask your most burning questions to our excellent panelists.

With that, please welcome, the W.A. Franke Professor of Law and Business, Dr. Joe Grundfest. Dr. Grundfest will introduce our first distinguished guest from the venture capital community. And I want to thank each of the panelists, for their participation today, for taking the time, to contribute to this important discussion as we all try to better understand the competitive forces here.

Fireside Chat with Michael Moritz: Trends in VC Investment: How did we get here?

- *Michael Moritz, Partner, Sequoia Capital*
- *Professor Joseph Grundfest, The William A. Franke Professor of Law and Business, Stanford Law School*

JOE GRUNDFEST: So, we're going to get started here in just a moment. But before we start on our conversation, I've got a video... not video, a little graphic we'd like to put up. If we could put up the graphic, that'd be great. The big news in the world of antitrust in Silicon Valley is the announcement yesterday that the Federal Trade Commission is interested in what we do here and they're going to be... Could we put up the graphic, the press release? And that they're going to be conducting an investigation of the acquisitions by major Silicon Valley firms, including, for example, Facebook. And they're going to be looking at the deals that have been too small to be registered with the government under the HSR criteria. So, between all of the deals that have been cleared with HSR and the deals that haven't been cleared, the federal government is going to try to do a deep dive to understand, in effect, every M&A transaction that's been done by the major platform companies, here in Silicon Valley. So, that's something that's coming. We should all be aware of it.

JOE GRUNDFEST: There is, however, something unbelievably delicious about the FTC announcement that just had me chuckling, all right, when I read it. So, what you have is the headline: "FTC to Examine Post-Acquisitions by Large Technology Companies" and it mentions that we're going to be looking at Facebook. If we scroll down towards the end, please, in the highlighted, and then they ask you to like us on Facebook. We're going to investigate Facebook, but please, like us on Facebook. And it reminds me of the old Rolling Stones song, "I Can't Quit You Babe." All right? So, I mean, it's the sense of irony and chagrin. You sort of wonder, is anybody at the FTC actually reading the announcements that they're putting out over here or what's going on? So, this is what's going to be happening for the next several years here in Silicon Valley. These investigations never happen quickly. So, with that by way of introduction, Mike, how did a profoundly nice guy like you wind up as a venture capitalist? What went wrong?

MICHAEL MORITZ: People don't know the fact that at Sequoia we've had a diversity hiring program for decades. And, I actually was the first participant in this because Sequoia had never, ever considered hiring somebody who didn't know anything about technology and was a history major. And, worst of all, from another threatened minority: they'd never, ever hired anybody who was a journalist. So, I was the first example of Sequoia's diversity program that came into action, and that's how I wound up in the venture business.

JOE GRUNDFEST: And you were originally a reporter?

MICHAEL MORITZ: I was.

JOE GRUNDFEST: Tell us a little bit about your background, your education, and how were you supremely unqualified to become one of the great venture capitalists of all time.

MICHAEL MORITZ: I grew up in Wales and, like Makan, I became an immigrant to this country and wound up for a few years working at TIME magazine as a reporter. And then, came to Silicon Valley with TIME magazine, not really knowing where California was at the time, or certainly, not being aware of the fact that there were things called technology companies that operated in California or that technology companies could be started by 19-year-old people. All of these were entirely foreign conceptions to me. So, I, came out here at the time while Apple was still private, and Genentech was still private, and Microsoft was still private, and, gradually became familiar with the tapestry that these days is called Silicon Valley. And, some years later decided

that I wanted to do something other than journalism, which is when I entered the Sequoia diversity hiring program.

JOE GRUNDFEST: And nonetheless, the diversity hiring program continues. They haven't learned their lesson.

MICHAEL MORITZ: (laughs).

JOE GRUNDFEST: Can you…

MICHAEL MORITZ: Not a lot more historians or journalists, but fortunately, a lot more people from all sorts of varied and interesting and complementary backgrounds.

JOE GRUNDFEST: So, what are some of the more notable investments you've made over the years?

MICHAEL MORITZ: Well, Sequoia's been very fortunate and, Sequoia as a firm, we started in California, just up the road here. But today we operate also in China and India and Southeast Asia and we have investments in Europe, as well. And we're interested in the growing technology companies of tomorrow. And so, going way back, just to rattle off some names, it would be, businesses where we have been involved very, very early on would include: companies like Atari and Apple and Cisco Systems and NVIDIA, YouTube, PayPal, Flextronics. These days in China, in particular, and then a whole raft of, Google and YouTube and…

JOE GRUNDFEST: So, this is a guy who's going to say…

MICHAEL MORITZ: Airbnb.

JOE GRUNDFEST: "Oh yeah, and we also did Google, just by the way."

Michael Moritz: And Stripe and... So, we've just been very lucky to have been positioned in the place where so much activity has occurred.

JOE GRUNDFEST: And when you look at all of these different investment opportunities, are there any particular themes that strike in your mind in terms of what is it that you're looking for in a new company that makes you go, "Yes, wow, I'd really love to invest in that"?

MICHAEL MORITZ: I've gradually learned this. I didn't know it at the time because I was, I was around 30 when I joined Sequoia, which was now, 35, 36 years ago. And I didn't appreciate then what it took to develop a company of real merit. And obviously when you're young and, trying to get started, you're really just trying to make your mark and to make your mark as quickly as possible, and you don't have a sense of the longer time horizons. But I think after three or four years in the venture business, I really began to understand how long it took to develop the companies that we're really interested in, the companies where we can be participants and shareholders.

MICHAEL MORITZ: And I know this will sound very strange to most people in this room. For a very, very long time and, where... So, for the last 15 years or so, whenever, 15, 20 years, whenever I've met people, I've been thinking at the back of my mind, is the purpose and the mission, that this set of founders, this founding team, is contemplating, is this, if it comes to fruition, knowing the lot fall off along the way, is this something that I can imagine we will be shareholders or participants in 20 or 25 years from now? Because that's what really matters in our business. And, Makan, in his introductory remarks, was observing about the paucity of IPOs in the last several years and I think some of that is a reflection of the long-term investment horizons of private technology investors. So, we have an investment in... When I got into the venture business, in the '80s, a company would go public probably within three years of a firm like ours financing them, and they'd go public with *de minimis* market caps.

And, I think Electronic Arts, which was another company that we were involved with from the inception, its market cap at inception was $80 million at the IPO. And-

JOE GRUNDFEST: You don't do that today.

MICHAEL MORITZ: They don't do that today.

JOE GRUNDFEST: You can't do that today.

MICHAEL MORITZ: Microsoft in 1986, and this was considered... Even if you adjust for inflation, this was considered an enormous valuation at the time. It was about $450 million.

JOE GRUNDFEST: Mm-hmm (affirmative).

MICHAEL MORITZ: And today, we're shareholders, very happy shareholders, of companies that already have been up and running for 10 or 11 years.

JOE GRUNDFEST: Mm-hmm (affirmative).

MICHAEL MORITZ: And they're private.

JOE GRUNDFEST: Mm-hmm (affirmative), right.

MICHAEL MORITZ: And some of them are staying private. They have no immediate plans or needs to access the public market. So, the fact that there've been few IPOs, say, compared to the '80s or '90s, in the last 10 years is a bit of a red herring, I think.

JOE GRUNDFEST: Oh, I think it's a tremendous red herring. There are other things to think about. If you look at the data, the number of publicly traded companies is down from the peak in 1996 by approximately 47%. And when I teach this stuff to my students, I sort of say, "What's your favorite mammal?" Everybody says either human beings or dogs. And I say, "Would you notice, all right, if 50% of the people in the world disappeared?" They go, "Yeah." "50% of the dogs disappeared?" "Yeah." Well, 50% of publicly traded companies have disappeared. Do you know? Do you care? Should it make a difference? And it fits in exactly with what Mike is talking about. The vibrance of the private capital markets has grown so tremendously over the last 20 years. We can now fund private companies basically in perpetuity if you've got sufficient liquidity. If you can provide liquidity for the VCs, liquidity for the employees, there's no longer a practical need to take a company public.

MICHAEL MORITZ: Right.

JOE GRUNDFEST: And I think we're going to see more perpetually private unicorns and companies that are able to thrive and be very significant competition to established firms without ever conducting a public offering or going into the public market.

Michael Moritz: Right.

JOE GRUNDFEST: So, one of the big themes of this session is this notion of kill zones. Talking first about your perspective, and then we'll get to other peoples' perspectives. Do you perceive anything like a kill zone? How do you react to the notion of the kill zone? Should people be worried about kill zones?

MICHAEL MORITZ: Yes. But it's not the answer, I think, that perhaps some people might expect. So, I'll give you two examples. One from yesteryear, and one from more recent contemporary times, about kill zones. One is called the USPS, United States Postal Service. The other is called NASA. And when the venture industry in the early 1970s, or some brave venture capitalist, decided to invest behind a young gentleman called Fred Smith, a Vietnam vet, when he started a company called Federal Express. Most people thought it was going to be a suicidal mission because he was going to get killed by the United States Postal Service.

A more recent one, and a very contemporary one, is SpaceX. The reason that Sequoia didn't invest in SpaceX was [Redacted at Speaker's Request] that we thought... I remember talking to Elon saying, "Goodness gracious, do you know who the competition is…"

JOE GRUNDFEST: Oh, you didn't say, "Goodness gracious."

MICHAEL MORITZ: It's NASA. You never want to compete against the government. And more recently, I think we've found that the kill zones would consist of, depending on which company you're involved with, deeply entrenched political interests within cities that can really stymie the development of the next generation of hospitality and mobility companies. Hotel lobbyists, people who dole out medallions for taxi services. There are a whole load of hidden killing zones that people don't recognize that are far removed from the general object of interest in a conversational set of topics like the ones that are being broached today.

JOE GRUNDFEST: So, it's interesting. So, from your perspective, the kill zone is not generated by a company like Facebook, or Google, or Apple. The kill zone is generated more by regulatory structures, and by forces in effect of the state that make certain forms of innovation difficult or impossible.

MICHAEL MORITZ: Yeah, I think that is the greatest impediment to, the creation of a lot of small companies. In particular, the ability to go fast.

JOE GRUNDFEST: Now, you-

MICHAEL MORITZ: And-

JOE GRUNDFEST: I'm sorry-

MICHAEL MORITZ: And not get caught up in things. I've heard, and I understand the interest aroused by the circumstances of today, but call me a little bit jaded, because I just heard this argument for decades. And let me just talk about four different decades with an effort to try to put today in perspective.

So, there once was a dominant company in the semiconductor business called Fairchild Semiconductor, that was really the progenitor of, 99%, if you traced… if you were able to go on to, one of these ancestry and genealogy sites, pretty much every technology company in the world today traces its roots back to Fairchild Semiconductor. This company was so dominant, in, the late 1950s and early 1960s, that nobody felt you were able to compete with it. In fact, the gentleman who was running it, Bob Noyce, who later became one of the co-founders of Intel, felt that it would never be another semiconductor company created in the world because of the dominance of Facebook.

Fast forward to the 1970s and the 1980s, and it was exactly the same argument about IBM. How IBM was so dominant, so monopolistic in its tendencies, that there was no chance of anything other than sort-of fringe, little computer companies ever being able to participate in that business.

Fast forward into the 1990s, and you have Microsoft. And obviously Microsoft was the subject of much government scrutiny in the 1990s. And it would've been considered impossible, or it was widely considered impossible, to compete against Microsoft. And then today you look at the market values of Facebook and Google, both of whom were up against Microsoft in different ways, particularly Google. And their market caps together eclipse the Microsoft value. You look at the Intel corporation of the 1990s. Intel was considered… Nobody felt that they, in America, could compete, really, against Intel in the IC business.

And then along came NVIDIA, along came Broadcom, along came Qualcomm. And so, I don't want to appear jaded or, dismissive of the issues today, but I've just heard it for so long. And I have a little tagline at the bottom of every email that I send out that's three words: "Anything is possible." And every time we invest in a small company, there is every reason to believe that, this is Mission: Impossible, and that there are surrounding forces that will make the journey very difficult, and over and over again, repeatedly, despite all the naysayers, that has never proven, really to be the case in any generation of the investing that I've been involved with or am deeply aware of.

JOE GRUNDFEST: And to loop this back into the concern that the FTC announced and that the Antitrust Division has a concern that a lot of these dominant company platforms, and what you're saying, and history suggests that there's a lot of truth in what you're saying, is that today's dominant firm is tomorrow's distant memory.

MICHAEL MORITZ: Yes.

JOE GRUNDFEST: That these dominant firms will be able to maintain their dominance, and perhaps put off the day of reckoning, by either scaring new competitors away, or if a new competitor emerges, acquiring that competitor so that the next threat to Facebook never emerges because Facebook acquires it. The next threat to Google never emerges because Google acquires it.

Now, one of the fascinating things is if you google Mike and if you see his page on Sequoia, there's a line in which, they ask the question, "What's one of the things you hate?" And Mike's answer is: "When one of our portfolio companies sells." Can you explain why that is, and why that's really directly relevant to people's concern here?

MICHAEL MORITZ: It loops back to what I was saying earlier, which is, and obviously there are some circumstances where, perhaps, the market has changed or the product fell short or something, where, quite understandably, the founders of the company want to sell. But, when we have an opportunity where we feel we do have one of these 20-year horizons, we're very interested in participating for the full 20 years, understanding the pressures that people can come under from time to time. And, but if we feel that there's a lot of tremendous amount of runway, and we're, sometimes in this very fortunate position of being one step removed from the fray of the daily battle, which is the hurricane that surrounds these people, the founders of these companies and the people running the companies in which we're investors.

And we're able to have the opportunity of stepping back a little to see the place of a particular company in an industry. And if, gosh, we are three, four, seven years into an opportunity that seems boundless, we always want to continue, which is why years and years ago, I was… people… I don't want to dig up ancient history, but I was always very opposed, to the sale of PayPal.

JOE GRUNDFEST: Mm-hmm (affirmative).

MICHAEL MORITZ: Because I just felt it has this enormous market opportunity that lay ahead. But then there are other examples. And, I know, again, this won't be seen, as, satisfactory for some of the arguments that might be made, but when Google, for example, in 2006, bought YouTube, they saved YouTube.

JOE GRUNDFEST: Mm-hmm (affirmative).

MICHAEL MORITZ: The killing fields at YouTube, it certainly wasn't Google. The killing fields were called Universal, Warner, Sony, with their battalions and phalanxes of lawyers, their ferocious attack dog agents, who were making these extraordinary threats of annihilation to this little company, that for the first eight or nine months of its existence worked out of our office. They were the killers. Google was the savior, which is why YouTube today thrills, entertains, amuses, and diverts hundreds of millions of customers around the world. Nobody tells that story.

JOE GRUNDFEST: So, what's really fascinating just is, inadvertently, Mike has hit on two companies that involve two of my former students. So, Gideon Yu was CFO at YouTube, and Gideon loves sitting and telling the story that they were this close to bankruptcy at YouTube, and he can't believe to this day that he actually persuaded, he doesn't use the word persuaded, persuaded Google to actually buy a company on the verge of bankruptcy. And he says his view is exactly the same as yours.

And then Peter Thiel, one of our former students, was the founder of PayPal, and it was the controversial decision, from Mike's perspective, to actually sell PayPal when Mike would've preferred to keep that company going.

Mike's perspective also fits into something really important about the economics of Silicon Valley. The returns in the Valley today are driven by a very small number of hugely successful companies. It's not a normal distribution. It's a power law distribution. Very small number of companies drive a huge percentage of the returns, to Sequoia, to Benchmark, to all of these other companies, and you're really able to get those returns, as a practical matter, if you don't sell a company too soon, all right? If you sell a company early on, you're going to get a double or a single. You want the grand slam home run. You really have to push for the longer drive.

MICHAEL MORITZ: Yeah, I think that's right. I think sometimes, obviously, a tongue-cheek remark, sometimes I think of the best venture practitioners making Warren Buffet look like a day-trader.

JOE GRUNDFEST: That's exactly right. And it also fits into the observation that if we evolve the financial model here in Silicon Valley so that we, in effect, never need to take a company public, you take a company public only for other reasons, it really disrupts the whole business model in an entirely different way. Why do you think, Mike, so many people are concerned about kill zones, companies being squashed, acquisitions that wind up stifling new competition? In other words, why are we here? Why do we have this conference if you don't see the problem?

MICHAEL MORITZ: The view always looks different from afar, because if you're sitting in a venture firm, you can look at some of these admirable companies, and, I don't mean to criticize any of them, but they, today, given their heft and size, they're very slow-moving. They… because they have so many people. And, they are also places that have trained lots of people and lots of engineers in very skilled ways, so that they provide fertile fuel for many of the startups around the Valley. And I think there are many people who sit inside these companies thinking, "Goodness, we can compete against them." And they have an idea and they, and we and others talk to them, and, feel... And obviously, we go into all of these things, with eyes wide open, feel quite phlegmatic about competing against some of these companies in the fashion that we went up against in yesteryear, the semiconductor companies went up against Fairchild, or in a later generation, Intel, or people went up against IBM, or these days people go up against Cisco Systems, etc. Etc.

So, I don't think today is any different from 20 or 30 years ago. And all of these companies are vulnerable in some fashion or another. The thing that interests me more about this is a company that we haven't talked about that was broken up in 1982, and the consequences of that breakup, which was AT&T. And the consequences of the Settlement Act of 1984 and the Communications Act of 1996. And I was thinking, I mean, I live in San Francisco, so I was commuting down here, and all of the trouble with cell phone coverage between the two hubs of Silicon Valley, Palo Alto and San Francisco, where it's impossible to have a 30-minute telephone call without the signal being dropped 25 times. And I was wondering, and I haven't really seen a study of this, about the long-term consequences of the breakup of AT&T, for the communications infrastructure of America. And in particular, when you go and visit China, or other places that have very advanced communications infrastructure, I would love to see an analysis of the communication that, the quality of the communications infrastructure…

JOE GRUNDFEST: Price?

Michael Moritz: ... of America had AT&T stayed intact. And also, given that this is much in the news, how well, the US potentially might have been positioned... Again, I realize this is all

a hypothetical against another bogeyman of today, which is Huawei. And I think the consequences of both of those things go back to what I think, in retrospect, was a very ill-advised breakup of a company that was already operating under a government-sanctioned monopoly and services agreement overseen by the FCC.

JOE GRUNDFEST: Let me put a pointed question to you. If a company came to you and said, "We have a business plan where we want to compete directly against Facebook. We want to compete directly against Google. We want to go up against Amazon." Would you summarily throw them out of your office, or would you say, "Tell me more?"

MICHAEL MORITZ: I don't think any founder or entrepreneur with their wits about them would say that. Because that's not how companies start. Companies start with a very narrow focus, and they do one small thing very well, and they become the best at it, and then they gradually expand. Google, the founders of Google, never said, "We're taking on Microsoft." The founders of NVIDIA never said, Jensen Huang, he never said, "I'm going to be taking on Intel." They start with a very narrow focus. And you'd never want to invest, it doesn't matter what the name of the company is, you never want to invest in somebody whose ambition at the outset is so big, so broad. That makes no sense.

JOE GRUNDFEST: And that might be something that the antitrust authorities at DOJ and at FTC might want to incorporate as they try to incorporate-

MICHAEL MORITZ: Right-

JOE GRUNDFEST: ... What goes on.

MICHAEL MORITZ: ... All we're trying to do is do one very, very small thing better than anybody else.

JOE GRUNDFEST: And from that, you potentially get all of the scale, all of the network effects, that lets you grow into something else.

MICHAEL MORITZ: Correct.

JOE GRUNDFEST: I think that' I think that's really-

MICHAEL MORITZ: Correct.

JOE GRUNDFEST: ... Exactly right. We've got a question from the audience here, and that's: if companies stay private longer, how or when will VCs obtain an exit that they want?

MICHAEL MORITZ: It's a reasonable question looked at from the outside. But there's a surprising amount of liquidity inside the private market. So, if somebody has shares in, and assuming that the company is doing well and it's flourishing and prospering, there are always buyers for the shares. You can't go onto a Bloomberg terminal or call the broker to do it. But, these transactions happen regularly and have become really a way of life in many of these companies. It's a way for employees to cash in some of the options that they've vested. It's potentially when there are early investors who want to sell. It's an opportunity for them to sell their shares. So, it's not a major issue.

JOE GRUNDFEST: So, this is the interesting thing. You can build liquid secondary markets that generate very fair pricing without taking companies public. And as long as you have liquidity for the VCs, that if they need to get cash to pay out limiteds, funds are closing, what have you, limiteds need the cash, if you're comfortable that you can actually get the cash at a fair price within a reasonable time horizon, you don't need to go public. More interesting and complicated question is treating the employees fairly. Employees are at the company, they've got options. If the company does really well, the employees deserve making millions and millions of dollars, and they need to know that they're going to get fair value for their options and not run into all sorts of

complicated questions, "I now have to pay a huge amount of money to exercise my options, and I have to worry about tax consequences," and the like.

JOE GRUNDFEST: We can do the legal engineering here in Silicon Valley to, I hope, restructure option arrangements, restructure investment arrangements, so that the idea of the perpetually private startup actually becomes a reality. And Mike earlier mentioned Warren Buffet and his economic model. That's something else we're thinking about moving towards in Silicon Valley. Do you want to talk about permanent capital?

MICHAEL MORITZ: You should do I haven't thought very much about it.

JOE GRUNDFEST: Okay, so all right. I'll talk about it. So, I'm chair of the audit committee at KKR, and this is not a state secret. The business model that many people love is Warren Buffet's. Warren has, in effect, permanent capital. He grew it through very astute knowledge of the insurance industry and the like. He now has other bases for permanent capital. And, a lot of us in the investment business want to get out of what we call the hamster wheel. That you've got a fund, the fund has a 10-year life, you might be able to extend it to 12 years, but at some point, you're in this situation, which is paradoxical. You've got a whole bunch of really good investments, you want to keep them for another 20 years, as Mike says, you want to be an investor forever, and because you've got to close the fund, you've got to sell out positions you don't want to sell and you've got to move on.

JOE GRUNDFEST: If you've got permanent capital, you don't need to worry about that. And, public information at KKR, we've been bulking up our balance sheet, just like Warren Buffet, so that we're able to co-invest with our funds, and in many situations, keep these positions that we really like in perpetuity. The issue then, of course, is: are we as good investors as Mike Moritz and Warren Buffet and the like? Well, the only way you're going to find out is by doing it, and we'll be able to have…

MICHAEL MORITZ: We're in the very… At Sequoia, we're so lucky in so many ways. One of the things that we're lucky about is that, we've been in business a long time and have a record with our clients. So, we have never felt pressured about fund limits and the need to distribute capital. And, we have clients who've been with us 40, 40-plus years.

JOE GRUNDFEST: Mm-hmm (affirmative).

MICHAEL MORITZ: And they're very comfortable, with us all.

JOE GRUNDFEST: Let me tell you a story about Sequoia. All right? So, number one, they're in a blessed position. They don't have to worry about fundraising. They have more money that comes at them whenever they want to raise funds that they want to take. But here's the thing: when you go and you visit their offices, what are your conference rooms named after?

MICHAEL MORITZ: They're named after our clients.

JOE GRUNDFEST: Right. So, how's that for love? All right? So, instead of, like, at a lot of organizations, you name it after hiking places or resorts or artists. You know, you go to Sequoia and the conference rooms are named after their long-

MICHAEL MORITZ: But there's a naming opportunity, Joe. So, if you'd like to call a conference room, "The Grundfest Room"-

JOE GRUNDFEST: "Grundfest Conference Room."

MICHAEL MORITZ: We'll arrange for payment.

JOE GRUNDFEST: Yeah, if that's the one without the windows, where the heat, all right, is turned up.

MICHAEL MORITZ: That's right.

JOE GRUNDFEST: Any other questions from the audience for Mike? Sir.

AUDIENCE: Epidemiology is in the news. They say it's a field where it's sort of happening, in terms of viruses. Are there any companies which are working in those areas which can now be capitalized well to understand how any epidemic threats… (off mic.)? And other things, compared to what China are doing, is blindly doing something, but not…

JOE GRUNDFEST: Could you repeat the question?

MICHAEL MORITZ: Yeah, I will. There are private companies working in the field of epidemiology, in particular tracking down viruses. This will sound like a commercial. Pardon me for doing so. But on the way down, we have an investment in a company in the East Bay called Berkeley Lights, which is a biotech platform engineering company that can screen cells faster than any other company in the world and is -- and their systems are now being used to try and speed up the search for antibodies that can attack, in this particular situation, the coronavirus.

AUDIENCE: Experimenting methodology is what happens. "What if?" and everything. An *in-silico* approach to solutions to viruses. I am K.R.S. Murthy.

MICHAEL MORITZ: Yeah, so, that's virtually what this company does. One other thing about killing fields, and again, I realize this is a little bit off topic, but it's germane for this audience. I think the real killing fields here are the school classrooms of America, which is the future. And, that's where we're killing ourselves. We're killing the future technologists of the United States. We're slowly killing the potential for home-brewed invention.

You have a look at the test scores, the, PISA test scores, the global PISA test scores, to see where the US ranks, and it's just shocking. And you look at the top four… the four largest Eastern provinces of China that come in number one in math, in science, and reading. And those four provinces have a population of 180 million, greater than half the United States, greater than the populations of the United Kingdom and Germany combined. And that's where… it's educated people is where tomorrow's vibrant Silicon Valley will come from. And unless we address the problem in the real killing zones, which is the educational system at the high school level in America, we're never going to be set up well to compete in the long term.

JOE GRUNDFEST: And on that uplifting note, if we could have a big round of applause for Mike. He's terrific. Thank you very much.

Antitrust for VCs: A Discussion with Stanford Law Professor Doug Melamed

- *Doug Melamed, Professor of the Practice of Law, Stanford Law School*

DOUG MELAMED: Okay, so my job is to tell you all you need to know about antitrust law in about 15 to 20 minutes. It's actually doable. First of all, I'm going to do it conceptually. I'm not going to get into all the doctrinal details and complicate the conversation. But there's another really important reason for why it's doable. People generally around the country think of antitrust as the tool that we use to address the problems of powerful companies. Reining them in, break them up, do something. I don't like being at the mercy of Facebook. I like to have somebody else to send my data or whatever it might be.

In fact, antitrust is not that. Antitrust is much more precise, it is much more rigorous. And on the conceptual level, antitrust is not that complicated. So, here it is, US antitrust law in one sentence: Private conduct that increases market power, other than by reason of efficiency-based competition on the merits, is illegal. That's it. That's US antitrust law.

There are four basic elements to an antitrust violation. The two important ones, the most important ones, are indicated in red, and they're really the only ones I think are of direct interest to this group, so I'm going to focus on them. I want to pause for a minute, though, on the first one: the distinction between private conduct and government conduct.

Because one of them, to me, the fascinating part of the conversation, the very interesting conversation between Joe and Mike was Mike's insistence that the real problems, the real kill zones, come from government intervention, whether it's directly by regulation, or in the case of YouTube, by the lawyers presumably asserting copyright and patent laws and other things as a barrier to competition. Let's leave that aside because antitrust law is not a way of policing the government from overzealous regulation.

So, focusing on the other two elements, I want to say two things about them. One, they're both very fact-intensive. The heavy lifting of antitrust law, is not legal. It is factual. It is understanding the facts and understanding the economic implications of the facts in an individual matter. And second, both of those elements are required for an antitrust violation. If an Uber driver in Manhattan slashes the tires of a taxi driver in Manhattan, take it from me, that's not considered competition on the merits. But it's not an antitrust violation because it's almost inconceivable that the Uber driver is going to gain market power by having slashed that tire.

By the same token, when Apple develops the iPhone, and drives Nokia and Motorola and the other previously dominant manufacturers of mobile phones out of the market, let's assume, Android had never been invented, and Apple just became the monopoly, the sole supplier of mobile phones, it would surely have gained market power. But that wouldn't be an antitrust violation because inventing the iPhone was competition on the merits. So, you need to have both in order to have an antitrust violation.

And let me turn to those two elements. I'm going to start with market power. Market power is the ability of a firm, technically its profit will be the charge or price above the competitive price. But one of might think more colloquially of an increase in market power as an increase in the ability of a firm profitably to take action to the detriment of its trading partner. It could be a customer, could be a supplier. And it means something else for antitrust purposes, too. It means gaining that ability by diminishing the effectiveness of competitors as a constraint on a firm's behavior.

So, imagine you have two gas stations right next to each other on the road. This guy, Gas Station A, says, "I'm going to raise my prices five cents a gallon," and he puts it up on the marquee.

This guy doesn't do it. Chances are the first guy's price increase is not going to be profitable because drivers are going to come by and most of them are going to say, "I would, I'm not an idiot. I'd go to the gas station that's selling it for five cents a gallon less." That's a competitive constraint. If you can somehow weaken that competitive constraint, you can gain market power.

One more thing I want to say about this. Gaining market power does not necessarily mean gaining more market power than you have yesterday. It means gaining more market power than you would have if you hadn't engaged in the conduct that is an issue in the dispute. So, you look at that Microsoft case, that famous Microsoft case of 20 years ago. Microsoft had a monopoly in desktop operating systems.

There was no issue there about Microsoft increasing its monopoly power in desktop operating systems. What it did there was, instead, they'd engaged in various shenanigans, the purpose and effect of which were to raise the barriers to new competitors, new innovators that might have entered in the future and eroded Microsoft's market power. So, the gain in market power there was between the market power that Microsoft preserved by maintaining its monopoly, and the lesser market power that it likely would have had, had it not been able to do that.

Okay. So, market power is gained for antitrust purposes by weakening the competitive significance of the competitor. There were two basic mechanisms by which that can happen. The first mechanism is collusion. These two competitors somehow form an agreement and agree not to compete. The classic one we're all familiar with, the price fixing conspiracy, Gas Station A goes to Gas Station B and says, "I want to raise my price five cents a gallon. Why don't you raise your price as well?" And Gas Station B says, "Good idea." That's clearly a collusion that eliminates market power because B is no longer a competitive constraint on A.

There are also ways you can eliminate market power by entering into a transaction, a joint venture, or an acquisition or a merger with a competitor. A horizontal merger, for example, it would be a merger between competitors. Among the collusion mechanisms, horizontal mergers are the most important for this conversation, and I'll come back to them later. The second mechanism is exclusion. Exclusion involves weakening the competitive significance of this gas station but not by having him agree to it. You can do it by single firm behavior. I mean, a particular extreme example, you burn it down, bring your competitor down. But there are obviously more commercial ways that are more typical.

For example, Gas Station A could bundle products in a certain way that created a disadvantage for Gas Station B, or it could coerce its suppliers not to deal with Gas Station B, making it harder for Gas Station B to get important inputs needed in its business and diminish its competitive effectiveness. The most important form of exclusionary conduct, for our purposes, is going to be what's called single firm conduct here. But before I leave this topic, and I'll come back to them, I want to say two more things about this.

Vertical agreements are talked about among exclusionary conduct. That's agreement up and down the distribution. The mechanism of a vertical agreement is basically this: A and B are competing. B has an important input supplier X. A enters into some kind of a transaction with X. It might buy it. It might enter into a contract that interferes with or diminishes the ability of B to get that important input and weakens B's ability to compete. That's how a vertical agreement, that's by the way what the AT&T/Time Warner litigation was about.

Second thing I want to say about this: I put up on that slide six different categories of mechanisms, kinds of conduct in the two categories of mechanisms for eliminating or weakening the competitive significance of rivals. Those described mechanisms, not anti-competitive conduct, every one of those categories includes both anti-competitive conduct and efficient competition on

the merits. You can think, for example, among unilateral conduct, I mentioned a couple of anti-competitive means. Think of the Apple story inventing the iPhone.

Okay. So, let's take a deeper dive on what anti-competitive conduct means. Basically, it's conduct that tends to harm competitors and does not increase economic welfare. To be more precise, it means conduct that does not increase product quality, like developing the iPhone, or conduct that does not reduce cost, like Walmart's supply chain management improvements, or conduct that does not reduce above cost prices, like a price war between those gasoline stations. If conduct doesn't do any of those three things, and attempts to exclude a competitor or weaken the significance of competitors, it's probably anti-competitive conduct.

Okay. I talked about… I said among the collusion conduct, horizontal mergers were the most problematic. So, what's the issue in the horizontal merger? Two companies compete, or potentially compete, and one of them acquires the other and the two of them merge. What's the issue there? At a high-level, generally, you're asking, "Is the merger going to increase their output, their contribution to the economy, compared to the absence of the merger, or is it going to diminish it?" So, take Facebook/Instagram, which a lot of people talk about, for example. I have no inside knowledge, all I know is what I read in the newspaper. I probably know less than many of the people in this room.

The issue conceptually of the Facebook/Instagram merger is this. Did the merger improve Facebook or Instagram by bringing together complementary resources, human resources, technology know-how, intellectual property, who knows what, by economies of scope and scale or whatever, in which case, it's an efficiency-based pro-competitive merger? Or, did the merger prevent Instagram from being developed by a firm that did not have an existing social network platform to protect? And from, if it hadn't been owned by that kind of a firm but rather owned by someone else, growing into a more valuable firm for consumers or one that would have stimulated more competition or maybe even evolved into the development of a new social network paradigm that none of us today can envision, that would have really improved economic welfare.

If you think story two, is what would have happened, then it's an anti-competitive merger and would have violated the antitrust laws if you would have an omniscient fact-finder. A couple of notes I want to say about this. Antitrust law and merger law in particular always entail making predictions about what's going to happen with a merger, without a merger. Those predictions are greatly more difficult when you're dealing with nascent competitors or startup competitors than when you're dealing with mature firms. The firms aren't as developed, the markets aren't as developed, and the state of knowledge of the economics profession is such that economists are of less value in answering the Facebook/Instagram question than they are in answering the question of T-Mobile/Sprint, for example.

And that's true by the way, even if you're looking at, at a merger ten years after the fact that some people are suggesting should be done. Because while we know what happened with Instagram owned by Facebook, we still have to know what's at counterfactual, what would have happened to it if it hadn't been owned by Facebook. And as we talked about earlier, the FTC announced yesterday, clearly trying to generate some interest in this conference, that they were going to do a deep dive into some of the past, acquisitions.

I don't know exactly what they're planning to do. My guess is they want to understand them more, they want to understand if Mike's vision is really the complete answer to concerns in that space, or if it's more complicated. Maybe they want to develop criteria that will help them identify in the future acquisitions that are problematic and separate those from those that are plainly benign.

Okay. Exclusionary conduct. Big Foot. Company drives a competitor out of business, kill zones, whatever that term is supposed to connote. There's no subtle definition for anti-competitive conduct. It encompasses an infinite variety. Here's what the following can be said. The company must tend to exclude rivals that weaken their effectiveness. If it doesn't have any effect on rivals, they're not going to call it exclusionary conduct even if it's inefficient. If the conduct does tend to exclude competitors and it provides no efficiency benefits, none of, it doesn't lower costs, doesn't improve product quality, doesn't lower above course prices, then it's anti-competitive conduct. And in that case, by the way, the plaintiff is going to win the lawsuit. That was the Microsoft case.

In Microsoft, the courts found unanimously that almost every aspect of the conduct of the federal government allegedly was illegal, not only intended to raise entry barriers but showed absolutely no efficiency, profit, benefits, whatsoever. And they found that conduct to be illegal. The hard question in exclusionary conduct comes when you have exclusionary conduct that is both efficient and tends to exclude rivals.

So, let me take an example here. I don't, again, I don't know the facts, I just know what I read in the newspaper. Newspapers reported a week or so ago that the Justice Department was focusing on allegations that Google had been taking the… had been in some way bundling the tools in DoubleClick with its advertising exchanges. Now, that was somehow anti-competitive. I have no idea what the facts are. But I can say that, conceptually, bundling the tools with the ad exchanges in which Google is dominant could well be anti-competitive. It can certainly disadvantage competing suppliers of advertising tools. But it could also be very efficient because it could make the exchanges work much more efficiently for the benefit of all the trading partners by making the advertising placement more informed, quicker, less costly, whatever it might be.

So, when you had conduct that both exclude and has efficiency benefits, then the antitrust laws have a really difficult time figuring out what to do about this conduct. There's a lot of conversation, in the literature about this. I think it's fair to say the following. If real benefits were found, most cases say the defendant wins. Some cases don't. They use a variety of approaches that basically say, "We think the harm is clearly much bigger than the benefit," and the defendant loses. But the more important point, I think, is as a practical matter, courts rarely find both benefit and harm. Usually, courts are persuaded by one version with either plaintiff's story or the defendant's story, and they buy the whole story. They say there's no harm, or there's no benefit. One device courts use often to find no benefit when they find harm is to say that there was a what is called a less restrictive alternative, that the benefit could have been achieved by a means that did less harm to rivals.

So, to take this DoubleClick story, again, it's all hypothetical, I don't know the facts, you can imagine a fact-finder saying, "Look, there are real efficiencies with offering a package of these tools on the exchanges, but you didn't have to make it a mandatory bundle. You could have made it optional." So, those then, those trading partners who wanted to take advantage of it could take advantage of it, and those who didn't have to, and the competitors would be able to compete on the merits for the patronage of others by persuading them. They really didn't want to take advantage of the bundle.

Okay. Oh, one more thing on benefits and harms. Antitrust is microsurgery. It doesn't paint with a broad brush. So, one of the stories we read about a lot is Amazon. Story goes something like this. Mom and Pop Cookie Shop in New Hampshire decides to distribute cookies on Amazon, nationwide, does very well. Amazon gathers all the data, combines it with data it has on other vendors, learns a lot about the market, figures out how to bake a better cookie or how to distribute cookies more effectively in a way that consumers like, enters the cookie business, and Mom and

Pop is driven out of business. People say this is a terrible thing. But be very careful what we're talking about. The use by Amazon of data to build a better cookie or a better cookie distribution system is an efficiency, it's a benefit. It's not anti-competitive conduct, it's not going to violate the antitrust laws.

There may be an antitrust problem there in the way Amazon extracts the data from users, by using its market power in an anti-competitive way to get terms in the contract that are anti-competitive or by some kind of deception of the users to obtain the data by misleading means. But, again, antitrust law is going to do a lot of microsurgery. It's going to look for less restrictive alternatives, and it's going to ask, "What, if any, aspect of this component is anti-competitive?" And it's not going to throw the whole story together and say, "Mom and Pop are driven out of business, this must be a bad thing."

Okay. I want to leave one final thought, then, if we have time, take questions. There's a lot of uncertainty in antitrust law, probably more than most, maybe more than any other area of the law. Antitrust law is always asked to make judgments about unknowable future events. Will path A or path B lead to more innovation? Or unobservable facts, what's the marginal cost of a particular activity? A lot of antitrust doctrine embodies a judgment, grew out of some literature back in the '70s and '80s. A judgment that a false positive, mistakenly concluding that someone violated the antitrust laws is a more serious problem than a false negative, mistakenly concluded, concluding that someone didn't violate the antitrust laws.

And so, a lot of antitrust doctrine and the way that antitrust looks at burdens of proof and so forth tends to put the burden of uncertainty on the plaintiff. And there's a lot of conversation in sort of the inside baseball crowd about whether that relative risk tolerance for false negatives and false positives should be recalibrated. But, however that debate is resolved, there are still going to remain (laughs) the irreducible problems that antitrust law, antitrust decisions are made, in large part with considerable uncertainty.

And so, whether the antitrust agencies and courts are going to intervene in the areas that we're talking about here with startups, nascent competitors and nascent firms, exclusionary conduct, kill zones and the like, whether there's going to be antitrust intervention is going to depend in no small measure on the willingness enforcement agencies and courts to intervene under conditions of substantial uncertainty. And I'm done unless we have questions, I'm ready to take any question if anybody has one.

AUDIENCE: Thanks. Thanks for the talk. My name is Chandra Chawla. I run a startup locally. So, my question is about the recent activity in antitrust area. So, maybe you can help me understand, how come the Sprint and T-Mobile merger is approved, given that we have the highest prices for data in the developed world? And second, the Schick acquisition of Harry's Razors is blocked. Can you help me understand that?

DOUG MELAMED: Well, (laughs) I'm not expert either. Let me give you some quick conjecture. Sprint-T-Mobile, it's not only that our prices are high, the stock of Verizon kicked up after the announcement was made yesterday that that merger would be permitted to go through, which suggests that Verizon was not terrified by the defendant's story that the merger would make the T-Mobile and Sprint together a more viable competitor that might eat its lunch.

One possible explanation, of course, is that the merger wasn't any competitive. Another possible explanation is that there are a lot of judges in this country who have been educated by only money, and who had been appointed through the Federal Circuit. I'm not sure about, I have no idea about the judge in this case, by the way, but I'm just saying in general. And who have very

conservative views by a trust law, and may tend, to tilt too far in favor of avoiding false positives and running the risk of false negatives.

As to the shaving one, I know even less about that one, except that on the face of it, you have a disruptive small competitor that is probably shaking up the market a little bit, maybe putting a little bit of pressure on the big firms. It may not have a big market share, but the antitrust laws do generally care about protecting so-called, they're sometimes called, mavericks, the disruptive firm, the more heterogeneous firm, that's less likely to behave just like the big incumbents. And that is, I'm guessing, what was going on in that merger.

AUDIENCE: Hey, I'm K.R.S. Murthy. What if there are two or three companies in the same market, same product, one or two of them decide to go and sell their company to a foreign country for manufacturing advantage or whatever, that kills a good company or the whole industry itself like solar, what happens and other industry, electronics? And would that not harm the market of all the companies including one of the companies or the other company who goes and sells their company manufacturing into another country and move into another country for low cost basis or other advantages?

DOUG MELAMED: I'm not sure I entirely follow all that you said right after the question. But I think what you're saying is there a particular concern from an antitrust perspective, if a merger involves a foreign purchaser that might refocus the energies of the acquired company on foreign markets rather than the domestic market, or at least might move its manufacturing facilities offshore?

AUDIENCE: They're competing back with you as a US company by going to manufacture in another country, that happened.

DOUG MELAMED: So, it's using low cost inputs from abroad?

AUDIENCE: Yeah.

DOUG MELAMED: Oh, yeah, yeah. Antitrust, that's a great thing. That's an efficiency, lowering cost, sounds wonderful. Antitrust is not really concerned about, the issues of, -

AUDIENCE: The lower cost is funded by a government.

DOUG MELAMED: Pardon me?

AUDIENCE: The lower cost is funded by a government effectively, not market competition.

DOUG MELAMED: So, there are other laws involving foreign subsidies and so forth, and not the antitrust laws.

AUDIENCE: I'm curious about statute of limitations on antitrust. And I mean, I'm just curious about statute of limitations. I mean not legally binding statute of limitations, but just general oversight. I mean, the FTC indicated they're going to go back a decade and review the acquisitions over that. I mean, we're talking about, dozens of acquisitions. How serious is the concern that they will forcibly unwind some of those transactions? And does that help, having more hard data satisfy some of this or mitigate some of this uncertainty?

DOUG MELAMED: Well, the answer to the last question is hopefully yes. Hopefully, the data will enable them to make more informed judgments, and courts to make more informed judgments. As to the question of the retrospective look at mergers, here, here's, here's some, partly informed view. First of all, the little mergers, you're hiring a company with 10 people and you have eight of them still work for Google and the other two work somewhere else. And the, and the software long since used to be important or whatever. There's no way you can unwind that, there's nothing to unwind.

DOUG MELAMED: Facebook/Instagram's a different story. The law is not 100% clear with respect to merges that have been reviewed by the agencies. But I think probably, as a matter of law, the agencies are permitted to go back and undo a merger that they come to realize years later is anti-competitive but they didn't realize it at the time. I don't think that's necessarily what the FTC is trying to do. I think they're trying to understand, in general, the phenomena of the small acquisitions of small, nascent competitors, so they're better positioned to assess them in the future.

And I do think that our, at least a widespread program of taking retrospective looks at past mergers not only raise very difficult remedy questions, so-called unscrambling the eggs, but also can raise some, some, difficult kind of incentive questions. Do you want to create incentives for acquiring companies to keep the acquired for a month at least so it doesn't get so big that the agencies come back and think, "Oh, my God, we should never have let it happen"? Or do you want to create incentives for acquiring companies to scramble the eggs inefficiently to make remedies less desirable? So, I think it's a really dicey question going back. But I don't think that's central to what the FTC is up to.

AUDIENCE: Doug, we have a question.

DOUG MELAMED: Pardon me?

AUDIENCE: You have a question up there.

DOUG MELAMED: Oh, I've a question. Okay. How does antitrust law address a situation when a company's existence places restraints on a market? Can existence constitute anti-competitive conduct? I'm sure what, how would you mean by existence creates restraints. If you mean that kind of kill zone idea, no, no one's going to do a social network. It's hopeless. There are boundless network effects and Facebook has all of them. No, that's not anti-competitive conduct.

AUDIENCE: Hi. I just wanted to ask you if you could share some thoughts about the Qualcomm case. I know it's going to oral argument tomorrow. And if you have any thoughts about what the outcome will be in the difference in opinion between the FTC and the DOJ. Thanks.

DOUG MELAMED: Well, if we had another day, Makan and I could spend the entire day arguing about that, he and I don't exactly see eye-to-eye about this. My view is this. The no license, no chips policy that, Qualcomm has been implementing that was the central issue in the case is, in my view, fairly clearly anti-competitive and unlawful. Judge Koh got that right. It should be affirmed. Who knows whether it will be. The Ninth Circuit is a big court. There's a random selection of the three judges to be the panel. And, of course, the prediction there is complicated by the fact that the Justice Department, as you alluded took the very unusual step of interjecting itself into an FTC case to a policy of FTC. Now there are problems with the procedures. The FTC then create an argument that this was an unusual situation, although I don't want to get in there, at least not right now. But you have the federal government, the executive branch fairly strongly aligned with Qualcomm.

My own view is Qualcomm has been a very effective lobbyist for the past 10 years or so. And, you see that with its CFIUS approach to the Broadcom merger and all that. But, I mean that, I can't predict how that case will be decided, but I certainly think as a matter of a sound antitrust law and policy. I guess the one license, one chip, it should be affirmed because the policy is anti-competitive and unlawful. Okay.

AUDIENCE: Most antitrust law and rulings and attention is placed on monopoly but not monopsony. There are a number of industries in which the standards bodies, for example, try to force intellectual property licenses and use other strong-arm tactics. Certain large customers like

Apple, apropos of Qualcomm, use their monopolistic powers. And, but there's very little antitrust enforcement or even attention given. Can you discuss that at all?

DOUG MELAMED: Well, I think there's no question that, conceptually, legally, the antitrust laws apply to anti-competitive conduct that increases market power on the buy side as well as on the sell side. There're some rhetorical problems, but there's no question about. In fact, the Justice Department has been fairly active, for example, in the no poach agreements, which are on the buy side in the labor markets. With, specifically with respect to standard setting, and again, Makan and I don't see eye to eye on this.

My own view is, I don't, I haven't seen any evidence, that the standard-setting bodies are exercising market, monopsony power in the sense of driving prices below competitive prices, prices at which, at which, patents may be licensed on FRAND commitment, that is a below competitive price commitment. And not only that, you could liken standards to joint ventures. And who would enter into a, who here would enter into a joint venture and not ask the joint venture partner what price are you going to ask for the assets you're contributing to the joint venture?

So, I think the application of antitrust laws in monopsony markets is legitimate. I think it's probably been under-applied in the past because of an unexamined but probably plausible notion that we have lots of competition in labor markets and don't have to worry about that. I think there will be an uptick in there. But specifically, with respect to standards-setting and IPRs, I don't think there's a problem there. That it? I'm done? Okay. See you later. Bye-bye.

Panel 1: What explains the Kill Zones?

- *Paul Arnold, Founder and Partner, Switch Ventures*
- *Roger McNamee, Co-Founder and Managing Director, Elevation Partners*
- *Ram Shriram, Managing Partner, Sherpalo Ventures LLC*
- *Susan Woodward, Founder, Sand Hill Econometrics*
- *Moderator: David Lawrence, Chief, Competition Policy & Advocacy Section, Antitrust Division, U.S. Department of Justice*

KARINA LUBELL: We are going to begin the first panel of the morning: "What explains the Kill Zones?" So, I will leave it to my colleague, Dave Lawrence, who is the Chief of the Competition Policy & Advocacy Section at the Antitrust Division, to kick it off.

DAVID LAWRENCE: Great, thank you, Karina. So, thank you so much. I have to say, I'm really thrilled to be here. I know Stanford has worked so well with our team to put this event together, and so that's great. I think this is a wonderful day. We've had a great turnout, great set of panelists. I'm particularly thrilled to be moderating this panel. And with respect to the rest of the day's proceedings, I think we, I might've drawn the most compelling assignment for two reasons. One, our panel is just outstanding. I mean, we have outstanding people all day, but I've been so impressed with this group and I think they have a lot of insights that'll be valuable to all of us.

Second of all, I think that the topic we're talking about here is really, really important in how we think about these issues. So, I'll just briefly, sort of, try to encapsulate what's the topic. So, we're supposed to talk about kill zones and this isn't our phraseology. There are papers out there and there's been a concern raised that there are areas where venture capital investment is very difficult to get. And, it's areas where entrepreneurs would be competing with the big tech companies.

So, that's the concern that's been raised, is that entrepreneurs are having trouble launching into competition with big tech. And if that's true, that would be very important to how we think about competition in markets. You know, there's a lot of questions raised about big tech very generally. Questions of privacy, democracy, competition. One important way that we try to answer hard questions in new industries is competition. The free markets.

Free markets answer questions through the give and take of consumers in businesses. And so, the reason the kill zone's concept could be important is if there's reason to believe that disruptive competitors are having trouble engaging in the way they normally do, that would suggest that that normal means of providing market-based answers would be stilted. So that's the concern or question we're going to try to address in the next hour.

I'm pleased to say we have just the panel to do it. It's a terrific group. To my left, Paul Arnold, founder and partner at Switch Ventures. He has deep expertise in these areas that go to really building app direct as a senior director. And then in his work as venture capital. I also learned in preparation he's the grandson of Thurman Arnold…

PAUL ARNOLD: It's true.

DAVID LAWRENCE: Who, formally had Makan Delrahim's job and then was on the Supreme Court. So, I could say on behalf of the Antitrust Division, welcome back to the antitrust forum.

PAUL ARNOLD: Thank you. It's an honor.

Audience: (laughs)

DAVID LAWRENCE: We also have joining us by screen, Roger McNamee, who's a co-founder and Managing Director at Elevation Partners. Roger began his career in 1982 at T. Rowe Price Associates and, for the decades in between, has really been close to all of the issues and developments in Silicon Valley and tech. He's worked, he's launched Integral Capital Partners, cofounded Silver Lake Partners, and, more recently launched Elevation Partners.

Roger has also been engaged, along with former Google Design Ethicist, Tristan Harris, in a sort of campaign to raise some issues, they believe important relating to social media and big tech. And I'm sure he'll talk about some of those issues today. We also have Ram Shriram, who is a Managing Partner at Sherpalo Ventures. And I have to say that preparing for this panel, I was hard pressed to find a major company that Ram wasn't part of when it was a minor company.

The history is really incredible. From Netscape, where I think Ram was with them before they shipped a product, to Amazon in the late '90's when I hadn't probably heard of it yet, to Google, as in early advisor. And he's a member of the board, I should flag, at Google, which probably also has an interest in some of the issues we're talking about today.

Finally, we have Susan Woodward. Susan is founder of Sand Hill Econometrics and brings, I think, a more economic and statistical perspective to some of these questions. She has some fascinating data in this area that she'll be bringing to bear. And then finally, you would've seen on the program that Ilya Strebulaev, a professor here, was scheduled to appear, and this goes to the expertise of our panel.

He's so expert, he's testifying as an expert witness this morning. And, he's been held up by the court. And so, I think he has been unable to join us. With that said, we'll turn to the questions of the day. We were originally going to ask Ilya, who's written a paper, "How do venture capitalists make decisions?" That's an important piece of context here. Fortunately, we have some venture capitalists who can fill in. So, I'm going to go with Ram, or Paul. You could, -

RAM SHRIRAM: Yeah.

DAVID LAWRENCE: Weigh in on that?

RAM SHRIRAM: Yeah. Fundamentally, the way I think about investing is in the person or the team first, then the technology and the defensibility, and then the market space. Because market spaces are fungible over time. It really comes down to how good the team is and whether they're able to pivot if they have to into a different space, morph the company, which all of which is possible early on in the life of a young company.

Of course, market spaces matter, but what matters most is the team, the quality of the team that you're investing in, and whether the ideal, or what they have to present, has any kind of defensibility from a technology perspective. And beyond that, it's a question of how capital efficient the idea is, and where it can go, and how broad and how big the market is for what they're going after.

PAUL ARNOLD: Yeah, I would echo almost everything. Traditionally, people talk about investing in, sort of, three areas. Ideally, all three would, people prioritize, the team, the product, and the markets. And I'm an early stage investor. Investing in companies that are usually, kind of, leading that first institutional round of financing. So, small, nascent products and companies.

And so, I invest in a team really heavily. Though I think what we're talking about today is, are there areas for where, these teams are sort of, are going to really struggle on getting the product in the market.

DAVID LAWRENCE: And Roger, any thoughts on this question?

ROGER McNAMEE: I'm going to state my comments for the next part of the session.

DAVID LAWRENCE: Great. Great. So, I'll jump into the question that's the title of the panel. Are there kill zones? Where are they? And why do VC's avoid them?

PAUL ARNOLD: Yeah, I do think there are kill zones. And I think in that I will end up disagreeing with a lot of very intelligent people, today. I think that when you're looking at a company at a very early stage, you believe in the team. You know?

Like, these are wonderful people. Strong, strong potential to do something important. Y then are kind of thinking about their concept. Where, where can this go? And there are areas that are, every single, sort of, diligence process I go through, a question is, "What's going to be the kind of response in the market to this?" And, in some cases, you're going to go into a fragmented industry of, like, hotels, or credit, or insurance. I tend to feel really confident, that's really exciting. Let's talk about an industry and see if there's something large can be built. And then there's other areas where it's really common to say, "How is this possible in a world where LinkedIn exists, or where Google exists, or where Facebook exists?" And in those situations where there are, there's an incredibly, concentrated market share because of the economies of scale or because of network effects, it's a really hard barrier to overcome.

And sometimes there's an answer and often, that will kill things. And I think that that's my view, that's my, sort of, lived experience as a venture investor, but I think it's a common view of a lot of venture investors. A space where I see it, all of, there's many places where these skills are, you might think about them. But, common ones I see: professional data on LinkedIn. It's just one that's really common because I've seen dozens of startups over the years that say they're going to take on LinkedIn.

Everybody's dissatisfied with LinkedIn. Every founder thinks there's a better thing to be done. And they're probably right. It's not that good. But they have a very powerful network effect. It's just incredible hard to overcome that network. And I've never seen something compelling. And so, my choice is investing in a company that's going to try to do that, or has a very clear path for selling something in insurance, easy choice.

Like, my job's fine. I have a choice, right? And, but, the founders that want to disrupt that space, it's a real uphill battle for them to get funded. And I would say, in my experience, folks going after a space like that, I see them get funded at a far, far lower rate than the people who are in other industries. Search is a best. I mean, it's hard to imagine taking on search. And I know, I know that Ram will share some perspective around that.

Privacy is a space that I spent a lot of time thinking about recently. Privacy is a big topic for reasons beyond innovation. But I just value innovation about privacy. Can you start, can you have companies that are responsible for only your data? Can you build private versions of any of these products? That's as kill space as you can imagine, depending on the version of the idea.

I mean, you're getting into the core value of our position of extremely entrenched and powerful people that are not going to, or companies, that do not want to cooperate with that idea (laughs). And how do you actually pull it off? I haven't seen something that's compelled me yet.

DAVID LAWRENCE: When you say companies that aren't going to cooperate with that idea, what is it about their cooperation that would be needed, or the lack there of, that would be a problem?

PAUL ARNOLD: Well, just think about it at a fundamental, and I've seen different proposals about how this gets done. Whether you're giving people tools to control their privacy within existing things, like Google or Facebook, they're going to, if that really takes off, Google or Facebook are going to want to pull that back as fast as they possibly can. They don't want you aggressively limiting their extremely valuable information collection.

But the consumer wants it. People want to move into the blockchain, things like that. So, it's hard to imagine an idea like that scaling without a response from very insurance employers.

So, just to throw out a couple of ideas. I do tend to think they exist. I don't think they're an existential threat to, like, the venture industry, but I think that they're major dampers on innovation in certain areas.

DAVID LAWRENCE: Ram?

RAM SHRIRAM: So, I'd like to draw distinction between things like search and social networking. Search does not have network effects. When you search as an individual, it's an alone experience. You're not searching with a group of your friends. There's not a lot of PI data in search. There's only two pieces of information in search.

One is your search history, which is of contextual importance to you, and the other is location. Location is useful if you're, for example, searching for the weather. It's useful to know that you're searching for the weather in San Francisco, otherwise, each time you'd have to type in the town you're searching for. So, that context is actually useful. But you could disable these things now in the modern era of privacy, if you so choose to. It just makes your search less contextual.

So, one, there's no virality in search. Two, there's no social element to search. Three, there's very limited, or almost no PI data. There's no personal information, like, what's your gender, your age, where you live, all those kinds of things are not there in search. And then lastly, I'd like to say that for a business like this, today, to say that I would not be able to invest in search because, Google is big, is sort of a misnomer because would you invest in PC operating systems today?

Would you invest in microprocessors today? Would you invest in combustion automobiles today? No, you wouldn't if you're a good investor. You would rather invest in electric vehicles and automated driving. You would rather invest in AI and healthcare IT, enterprise software, possibly blockchain, fintech, and other more interesting new technologies like robotics, et cetera.

So, I think the way big tech will get disrupted is by new technologies like AI. The other is that within big tech, there's a lot of competition. So, if you think about search, for example. Certainly, there are smaller companies, to the point about privacy, there's companies like DuckDuckGo that are focused on privacy and, that are thriving. They're not thriving at a large scale, but they're certainly thriving. And that, by the way, happens to be a company based in the Midwest, so that's a good thing.

The other is there's competition from big companies. So, Bing, I just saw an article in TIME Magazine quoting that Bing is today a $7.5 billion business, as of 2019. And they power, for example, Verizon search, among other things. The, if you're looking at Amazon, they are the leader in product search, which is where a lot of the economic value of search is coming from. And, so more people start product searches on Amazon than they do on Google as an example.

So, there's a lot of healthy competition. And then internationally, there's many, many different competitors in this marketplace. Things, people, like, Baidu, competition like Yandex from, say, Russia and so on. So, it's not a, sort of a one-size-fits-all discussion when it comes to, search versus, say, social networking versus what happens in app stores versus smartphone market. And there are so many elements of this, so it's a complicated discussion.

DAVID LAWRENCE: So, to go back to maybe the specific example of the investor, or the entrepreneur who comes in and has an idea for search, and maybe let's say it's not exactly search, but, Tesla versus the combustion vehicles. So, search with a new angle to it. Do you see that as someone who's going to have a harder time getting funding in the way that Paul talks about, or do you think that that funding's going to be there?

RAM SHRIRAM: I think the funding will be there if the idea is interesting enough. In fact, let me go back to the year 1998 when I actually seed funded Google. There were five search engines at the time. And these two founders were here at Stanford. I actually ran into them because I had started a company in comparison shopping and I was here to see one of the professors in the engineering school, who was on my board.

And he said, "Take two minutes and come see this search engine. These two kids don't know what to do with this." And, I took a look at it. It was very interesting. I think we put in a search term, tumbleweed or something, and the search results were much better than... I did the blind Coke test, you know? Which was a better kind of test, across the five search engines at the time. I think there was Lycos, Inktomi, um-

DAVID LAWRENCE: Alta Vista.

PAUL ARNOLD: Alta Vista.

RAM SHRIRAM: Alta Vista.

SUSAN WOODWARD: Copernic.

RAM SHRIRAM: I'm sorry?

SUSAN WOODWARD: Copernic.

RAM SHRIRAM: No, not Copernic. Yahoo, and a fifth one that I can't remember off the top of my head.

PAUL ARNOLD: You searched for tumbleweeds on five of them?

RAM SHRIRAM: Yeah.

PAUL ARNOLD: (laughs)

RAM SHRIRAM: And so, there were... Well, not all five. I think I did two of them. But there was a drop down on Netscape where when we did the Netscape browser, we had no applications for the browser if you go back to 1994. So, the two applications were search and email. And email, we couldn't get the API to Outlook, so we went and licensed Eudora, which was then owned by a company called Qualcomm. I don't know why Qualcomm bought Eudora, because they were an email company. But that's an example of how that market actually got jump started.

The search bucket got jump started because of the browser because people were looking for applications for the browser. Then there were five search engines. All of whom dominated in 1997-98. And yet, there were a lot of skeptics about whether search would ever succeed with another company. And yet, Google got funded.

It was an unlikely success. I would say it was an outlier. I went up and down Sand Hill and could not get a single VC to write a check for Google at the time. And the reason they said, "Well, search is taken. Yahoo is a $100 billion company, there is no opportunity in search." So, the reason they succeeded is because Yahoo then lost their way. They became a media company and forgot about their core, which was search, which also happened to be two other Stanford students before Larry and Sergey that started Yahoo.

But, they became a media company at the time. And as a result, there was an opening for a new entrant to come in and do something different. And they made, the interface so clean and brain dead simple, and they also made the search brutally, brutally simple by making sure they were giving the direct result for what a user was looking for rather than taking them through a whole bunch of page views. So, that was the genesis of that.

Tomorrow, a competitor could come in any one of these markets, doing something completely different and disrupt that market. That generally happens when there is a discontinuity in technology. That discontinuity to me will be AI. Because it is a new wave. It's a tsunami. It's a

platform type wave that you see every ten years. You saw it when the mainframe got disrupted by mini computers. Mini computers by PCs, PCs later by smartphones, and similarly in the software world, you'd see these cycles.

DAVID LAWRENCE: Thank you. And Susan, you have some, -

SUSAN WOODWARD: Yes.

DAVID LAWRENCE: Data in this area that might be useful.

SUSAN WOODWARD: Yes, I do. Could we have Roger on one screen and the slides on the other? Is that possible? One of the questions that arises here that you see discussed in rags like The Financial Times and The Economist is all sorts of folks claiming that venture capital is collapsing because of the kill zones and the killer acquisitions. And I just wanted to provide a little context here.

What you see here is the bars are money raised and it's separated into the dark blue is money raised in first rounds and the light blue is money raised in later rounds. Then, of course, the total is the total. Then the black line gives you the number of first rounds. So, that shows you the number of new companies that are funded each year.

As you can see quite clearly there that venture capital is growing. It's growing in a healthy way. We've only had really three dips. One was the colossal dip after the, Dot-com recession, and then another dip after the Great Recession, and then the 2016 dip I'd like to call the "World Anxieties dip," Brexit and other phenomena. But you can see it in Europe also. Here are the same numbers from Europe. Anybody who wants these charts, email me. I'm happy to share these charts. And, so, the Europeans, they're also quite upset about what's going on with kill zones and killer acquisitions, where of course big tech is buying up all of their companies, but look what's happening to them too. They're growing even faster than the United States is, the levels are much lower, still. About one fifth for all of Europe to venture capital funding that you see in the United States. But the amounts of money are growing and the number of new companies is growing.

DAVID LAWRENCE: And what is this data from, Susan?

SUSAN WOODWARD: This is Venture Source data.

DAVID LAWRENCE: I see.

SUSAN WOODWARD: A subsidiary of Dow Jones. Cleaned up by Sand Hill Econometrics.

AUDIENCE: (laughs)

DAVID LAWRENCE: Thank you for that. And did you want to move on to the IPO data as well?

SUSAN WOODWARD: Well, that's a new topic, but I'm happy to do it. And the IPOs, the, this was a special request from my colleagues at the Department of justice who wanted to know what killed the IPOs. And so, the answer is the IPOs didn't all get killed. What happened is there's a dramatic reduction in the number of small IPOs.

Now, every piece of legislation that has been new regulations for the IPO market, Dodd-Frank, Sarbanes-Oxley, regulation FD and the, new and, display rules, all of those have been harder on small companies than on big companies. In my humble opinion, Ram and I would dispute this (laughs) which one was hardest on them? I think it was regulation FD and… regulation FD. Let's start there.

Regulation FD said that, "If you tell anybody anything, you got to tell everybody." So, what this means is that the small companies can't share a piece of information with their bankers and brokers and have them make some money on that information. It's basically insider trading.

And then expect in return for that for them to flog their stock. Because that's basically the exchange that was going on before that. I watched that up close when I was Chief Economist at the SEC.

And then when the additional step, this was the second regulation, to take the market to pennies. So, we used to trade stocks at ticks of one eighth of a dollar, twelve and a half cents, now we do it in pennies. The combination of regulation FD plus going to pennies essentially meant that the big brokers and banks couldn't make money trading the small IPOs. And so, they quit supporting them.

Now, to get onto some nice charts. Oh, we'll go onto the IPO trip charts and then back. Okay. So, this shows you the number of IPOs over time. The red part is the non-venture funded IPOs, the blue part is the venture funded ones. And then you could see the collapse in the number of IPOs after these regulations kick in and you don't have these deals anymore.

But the deals that went away were the small ones, not the big ones. Now, the astonishing thing is that the performance of the small deals had been appallingly bad. If we look at the period from 1980 to 2009, the market adjusted return for the small IPOs, and by small we mean market cap of $75 million at the time they go public, was minus 39%. That's a big number. So, it says that the investors who were being lured into these small IPOs by this deal between the companies and the brokers and banks were not well served by them. So, the small IPOs have gone away, and we should not mourn them.

And then this last chart here shows you the what happened to the market cap of the medium IPO as the regulations changed, and you can see they just got a whole lot bigger. It's actually quite rare now to see an IPO that has a market cap of less than $100 million.

DAVID LAWRENCE: And so, I think that the data certainly seems to indicate that there's a lot of activity in venture, that that's been productive. Does it tell us with a granularity now whether there are, sort of, Swiss cheese holes for the kinds of kill zones that Paul was talking about?

SUSAN WOODWARD: No, it doesn't, but it just tells you that, at an aggregate level, venture capital is not collapsing because of the kill zones. And I note, there's one paper floating around that has some, almost as many co-authors as it does observations, it looks at nine acquisitions by Google and Facebook. And I have a nice little list back here.

Okay, so the focus was on acquisitions for more than $500 billion. And hey, I can put that data together in a heartbeat, and there are about 172 of them. So, these guys studied nine of them, but look at the others that there are to study. So, I made a little list here of the largest serial acquirers, and there's heroic Cisco there at the top with nine acquisitions for more than half a billion dollars. Are there kill zones around what Cisco is doing too? I mean, there's a lot to study here.

RAM SHRIRAM: Yeah, let me just add with a little piece of data there myself, David, which is venture firms had $403 billion in total assets in 2018. Compare that to 2004, where it was $158 billion. So, from 2004 to 2018, it went from 158 to 403. Also, the yearly VC investments hit a new record in 2018. More than 1,000 firms deployed $70 billion of capital in 8,000 companies in 2018, and there were 52 first-time new funds in 2018, which is a 15-year high.

So, I think the vibrancy and the health of the VC business is better than it's ever been before, and that's because there's lots of companies buying. So, the idea that companies that were really small couldn't go public anymore is a good thing.

So, are difference of opinion was, whether it was Sarbanes-Oxley or Reg FD, it was not that we disagreed on the fact that it was the right thing to do. I felt that Sarbanes-Oxley likely put

a greater burden on small companies, from an administrative standpoint, to report a lot more information, which they couldn't afford to.

But the main thing that happened is analyst coverage dropped for companies that could not be at least a $2 billion company on their opening day. And you see companies today that are sub $2 billion that go public that struggle to get coverage, and therefore, they don't get support levels in the market.

DAVID LAWRENCE: I see.

RAM SHRIRAM: So, that's, and that's created where a system where now you have smaller companies that largely have to get acquired. If they don't get acquired they generally either become acqui-hires, which largely are the regime of the very big tech companies, they do the acqui-hires, or they just die. And that's a healthy ecosystem that's emerged within tech.

DAVID LAWRENCE: And maybe if we could get Roger, back in stereo. I know you've sitting there on our video screen waiting patiently, Roger. I wonder if you could give us some of your views on the impact of kill zones on competition in big tech?

ROGER McNAMEE: Well, so I want to address questions that Ram, Mike Moritz, and Professor Melamed did not touch. So, I believe that the market is allocating resources in a way that works unbelievably well for large companies, for some entrepreneurs, and for venture capitalists, but it's not working in a way that works for most Americans.

And so, the question I want to ask is whether we should be considering the needs of a larger number of people as we set economic policy in this area. My concern is that the business models of Google, Facebook, Amazon, Microsoft, and of the venture firms largely represented today may not be optimal for the economy as a whole. So, it's not to say there's anything wrong with what's going on if you're a beneficiary, but I just wonder if the economy as a whole is getting everything it could get from a different approach, and that's what I want to ask.

So, I look at kill zones as being actually a very small part of the problem. And that antitrust is one part of the solution, but both issues are important, and we should talk about them. So, for a decade or more, I believe that the behavior of startups and by venture capitalists has been distorted by the success of Internet platforms. Essentially, they all have protective modes of intellectual property, that's cross licensed to each other. They have network effects, they have datasets, and the more datasets they have, there come additional benefits. They have huge cash hoards, and they have the ability, because the way their networks work, to monitor the actions of startups.

Collectively, these act as a barrier to a wide range of activities, not just startups, but actually a lot of other market participants. So, in the interest of time, I'm going to just focus on Google. But this issue I'm describing here, there are versions of this that apply to Amazon, Facebook, Microsoft, and to other companies as well.

Essentially, the interplay of Google's dominant position in a series of like, of infrastructure elements, and I'm thinking here about things like the ad tech infrastructure, Chrome browser, Google's role via Nest, a home system. Those things, collectively, provide leverage over other market participants, which include not just startups, but also advertisers, and other would-be competitors.

The harm would show up the following way. The ad industry has done studies that say as much as 62% of the traffic at supported sites is inauthentic, which implies that ad prices are overstated. Google has the ability to track the behavior of essentially all market participants because it has sensors essentially everywhere in the online world through its network, and Google has the ability to price this stuff in ways that cannot be monitored on the other side, for the same

reason that people can't tell which behavior is inauthentic because Google has an opaque system that controls all the data.

Startups really struggle to compete, and it's not my notion that I want to see... I'm with Ram here. I don't think a head-on charge on Google's individual products is the way to go at all, but the problem that people have here is it's not just that they can't compete with Google's businesses very effectively, and obviously DuckDuckGo and some others are exemptions, but they have trouble applying different business models once they're not compatible with the business models that have made the Internet platforms so successful.

And I think that right way to do this, the right way to address this is to look at treating the infrastructure of companies like Google, like Facebook, like Amazon, like Microsoft, as a common character. I mean, I think the conversation's all been about unwinding deals or whatever, and I'm going, "Maybe that has a place... It certainly has a place later in the process, but the first step is to just restore the competitive balance that we want."

And the key thing is, it's not just about Google's infrastructure. When you add in Gmail, Search, Maps, apps, and all the other things that Google does so well. They provide further levels of user lock-in, further protective modes that really limit the opportunity of competitors and even, frankly, suppliers and advertisers to do the things that they should be able to do in a freely competitive economy.

So, I would really want to make the point that the issue here is not the revenue or the market share of these individual products, the issue is the network itself. And power comes from having lots of different points of contact, all with signaling that tells you what people are doing, all with opportunities to limit what people can do. And again, under today's rules, all of this has been fair game. It doesn't just include the fact that we see analogs throughout the economy.

But it's my view that we've gotten to a point where for 20 years, incomes in the country have been static, where we have been privatizing elements of government one after another, as Mike Moritz points out, and this is not resulting in optimal happiness across the economy. It's resulting in massive skew of income and of wealth, and this is not just an issue for Google. This is an issue for Amazon, Facebook, Microsoft, it's an issue in other parts of the economy, and my view is that it results in way lower levels of innovation.

You can see the scenarios like artificial intelligence, where the leading companies have probably half of all the AI professionals in North America. And that situation means that anybody who wants to create an alternative vision of AI, one that may not be based on behavioral modification, they're going to have to compete on price to get that talent. And for a startup, that's going to put them at a disadvantage right out of the gate. And so that's just an example. That situation occurs in lots of different places. The result, in my opinion, is a misallocation of venture investment. We're just putting more and more money in categories that have lower rates of return on capital. So, if you think of WeWork, and things like that, nothing wrong with these businesses, but just not as attracting kids that are perhaps rethinking the way they hope things would work on the Internet itself.

And so, my goal here is to have this conversation and I'd like the Department, really digging into this, recognizing that the perspective of Google, the perspective of Facebook, Amazon, Microsoft is really well representative of the economy, it's unbelievably well-represented at this panel and in the conference as a whole. And it would be super if we could have focused things where we really dug into this and started to ask questions about the role that antitrust can play in restoring balance. So, to give you an example, if we view the actions of Internet platforms providing a service in exchange for data is not something that is free, when in fact they barter of

services for data then, in fact, the consumer welfare test for price increases been tripped for years because the value of the data has been demonstrably rising in terms of its utility in the Internet platforms. We can see it in the value of the user per year to these platforms.

And a professor at Yale, chairman of the Economics Department, has done a really fantastic paper laying all of this out and it's something I would encourage everybody to read. And it to me this is a conversation that should happen, I'm just delighted hearing a lot of, thank all of the other panelists for what they said.

DAVID LAWRENCE: Thanks. Reactions on the panel? Sure.

RAM SHRIRAM: So, let me respond to some of Roger's points. I think specific to the ad market. Ad rates are down 30% and the quality of ads in general are so much better both for consumers and merchants, for example, because merchants use those ads to have consumers click through to go to whatever they want to buy. And that's a market where we compete, let's say Google competes with Amazon. In the other points he made with respect to browser, Chrome is an open source product, which means users can use Chrome to create their own versions, and in fact Microsoft has done just that with their new Edge browser, it's based on Chrome as the underlying technology because its open sourced. Android is another example of an open sourced technology that's widely used. I would argue that smartphone prices, minus Apple, are much cheaper around the world because of the fact that Android comes for free. With respect to the question of data being traded off for free. Not true in the case of Google, as far as I know, because the product is not data. It's not user data that's the product, it's an index of the web that is the data that somebody is searching for and that index is available for anybody. In fact, a lot of universities have an index, Microsoft has that index, Amazon has that index. So, many of the other big tech companies have the same index and it would essentially be a crawl of the web and how often you crawl different sites is based on how contextual and newsworthy that site is.

So, if it's a new site, you probably want to do it every half a day or 30 minutes even and certain things, like Twitter, probably more often. Although, the signal noise ratio on those sites is pretty bad. So, I think it's a matter of distinguishing between the big tech companies to make sure that you're not comparing apples to oranges. And the other thing I would say is the market share test is not the only test one should use in determining dominance in a market because you should use who collects the majority of the profits in the market as a more important test, and especially in areas like smartphone where vertical integration matters, the amount of vertical integration matters and therefore who collects the profit. And, that's an example from say the "Wintel" days, where the Windows and the Intel monopoly collected most of the profits. A similar sort of thing is emerging in say smartphones, for example. The other point, because these are such fast-moving markets, I think it would be a mistake for any regulator around the world, including the European community, for example, that's levied massive fines on few companies, to try to design swim lanes for companies because we have an efficiently functioning marketplace, as demonstrated with close to $500 billion of venture money that's going into the US today that's creating a massive amount of young companies, many of whom are getting bought, many of whom are likely to become bigger companies over the next 10 years. We could not predict, sitting here today, who the next big winner would be in AI. It's somebody in a garage. And to the point about 50% of the employees being inside these big companies, yes, I agree with Roger's point there. That is true. However, I would say this: there are 2,000 startups coming out of Google employees who have left to go start companies and that's just in the last five years. I would posit that many of the smartest AI people will leave to go start companies because they're ambitious, they're aspirational, venture capital is

available next to free where these companies are funded at high valuations where they're keeping a lot of the equity for themselves.

And so, that becomes the opportunity to go and create the next new winner that could potentially take out one of these big companies and that, I suspect, will happen in the next 10 years. It may not happen in search but it may happen in a contiguous area. It could happen through healthcare and then end up taking other sections of the market and improving markets in general.

DAVID LAWRENCE: What about Robert's point about the way that some of these technologies use data? And maybe I'll put you on the spot a little bit, Paul, but you know thinking about a startup, he's in his garage, he has a great idea but it's an AI product, it needs massive quantities of data to work really well. Is that something that could serve as a barrier?

PAUL ARNOLD: It absolutely can and to make a bit of a broad point about it: I think the traditional conversation that I've been taught about, in antitrust, is that you have remedies around merger approvals and you have remedies around breakups. And I think that in this part of the economy, I think that the solution a lot of times might be more talk about data portability and interoperability.

So, is there, when you're looking at where they have consolidation of market power on the data mode, is there a way to create competition in that area, in that problem? It's different than a breakup, but where you force openness with certain datasets or you force portability of a data from one company to a competitor. It brings competition in there and forces the owners of these modes to actually be responsive in a competitive, in a market competitive way and brings a net surplus. I think that, to me, it is intuitively the place to start a lot of these conversations and then it grows out of that.

DAVID LAWRENCE: I could see it.

RAM SHRIRAM: I would say that that's a sensible idea because data portability actually for businesses that are essentially closed, and again within big tech there are some companies that are open and some that are closed. Some that operate as a complete closed walled garden and so, it is important for them to, maybe, consider data portability as one test to see if they're willing to allow others through an API or some other mechanism to be able to access the key elements of the data so they can build their business on that. That that's actually a potential avenue to think about.

DAVID LAWRENCE: Susan or Roger? Thoughts on data?

ROGER McNAMEE: David, can I say one more thing here?

DAVID LAWRENCE: Oh yes, of course.

ROGER McNAMEE: So, one of the things that we're not talking about here that I think is relevant from a policy perspective, particularly for the Department, is that the generation that now leads the Internet has not generated the level of job growth that many prior generations of technology have. And so, one of the questions that we should be asking I think in this whole thing is, "Is there a better way for the tech industry to operate? Are there ways for tech to contribute to the economies?" And I can give you a very simple example. When you go after something like ridesharing, which is not something the "Big Four" do, but in ridesharing, what's the economic value created for founders is coming largely from the willingness of people to drive for something that looks like their absolute marginal cost of doing so and so that has not created new jobs.

We're… very interested to see if you couldn't disrupt issues like climate change, issues like you know that are out, there that are structural, things like gun violence or whatever, where the impact of all this profoundly great technology would be applied to improving something that desperately needs improving and disrupting industries that, candidly, are cancerous to begin with. And all of this can be accomplished with tech policy, through a combination of tax incentives and

things like that. And antitrust can play a role in that because right now there are no disincentives from following the path that we have today, because it's obviously tremendously remunerative to every participant in a successful economy.

DAVID LAWRENCE: And may be to shift a little bit to that sort of historical perspective you know we obviously there's an empirical question here and there's a debate about the extent to which there are kill zones or areas where it's difficult for competitors to emerge. Speaking a little more hypothetically or perhaps historically, what is the role of antitrust enforcement or federal regulation in this area, over the course of the careers of the folks on stage, in resolving market issues in tech? And I was really intrigued as we were preparing, Ram, learning that you were deposed in the Microsoft investigation and you were of course, in Netscape on that. So, I know you have a great perspective on that so why don't we start with you?

RAM SHRIRAM: Yeah, back in 1994 when Netscape started it was the beginning of the Internet and I was there I had a ringside seat to that whole period. And essentially what happened is Netscape came in with a browser, a new browser. Microsoft launched Windows 95, literally the week before, and was focused on Windows as the interface to the world and they missed the Internet completely. So, along comes Netscape and has this browser that sits in front of Windows so that became the interface and clearly, you know, for those who want to own platforms that was not a good thing. And so, it became a battle royal between this young- it's a David versus Goliath kind of battle- where... The Netscape browser by the way was free, there was no data gathering, it was free and we had no idea how to make money at the time.

But we were telling enterprises that they could pay on the honor system for use of the browser. And, another new innovation happened in that period, which was the first time software was shipped by downloading off the Internet rather than sending you a disk. It was not packaged software, it was the beginning of non-packaged software. It was not cloud yet, but it was not packaged software. And it allowed millions of people instant access to the global Internet as we now know it and at the beginning of that movement, Netscape had 99% of the world's Internet traffic to its door. One day, we had a browser and a T3 line and we couldn't deal with the amount of traffic that was coming to the front door of Netscape, that's how revolutionary that was.

The issue later became that, as Microsoft then went and licensed the source code for Spyglass, which was the University of Urbana's product, that competed with Netscape, they essentially were able to come up with a browser that was tied to Windows and they said, "You could not use any other browser if you wanted a license to Windows." And that was the consent decree where Windows was separated from the browser, so consumers could have a choice, but that allowed for Netscape, not to, not to live because, remember Netscape also made a bunch of mistakes on their own, unrelated to Microsoft. And so, they, like all good pioneers, blazed a trail to death. And were eventually acquired by AOL, because AOL was a walled garden, much like today's social networking companies. And so that was AOL's attempt to open up and become part of the Internet through the acquisition of Netscape, so it only lived as an ingredient brand inside of AOL. And by then Yahoo came along and they were an open company and so they took over.

So, these cycles happen, but the consent decree helped open up the market for future entrance at the time and that I think was a thoughtful thing to do. Perhaps something like data portability is an interesting concept because, or a level of understanding of what technologies should be open sourced and made available for the market as a whole, market participants as a whole.

So, the way to think about it is how do you level the playing field without trying to pick winners and losers? Because in fast-moving tech markets, you don't want to, because a regulation

becomes obsolete or becomes itself a disruption to the smooth functioning of marketplaces. So, you want to be very thoughtful about how you think about it, and again remember the buy and kill approach really is not what happens within big tech today, as best as I can understand, across different companies. Even like if you take Facebook's acquisition of Instagram, it was not a buy and kill strategy, it was a buy and coopt and probably grow that into a new opportunity for them. The buy and kill, the last time I've come across it, was in the database industry which was way back in the 1980s. So, it hasn't happened since.

And those were companies like Informix and Sybase that don't exist today that were essentially killed through their competitors at the time.

DAVID LAWRENCE: Sure, sure. Other thoughts on the historical perspective here?

ROGER McNAMEE: Yeah, David?

DAVID LAWRENCE: Yes, Roger?

ROGER McNAMEE: So, I would just say that there is a case that antitrust has in fact been a major catalysis of growth in every wave of technology. If we go back to the original DOJ consent decree with AT&T in 1956, it did two things. It restricted AT&T to the regulated telecom market, which created computers as an independent industry, which is something that didn't happen anywhere else in the world, and it put IBM and controlled data out on their own. That was an enormously significant, really positive thing.

But even more important, it took the intellectual property and made it available to everyone, which took the transistor and put that in the public domain which literally started Silicon Valley as we know it, Fairchild and everything else came from that. Then if you look at the IBM case that you all pursued in the 60s, that from its earliest days separated hardware and software and created an independent software industry, which ultimately led to personal computers. That was a hugely momentous field. And then if you look at the various things that happened in AT&T before the break up. They, the FTC caused the equipment business to become separate, the Department of Justice case effectively used the infrastructure as a common carrier to promote competition. And then only after all those things were done did you break the company up. And the breaking of it actually accelerated the development of cellular telephony and it created data as a separate category which ultimately led to the creation of the Internet and then as Ram said, once you got the Microsoft case in there then you really laid the groundwork for today's companies.

So, if in speaking to people like myself or like the folks in the panel who are professional investors and have a big stake, the thing to remember is the target company, every single time, went to all-time highs after the antitrust intervention. Every single time. And if anything, people complained that the antitrust didn't go far enough. But shareholders did incredibly well, and we got a new industry every single time. And so, I really would implore people, study the history. It's not something to be afraid of, and in fact I think for the folks who run Google and Facebook and Microsoft and Amazon and the other companies that might be targets of this, your shareholders are going to benefit from this and I think the country will benefit from it. And again, I'm not asking you to take my position as gospel, I'm just asking you to imagine it as a thought experiment, what if we're not saying is correct.

I mean go do the work and see if it is. But if it is correct, that's an experiment we should not be afraid of. Because I'm with Ram, I'm not for finely-tuned regulation, I think that's likely to produce awkward results. But I do think there are elements of the current business models, specifically algorithmic amplification on social networks and the opt out model for data privacy, which are just completely wrong and should not be permitted at all, but those weirdly don't apply so much to Google, those really apply to other people.

DAVID LAWRENCE: Other perspectives on this?

RAM SHRIRAM: I think there's one more element that you should all think about, which is national security. To what degree is it important to the United States to have a lead in all of these technology elements, whether it's AI, Blockchain, the future of robotics, driverless cars, all these areas that are emerging and where large investments are going in from private industry in the US, perhaps larger than most countries, minus the organized effort in China that's going on. And it has an important bearing because if you look at the focus of the regulators in say for example in other parts of the world, part of their focus is how do we try to get a dominant player within our country as part of their penalizing of US corporations.

And I say that in a more general sense without any specific region of the world in mind, but I think that's an important thing to consider as part of this. I do think that the issue of how you think about privacy is a whole separate discussion, because it's easy for an open company that's already doing things that are pro-user to support privacy, but it only makes it even harder for the younger companies to compete with them. And I say this in the context of Google. It would be a completely different conversation with respect to say the social networking world.

PAUL ARNOLD: I mean my thought on it is, my only thought on the history of this, I'm not a historian of antitrust but when I look at it simply, I think there's this thread of thinking that is you don't see where innovation is going to come from and big disruptive things are going to change the world as we know it, and that's totally true. And like, as VC's, we believe that probably more than most people.

At the same time, that's not happened to AT& T. AT&T was on top for like six, they had effective monopoly for like 60 years. And I guess they probably still have it today, you know what I mean? There you have to see some, you have to push yourself to have some kind of causal sort of view of how that, the mystery of disruption will actually happen. And there's big things that will happen. There're some trends that we see coming, but I don't think, I'm not satisfied by the answer that these guys we're talking about, let's just give them 60 years (laughs) and see how it goes, you know? Something will come along. That seems unsatisfactory.

DAVID LAWRENCE: I think we have question, time for a question or two from the audience. Sure, yeah. Yeah right over here and then I think we have one in the back as well. Oh. Sure. We'll get to you.

AUDIENCE: Hi, my name is Lulu Wang. I'm a finance PhD student at the GSB. My question is related to this notion of kill zones, but not so much in the kill zones, I was thinking about complements versus substitutes, that is there some sense that given the current financing environment that affects, whether I'm starting a new company, whether it's better to try to build a more complementary technology to turn firms or try to find a new platform or a new technology to disrupt it. If you have any thoughts on whether that's been affected or it's just by and large the same as before that you just invest in whatever has the highest return?

RAM SHRIRAM: I can answer that. I think if you build something complementary to an existing platform, you're not being ambitious enough. You should build something that you expect can disrupt something that exists today or something new that opens up a new market. So, I urge you to be ambitious about what you're trying to build. If, the only outcome if you build something complementary to an existing platform or that the feature of an existing platform is that you could sell it to the platform. But it's possible that they could copy you and that you wouldn't be able to sell it to that platform and therefore there would be no outcome, versus if you build something disruptive, or something in a new area where it doesn't touch the current platform you have a much bigger opportunity.

PAUL ARNOLD: I would agree with that. I mean, if you're building a business derivative on somebody else's business, they usually catch you.

DAVID LAWRENCE: Okay. I think we had a question in the orange sweater here?

AUDIENCE: Should I wait for the mic or?

DAVID LAWRENCE: Well I think we have one here and then we'll get to you.

AUDIENCE: Okay.

DAVID LAWRENCE: Sure. Yeah.

AUDIENCE: Thanks for an interesting discussion. So, if anybody has a search engine that's better than Google, please come to me, I'll give you the money. (Laughs) So, I think things have to be better than how they exist for them to be funded. My question is more fundamental around privacy. I think the whole, the digital ad world, I mean the whole, the fundamental idea is I give you information, I get something for free, and then you sell that information to somebody. And they can advertise based on they're targeting the right audience.

So, is, are we questioning the advertising business model, what is (laughs) we, there's a lot of talk about privacies. Are we saying nobody should advertise or they should advertise at a broad level like Super Bowl? Things that everybody watches? There shouldn't be targeted advertising, what exactly is the problem?

PAUL ARNOLD: I think it's a big question with lots of answers and lots of problems and aspects, but and I think that the target advertising is generally a great thing and most consumers sort of benefit from it and would agree to what they're kind of receiving and it's a business model that makes, based on the biggest companies of the world. I also think that people are sensitive about it and there is general kind of consumer demand for, "I wish I had control for what's known about me. I feel that sometimes my information is used recklessly and differently than I would like if I understood it." And, I think that there's a common sentiment that people don't have much power over that. In some situations, people can, you can strip away targeted advertising if you want to really kind of wonk out and learn how to do it but, who's really doing that? Have you, has your mom done that? Like, no. And so, I think there's a general feeling of people feel somewhat limited in what they can do with information about themselves that they're giving over and may not even be realizing they're giving over.

RAM SHRIRAM: Yeah, today's panel wasn't on the subject of privacy but you can see how complicated these issues are for example. Privacy does impact how you think about dominance, for example, in a market because Google and Apple both eliminated third party cookies, which then makes your data a little more private. But it ironically will hurt the young companies that are trying to build digital advertising businesses while improving user privacy.

So, then they cry foul and say, "Oh my God now I can't target the users the same way that Apple and Google can because I no longer have third party cookies." Well, you have to come up with other ways to find context since you no longer have third party cookies. So, this is an example of how complicated it is, which is why it's not easy to come in with a broad-brush view and say, "This is how I'm going to build swim lanes in these markets."

DAVID LAWRENCE: Okay, and I think we had one more question? Then I know. Oh, two more and then I think folks probably ready for lunch.

AUDIENCE: Great panel, Jason Ma. Ram, good to see you again. China. You know, FIRMA, CFIUS, right? Their aggressiveness, AI, data, they have the competitive advantage when it comes to volume and quality of data, blah, blah, blah, right, in the past decade and a half. What's your perspective when it comes to venture capital cross border, global, there's been a bit of a retraction or not a retraction, but a bit of a slowdown recently. What's your perspective on China?

RAM SHRIRAM: Yeah, I mean my honest perspective is I think the pendulum has swung too far in the direction of decoupling, which I think is a mistake. Our economies are deeply intertwined, the supply chain is in China, whether you like it or not, and, yes, there are national security risks both ways for the US with respect to the supply chain being there and for China with respect to a large portion of their markets being here.

But that's a good thing. I mean I think these are the two biggest economies in the world and they're deeply intertwined. If you look at any major US company, a lot of the trading is with China. So, I, as far as things like AI and future technologies go, China has a very concerted effort with respect to investing heavily in this. For example, there is a single province and I forget the name of the province, you probably know it better, a single province in China that's committed $16 billion to AI. Up in north of Beijing.

I was very pleased to see in the new US budget proposal from the Trump administration that they're actually putting in an allocation for AI. So, I think primary research in AI needs to happen in universities. There is a lot of primary research going on in places like Google because they publish, in fact they have hordes of PhDs who just publish papers all day long and they don't actually produce any products, which is also a problem, because it's kind of like Bell Labs, but (laughs) universities have the luxury of being able to do that. And out of that primary research will come applied research and products and companies and so we need to continue to support that effectively in the US, the way China is supporting that and Ching Hua and Jie Tang and other places. But I think, in the end, more cooperation is better. With respect to the data question, I'm not sure that data will be the advantage in AI that everybody makes it out to be. Yes, China has a lot more data per user and they don't have the privacy restrictions that we may have in the Western markets. But in the end, that alone will not be the determinant to who leads in the AI world.

ROGER McNAMEE: And Dave, can I add something to that?

DAVID LAWRENCE: Of course, yes, go ahead Roger.

Roger: So, I really agree with Ram, I really agree with Ram on everything about the relationship with China. We really need to find a way to get back in to a much more cooperative frame than we're in now. The one observation I would make from that I would make incremental to what he's saying is that if you think about what China's goals are, they're very much in an authoritarian model and trying to us artificial intelligence to control the behavior of their people.

They, effectively, by putting all their effort there, are leaving everything other use case of AI available and if you think about what our country does best, we do lots of different things really well, right? We're inherently distributed, we're inherently entrepreneurial. And so, if you take, I'm with Ram completely on we need a much better set of relationships, but we should also be focusing our AI efforts on if you will everything but behavioral manipulation.

And the thing that has bothered me about social media, in particular, has been that those Internet platforms are very much in the behavioral manipulation business, so they're in a sense trying to play on China's own turf. And I think that's a mistake. I think both a strategic mistake and it's a very serious political and social mistake in the United States. And so, what I would like to see us do is in fact as, I'm with Ram, we want to have much more government investment here, we want to really think about all of those use cases that fit the strengths of our economy and our culture and really run with those.

RAM SHRIRAM: Yeah, in fact to echo what Roger said, I would also say that the biggest benefit that I see with AI emerging within the US is in healthcare IT and in drug discovery. I think drug discovery costs will go down by a factor of ten, thanks to machine learning and AI and with respect to healthcare IT, this is a market that has been slow to adopt technology. I mean we all go

to, we have some of the highest healthcare costs in the world and these can be fixed and we need better systems in the healthcare IT space and I think they will be greatly benefited with the combination of machine learning and AI in the coming decade.

DAVID LAWRENCE: Okay and I think we have time for one more question before lunch and maybe ask folks to give quick answers. I know people are hungry but it's been really interesting panel.

AUDIENCE: Hi I'm Anat Admati, a finance professor with Ilya Strebulaev in the finance group. And I had an opportunity to look at the sector a little bit, but I'm a finance expert, and I was intrigued by a from the two founders of Google from 1998. "Since it's very difficult even for experts to evaluate search engines, search engine bias is particularly insidious," they said, "We believe the issue of advertising causes enough mixed incentives that it's crucial to have a competitive search engine that is transparent and in the academic realm," and the first search engine of course had Stanford Search and World Search.

So, the question is, obviously they've changed their mind on it or something happened, after '98 because they obviously did not take, did not keep Google in the academic space, but it has been interesting in exposing the news media as well, what happened to user agreements and what happened to privacy under Google and what the search mechanism is doing, which is not transparent. On competition specifically, so I was interested in any comment that anybody would have, I know lunch is there. But on the issue, we hosted in the Business School, Thomas Philippon, who wrote a book "The Great Reversal" and in the minds of Europeans and I know we think we feel very superior over here, it's not about anti-American, national champions things, although that's a spin one can give on it, but there are issues of anti-competitive strategies that are employed, which are reminiscent of what happens in banking where you separate commerce from banking, from intermediation. We don't allow a bank, we used to not allow a bank to have a travel agency, etc.

So, so now here if you have search, how much can you harm or if you are Amazon Marketplace or all the other strategies that are employed using data?

RAM SHRIRAM: Well let me, since the question is sort of about Google, let me answer a little bit about the early days. I was there at Stanford when these two guys were on the Stanford network and Stanford basically said, "Look out network is getting flooded with Google searches, so please go outside, don't be on the Stanford network anymore." And that's when they started to figure out what to do with it.

Yes, they were two young idealistic founders, but all businesses in the end need money to run a business. So, advertising came about after almost two and half years, in fact we couldn't raise money like I said at the beginning of this conversation because nobody believed there was an economic model around search. Because it was just a blank screen with a big window where you could type in your keyword. And that's how this company started back in '98.

And for two and a half years, it was eight people only with about $2 million of capital. It was probably one of the most capital efficient businesses that became a trillion-dollar company over time, that I can, it's such an outlier that this could not have been predicted.

With respect to your question about the European antitrust thing, I think you have to realize that some of the people who are complaining on this are essentially shopping sites that are arbitraging Google's Search by essentially putting the search terms on their sites in front of Google and then buying keywords on Google and then marking it up and selling it to merchants. I'm not sure that's an efficient model because in the long term, those people should not go through a middle man to get to Google, they should go straight to Google.

So, those are market efficiencies that actually resolved themselves because consumers figured these things out. And it is unfortunate that those failing businesses that actually are built on bad ideas end up becoming the ones that complain the loudest. So, you should be careful what you wish for when you go complain.

DAVID LAWRENCE: Well, thank you for that and thanks again to the entire panel, you've given us a tremendous amount of food for thought, and now I think we can all have food for lunch, so thank you all.

Afternoon Remarks

- *Dean Jonathan Levin, Stanford Graduate School of Business*

KARINA LUBELL: Thanks again for coming this afternoon. It is my pleasure to introduce Dean Jonathan Levin of the Stanford Graduate School of Business.

JONATHAN LEVIN: Thanks. So, I'm John Levin. I'm the Dean of the Business School and I'll start by saying I'm just delighted to have this workshop here at Stanford, and so thank you to the DOJ Team and the faculty and staff at the GSB and the Law School that have put the event together and all the speakers and participants. I think as you all know, we have a great need right now in this country to bridge the technology world of Silicon Valley and the policy world of Washington D.C., and it's critical that we foster better understanding in both directions as we try to sort out the impact of new digital technologies. Stanford can and should be playing an important part in enabling that discussion, leading that discussion, and we take that responsibility very seriously, so I'm really, really glad that we get to host today's event.

Now, I want to say a few things about the topic of today, and to do that, I'm going to take off my Stanford dean hat and put on my economist hat for a moment or two and, just say one or two things because I have to say, I started studying antitrust in graduate school 25 years ago. And at that time, I did not expect that I would ever see the words venture capital and antitrust in the same sentence. So, something has changed. And, now, part of it is surely venture capital because at that time, I also didn't anticipate we'd have a private, venture-backed firm that would be worth $50 billion. But, a bigger part is really the changing technology landscape and the establishment of a handful of dominant tech firms that are attracting so much antitrust scrutiny. And when I have thought about that change, I have found it useful, personally, to disentangle three different factors, and I'll just mention them.

But the first is fundamentally technology. So, things like the rise of data and algorithms raise a lot of complex questions about privacy or chance for discrimination or the effects of mediated discussion on political polarization or discourse. Those are important questions, and they would be important regardless of market structure and market power because they are fundamentally questions about technology. The second issue is really the size and the power of largest tech firms. Those are related to technology in the sense that the technologies of data and software have significant scale economies, which of course give rise to concentration. And of course, that, and then therefore are all of our typical economic concerns about when you have market power leveraging it to block competition or block entry or monopolize adjacent markets.

But actually, I think that's not the fundamental issue that we're grappling with right now. The fundamental issue that we're grappling with right now is a concern that goes much deeper, and really reflects a sort of fundamental public discomfort with having firms that are so large and that extend so deeply into people's lives and having so many decisions concentrated in the hands of a small number of people, sometimes controlling shareholders. And their discomforts are... it's a political discomfort, not a fundamentally economic discomfort. And, so, I think that's behind a lot of the public push for more antitrust intervention and regulatory intervention and the calls to breakup firms.

And I think, it's useful to have that lens because we shouldn't be surprised as antitrust enforcement adapts and response. And if you know... In this audience, most people will know the history of U.S. antitrust, but just to remind you of that. U.S. antitrust, the origins go back to the late 19th Century in the Gilded Age, which was also a time when there was a rapid rise in inequality, the consolidation of a lot of economic and political power in a small number of hands,

a lot of public discomfort came from the rise of a lot of large firms. And people recognized at that time that the technologies. which were different, they were things like the railroads, had a lot of scale economies, which made the economics of large firms favorable. But there was a lot of concern about the rise in inequality and about the concentration of political power. And it was those latter concerns that were the ones that were behind the Sherman Act and then subsequently under Roosevelt, under the enforcement of the Sherman Act, which wasn't enforced for 15 years. But it's getting into the early 20th century with the Northern Securities case and then the breakup of American Tobacco and Standard Oil.

And, so, the world has changed a lot in 130 years. The technologies are very different. We've had several decades now, many decades now of relatively narrow antitrust enforcement that's been almost exclusively on economic grounds and not on political economy grounds. But, I think there's probably a lesson to be learned by what happened at the beginning of antitrust. If you were projecting forward, and so if... You know, if I was to make that projection forward, it makes me even more happy that before embarking on that course or in the process of embarking on the course, if that is the course that gets followed, that the DOJ would reach out to us to want to listen and learn from a lot of people and think really carefully through all of the ways things ways might go and that we get a chance to be part of that discussion and to host it, here at Stanford. So, really, really delighted to have you all here, and I'm really excited to hear what this afternoon's panelists have to say about these issues. So, thanks a lot for being here.

Panel 2: Monetizing data

- *Susan Athey, The Economics of Technology Professor; Director, Golub Capital Social Impact Lab, Stanford Graduate School of Business*
- *Greg Back, Managing Member, Free Sky Capital*
- *Ari Paparo, Co-Founder and CEO, Beeswax*
- *Kelland Reilly, Managing Director, General Atlantic*
- *Moderator: Ryan Shores, Associate Deputy Attorney General and Senior Advisor for Technology Industries, U.S. Department of Justice*

RYAN SHORES: Welcome to the afternoon panel. This panel is going to discuss the role of big data in technology markets. Something that is often discussed in antitrust circles and business circles and was touched on a bit this morning: back in 2017, the Economist had an article titled "The World's Most Valuable Resource Is No Longer Oil, but Data." And that's become kind of a tagline, data is the new oil, a common catch phrase we hear a lot. So, on this panel, we're going to try to dig beneath that a little bit and ask some specific questions around big data.

For example, there are many types of data: machine data, user data, structured data, unstructured data. What's the most important types of data we're seeing in technology markets today? Does it matter whether the data can be collected and used by only one company or multiple companies? As our economists would say, whether it's rivalrous or non-rivalrous. We'll talk a little bit about when the, when data or the lack thereof can produce a barrier to entry. Sometimes successful companies starting out without any data have overtaken companies with a lot it. That's the Myspace/Facebook example, and there's many others. Some say that feedback loops now prevent that from happening. So, we're going to try to talk a little bit about what's the difference in those circumstances. We'll also touch on privacy in data, which was hit on a little bit this morning and finally, talk about AI in data. So, we have an ambitious agenda here. Fortunately, we've got a great panel to address these issues, ranging perspectives from academics, founders, and venture capitalists.

So, I'll start to my immediate left. Greg Back is a Managing Member at Free Sky Capital with decades of experience as a venture capitalist and private equity investor in data intensive and ad-driven businesses. And Greg's going to give us some interesting thoughts about the AI world particularly.

Next to Greg is somebody who needs no introduction around these parts, Professor Susan Athey. She is the Economics of Technology Professor at the Stanford Graduate School of Business. She spent years researching the roundabout economics of data and data-focused industries, including artificial intelligence. She's a member of many boards who think about those issues, and she also helped set up this conference today, for which we want to thank her for that.

Next to Susan is Kell Reilly. I guess it's Kelland Reilly. We call you Kell, and he's the Managing Director at General Atlantic with over a decade of venture capital experience, including investments in companies like Airbnb, Slack, Snapchat, Spotify, Uber, and many others.

And finally, at the very end from me is Ari Paparo, and he's the CEO and founder of Beeswax, an ad-tech startup in New York, who also worked as a Director of Product Management at Google's DoubleClick business. And he's going to give us some interesting perspective about the ad-tech world and big data.

So, we thought the way we would do this panel is kind of turn it open for, or turn it over for opening remarks. And, Professor Athey, I think you were going to start us on that.

SUSAN ATHEY: Absolutely, so, would you be able to put up my slides? Thanks. I just wanted... We had some really great discussions among this group. Actually, one of the fun things about a conference like this is you get to brainstorm with these amazing people from different perspectives. And, so, I wanted to put up a few things that would sort of frame some of things we'll talk about today.

So, I've been doing conferences around data and antitrust for probably a dozen years now. And at the beginning, it was actually very frustrating because most people just didn't have any idea what, from the regulatory community, even what the data was used for and how it was used and how that differed. I think that that's really changing now as people have started to learn about algorithms. But still there's a lot going on behind the scenes, especially in the advertising ecosystem. It's just something most consumers don't understand. And, so, there can often be a return to the comfort zone of sort of what... You know, my interaction with Facebook, so I understand my user network and not enough attention to what's going on behind the scenes. But just think about the different ways that people are using data and put it into categories.

There're things like customer acquisition. So, for a long time, of course, companies have tried to find customer lists or mailing lists. When we now go to the digital world, you might be interested in finding people who might be interested in your product. Now, there can be many ways to find data on people who have pets. You know, the credit cards have that data. There're all sorts of different ways to find that. But if you go into the problem that an advertiser faces of trying to understand whether their ad campaigns are effective, they might need a whole other level of data because they don't want to advertise to the same user thirty times. When that happens to you, that's not on purpose. It's often a mistake. The advertiser just can't tell who you are across different platforms and circumstances where they might find you.

So, it's not just important to find someone who likes pets, but it's actually you want to count exactly how many times this individual saw your ad. It's not that they care about you as a person. They don't want, they don't need your social security number, but they do care for this unit how many times did they see the ad. And that requires a whole other level of data and precision that is not easily available from lots of different sources. In fact, it might be that the ad platform is the only one that has that. And then, the size of the ad platform and interoperability of data can be very important.

Another thing that firms are doing is monetizing the user base. So, someone like, Facebook or Instagram, as they grew, needs to find a way to make money on their users. And, so, then you need to understand what the user is doing. Of course, on a social network that might be more simple, but on a more complex website, you need data about what the consumer is doing and what task they're trying to accomplish at that moment in time to understand, "What's the best offer to show or the best ad to show?"

Then there's improving products and services, and there's all sorts of ways. You're learning from past experiments about your user, so data about how consumers responded to changes can be a really important type of thing, not just who are these users in the past, but really what happened in all of your previous experiments. And one way of improving products and services that's especially important is search, search and discovery. And, so, if I want to really help you find things on a big e-commerce site, I need algorithms to help consumers sort through and that's an important element of quality which involves data.

Now, there's also lots of new uses, of new versions of traditional things, credit history, supply chain, trying to understand what new products to introduce, understanding competitive intelligence. I won't go into those as much now, but what we're seeing, just high level, is that

there's more artificial intelligence, more non-standard data sources going back into those old use cases.

So, when I think about characteristics that are relevant for competition thing that people start out with, like a very superficial look, is to say, "Well, how could there be competition over issues around data?" We often would have thought like if there's some supply input, like some... You know, there's only so much of a certain raw material. People can tie that up, and that can create competition concerns. But data can be used by lots of firms at once, so how could you report it? But, of course, that really depends on a couple of things. First of all, are you actually really able to move data across firms? And in this environment of privacy, and especially under new regulation, like GDPR, it can actually be quite difficult to move data across firms, and that can create a friction. It can either be a concern for firms that they don't want user data to be shared or a concern for users, but also a regulatory concern.

Then, also, the data. You have to actually be able to plug data in. Just because I can buy data about people who like pets doesn't mean that I can plug that data in at the moment somebody's doing a search query, or I can't necessarily plug it in to somebody else's service. They have to be able to interoperate. Sometimes, if you're buying data, you have to make specific investments to really make it useful.

Data, different kinds of data may or may not be complementary with each other. That actually depends on the context. So, I actually just came back from New York very late last night. I gave a keynote, at an AAAI Conference about the value of data and there I showed in a particular application how different kinds of data had different incremental value and that really depends on what you're doing. So, if you're trying to do, individual user targeting. Having a longer time period for the same user can be very important, but other types of recommendations and algorithms, you might be able to learn a lot from similar users, and you don't necessarily need to follow individual users for a longer period of time.

So, the sad truth is that you can't just generalize and say, "Oh, there's diminishing returns from more data," or, there's always a huge benefit to combining lots of data. It depends on the context. But one context where it can be very useful to combine lots of data is certain kinds of advertising. Again, if I can see you everywhere you go, then I can really tell whether ads work, and I can also in some cases create a profile on you that's so deep that it actually can, really lead to outsize returns. And I think I used to be very skeptical about some of this. You know, cookies were very noisy and they didn't really tell that much about you, but now that you're mobile... If you, anybody hasn't studied mobile location data, it's very, very, very, revealing about your life and where you go, and when you combine that with web browsing data and other types of data, the profiles they have on you are really quite deep, and they really can understand a lot more about what you do.

So, in that case, you can think of complementarity, and there's also a complementarity in the privacy risk if you think about it because if one person has one bit of you and one, another company has another bit of you, combining those can, may not be... Taking any one isn't that revealing, but now, if you imagine, somebody sees every place you ever went, every website you ever went to, every search query you ever went to, whether you went to the bathroom during the TV commercial, and so on all together, a breach of that data becomes much more risky than, a little bit of data about a few websites you went to.

When I think about... Another aspect is perishability, so, in some sense for some purposes, just knowing where you went in the last month is good enough. So, I can predict what restaurant you're going to, based on your restaurants in the last six months. But if I want to serve you an ad

to go to the restaurant you're walking right in front of, that's very perishable. And, so, in order to make use of that data, you both have to have it in real time, and you also have to have a vehicle for talking to the consumer. So, they need to have the map open, or something else, in order for you to be able to take action on it and that's similar to search.

And then there's sort of the uniqueness and exclusivity element, which I've kind of eluded to already. How you interpret the uniqueness of a data really depends on its use. So, again, knowing that you have a pet that has a need right to go to the vet is different than just knowing that you generally, go to the vet. And, it also depends on the context in which you're using it.

So, let me just highlight a few other special issues that come up with informational advantages. So, I actually have a paper called "Peaches, Lemons, and Cookies" that kind of, ... I started writing about, 11 or 12 years ago, about this issue. But, if you ever have a case where somebody has better information and they can use that information to either cream skim the best customers or avoid the worst customers, that can have profound implications for the functioning of markets. We see this in high-frequency trading or in the insider trading rules. It would be really bad if we had a stock exchange, and the owner of the stock exchange, also, was able to peak at the orders coming in and out and trade first before the other orders got filled.

And without going into details, that's kind of what happens today in the ad exchange markets. And, so, you... And that can really have a pretty profound impact on competition. If one firm is able to cream skim everything, the other firms get lemons, and they won't pay very much for it, which can cause a whole market to unravel. So, in our other examples like that as well, if I can cream skim the best credit risks, those types of informational advantages can be very important. So, in some settings, having a little better information than someone else just has an incremental effect while in other cases it can really be a very important barrier in trade. So, and one other thing I should mention on that, there's been some discussion and around that on having information about customer needs would allow you to be better at introducing new products as well. And that's something that's been talked about.

Finally, I just want to say the impact of data on competition is highly endogenous. That's another thing that people put insufficient attention on. The combination of data and access to a user base, that's what's really powerful. If you think about if I'm directing traffic, but I have lots of data and I have a lot of users, then I can use my data to help direct them in a certain direction, which can reinforce the data advantage. The data by itself is not as helpful. There're also productivity benefits and then if you have a large user base, you can experiment on them and learn more quickly. So, there's this combination, this magic combination that's very important.

And, then the final element of is interoperability. And what we've often seen in these industries is they start out very open. You have all these distinct products and even, say, you're YouTube. You want to get as many consumers as possible. You want to get as many advertisers as possible, so you interoperate. want everybody to come. But then if you're, if you're integrated in a larger firm, you can get conflicting incentives that say, "Oh, no. If you want to get access to this particular inventory or this particular data, you have to use my other products." And that's, that's not natural if you're a standalone firm, but it's an incentive that arises if you're part of an integrated firm.

And, so, what we've seen is that products start out being interoperable, data flows across, tools allow lots of different players to come, you can bring your own data, you can bring your own analytics, but then over time, they close up and become not interoperable. So, I think as we think one, it's a pretty strong idea to say, "Let's go break up firms." That's a pretty... That doesn't happen very often, but, making sure that things are interoperable, putting conditions on mergers to make

sure that interoperability remains is another type of tool that could potentially alleviate some of the conflicts that arise when you go from separate firms to combined firms. So, this is sort of a forecast of a lot of the issues that all of our experts are going to hopefully, dive into more in the rest on the panel. Thanks.

RYAN SHORES: Thank you. Very helpful setup. Ari, there's a mention of the ad exchanges and a lot of talk about the ad-tech market with respect to a lot of these issues. Could you give us your perspective on data in the ad-tech market and the privacy implications as well?

ARI PAPARO: Yeah, let me start, by asking what endogenous means.

AUDIENCE: (laughs)

SUSAN ATHEY: Determined by the system versus predetermined.

ARI PAPARO: Okay.

SUSAN ATHEY: So, God didn't say that, this product only works with this other product.

ARI PAPARO: Okay. Cool. I'm going to use that. ...

AUDIENCE: (laughs)

ARI PAPARO: So, let's look at, ... I'll start with very brief Ad-tech 101. The digital advertising business is about $110 billion globally, and is about to take over most of the television dollars, or we're expecting it actually to increase its speed of growth. It's a very big business. The sort of outsider point of view is "Oh, it's just Google and Facebook. That's all that matters." The reality is even though they are the two largest participants, it's a very dynamic ecosystem with many companies, some of which are quite large, besides those two. Beeswax, one day, will hopefully be among those very large companies. But the point being that when an ad shows, when you load the NYTimes.com in your browser and there's an ad for Verizon, let's say, that the process of getting that ad onto the page could involve many parties.

ARI PAPARO: It could involve Google and Facebook bidding on exchanges, so like the stock exchange, to figure out which ad should show there. It could be a Verizon with their homegrown technology bidding on that. It could be... That's what my company, Beeswax, does is we help bid on that. And the complexity also goes with all these kind of interesting side effects around data around competitive landscapes, around the lemon market, which I think was super interesting. And that's where kind of the rubber hits the road on a lot of this antitrust issues. To some extent, advertising is kind of the front in the war of antitrust because these big companies make a large amount of their money on advertising.

So, I want address specifically some of those data issues. First the lemon market, I want to give a practical example that I love. I love that you brought that up. So, in these exchanges... Google operates the largest ad exchange, and that is the system that lets a publisher make money by finding the highest bid for a given ad. And until recently, they gave themselves an extra opportunity to buy every auction called Last Look. So, everyone, so there would be an auction, and Google would bid just like Beeswax would bid and other people would bid and everyone would say what it's worth and there's a fair auction. And, then, Google would say "Even if I lost, what was the highest bid?" And then get another opportunity to bid on it, so Last Look. So, basically what they were doing was saying "Maybe we didn't know enough. Everyone else was smarter, and actually the high bid was really high, so I'm just going to guess that it was a really good, valuable consumer, and I didn't know beforehand." So, the opposite of a lemon. They're finding the best. In the mobile market, it largely works the opposite way where mobile marketers keep all the good stuff for themselves, and only offer the exchange all the lemons. So that's a real example that happens in real life. Until recently, Google was doing that.

In general, as it relates to data and ad-tech, a couple of topics, one that Susan brought up, which is this idea that interoperability and privacy are at war. So that, the platform says, "Well, we can't let independent ad-tech buy our inventory or get our data because it would be a privacy violation. We have to keep that data for ourselves because it's inside the walled garden, so we're protecting consumers." And it's a very valid thing to say. It's an argument. It's an interesting argument, and it comes up a lot. As, governments are talking about enforcement, it comes up all the time, and I think we'll probably touch on that again in this conversation.

The second is, this idea of AI and ML just being better if you have a lot of data. So, the bigger you are, the more data you can have. Another good example for Google is that one of the challenges with advertising is, maintaining frequency, meaning you hate seeing the same ad seven times in a row. Like when you're on Google, it's the same ad over and over again. It gets really annoying. That's called frequency. So, to maintain that, traditionally people used cookies, but cookies are starting to go away for privacy reasons. So, Google announced that using AI, whatever that means, they figured out ways to maintain frequency even if they don't know who the user is. So, they have the scale. They have the Chrome browser. They probably know that certain websites run through a lot of ads really quickly, so you shouldn't show as often. Others don't, and machines figure that out. Something that probably not as easy to do if you're a smaller company.

And then the last point I'll make about data is this idea of using data for one part of your business, the consumer part, to benefit the ad-tech part. So, Google owns the Play Store. They know when someone installs an app on Android, and they can then advertise more to that kind of consumer. If someone is, buying a lot, casual game apps like solitaire, they could start advertising other solitaires to them very easily. They don't have to get the information or get permission and that's a particularly big issue in the case of Google because they have so many consumer apps as well as a full ad-tech stack.

Well, they have so many consumer apps as well as a full ad tech stack. So that's kind of generally how I see these data issues as a sort of ad tech practitioner. I'll try to keep the ad tech geekiness to a minimum hereafter.

RYAN SHORES: And Ari, just one follow up question. You don't have access to first-party data as Google, I think, would call it. Where do you get the data you need to compete in the stat?

ARI PAPARO: Yeah. So, first-party data being like data that someone gets directly from a consumer. So, my customers can, so if I have a customer, Uber is a customer of ours. So, if you install the Uber app, Uber gets that data as first party and then we're just a platform for using it. The thing that's being really cut down on its ability to sort of passively collect third-party data. So, for example, when a webpage loads and five other companies get data about the, this consumer is on their time searching for sports headlines that sort of data that traditionally has been very available to independent parties in ad tech is going away. A good example of third-party data which is the like button, the Facebook like button is third party. It doesn't, it's not on facebook.com. That like button collects data every time the page loads, whether or not you like it. The misnomer consumer thinks, "Oh, Facebook's only going to know if I like this." No, they, (laughs) they know that you saw the like button. That's the real signal and that data is just going to go away.

RYAN SHORES: Interesting. So, Greg, you've been in the investing world for a while. Thinking about these issues and I know you have a particular perspective on AI, what's your thoughts on data in this new world as we interact?

GREG BACK: Yeah. So, just by way of background, I've been an investor since the 90s. I've been focused on software, data and the Internet. Sold my first data business back in 1993, amazingly enough, and it was, LexisNexis, which at the time had the biggest commercial database in the world. Anybody want to guess how big it was? It was a couple of terabytes. And when I came across this concept of a terabyte, it was almost like it was an alien that had come down. Of course, I didn't really know what a terabyte was and I couldn't look it up because this is pre-Internet. So, sign of the times. How things change. In recent years, I've become an active angel, I've got a particular interest in AI. So, we'll come back and talk about that in a bit.

The reason, by the way, just to kind of drop the lead out there, AI has this opportunity to generate these kind of feedback loops, these positive product market data feedback loops that creates the opportunity to create a mini Googles, essentially, which is particularly attractive from an investor standpoint. So, just a few other context elements that for folks who may be newer to the data world might be interesting. So, it's not that long ago, 1990s, most data was not digital in the 1990s. Most of it was physical. You know, we think about all the fire hose of data that's flowing today. It just didn't exist back then. Even during the Dot-com era, it was tiny. Only about 50 million households in the world were online.

Almost all of those folks were on dial up where the average speed was 70 kilobits, which is a pretty frustrating world. Broadband was defined as 200 kilobits. The average now is about a thousand times that fast. So, you can imagine that back then, there just wasn't that much to work with. There just wasn't that much data. So, this concept that we've come across these days of surveillance capitalism, you're throwing off so much data exhaust, if you will, didn't exist back then. There just wasn't enough to go on. And, I'll add that to some extent the issues that were being dealt with back in the day were kind of quaint. Does anybody remember the DoubleClick/Abacus acquisition or Google/DoubleClick?

So, the big controversy back then 20 years ago was, "Oh my God, DoubleClick is going to combine this digital information with this offline catalog information, so they're going to know what I'm doing in kind of both aspects of my life." Nowadays that doesn't even… That's many, many moons ago. So, we've seen a lot of evolution since then. Google has now an extraordinary amount of information over our lives, but it wasn't even until 2012 that they integrated their own databases, right? Gmail's data was separate from your search data, was separate from your map data and so on. To some extent they reacted to Facebook and said, "We've got to compete with using our data advantage," pretty recently.

The reason that we've got such a data pipe today is that the infrastructure has been built out. Why was there little data back in the 90s? Well, we didn't have pipes by and large. We didn't have storage; we didn't have the processing capability. Now we've got all that stuff. So, it's like, we've got a V12 now under the hood instead of what we used to have. Other thoughts, one is where, who created all this data? Well, we estimate that about 80% of it was created by consumers, 20% by enterprises. The thing that's really interesting though, in terms of today's discussion, is that about 80% of data is at some point touched by business. So, it says 60% of data that was created by the consumer but is never touched in some way by a business, whether it be Google or anybody else, that's really what's the source of a lot of these issues today. The privacy issues, the antitrust issues, and so on. So, I'll pause there and come back later.

RYAN SHORES: Great, great. Kel, talk a little bit about the role of data when you have your risk reward analysis in investing, how are you thinking about data in that analysis?

KELLAND REILLY: Yeah, absolutely. I think it's a very interesting, we play a very interesting part of the block and I'll give you a little background in general what we do, but we've

been around for about 40 years and we do largely growth companies and so businesses that tend to be north of $100 million of revenue, and scaling rapidly. And those are the businesses that we tend to invest in. I think we talk a lot about internally what we think a lot about as a group is as you're getting to those levels of scale, you start to attract real scrutiny from large platforms. And so, that kind of a revenue base with businesses suddenly becomes attractive to a large software company or a large extent business.

And so, all over time we see challenges around that and bigger platforms competing more and more aggressively with portfolio companies or potential portfolio companies. And so, as we go through our risk reward analysis on our investment committee, we'll actively be thinking about the data that this business holds today, the data this business needs to become to be successful. And those players around that space that could shut down access to data or ultimately encroach on the business and I've been fortunate to be on both sides of this. So, I've seen in multiple different ways. I was an investor in Snapchat before I was a General Atlantic investor too, and there were some challenges around what Facebook has done to their business.

I was an investor in Spotify and they've done a fantastic job building a real ecosystem despite some of the challenges they had compared to Apple's ecosystem, which had the iTunes database, and Amazon, which had obviously a very significant business in DVDs and books and publishing generally. So, there's multiple different ways that these can play out. And it's very situational specific, which is unfortunately, to Susan's point, an "it depends" answer always. When it comes to these kinds of investments and that's a judgment call and you do as much diligence as you possibly can. Ultimately how it plays out is still very difficult to tell.

But it's a huge part of our process to understand the kind of data we have in the portfolio company and the kind of data that could be relevant over time. And, it's amazing to see how it's used today, I'd say. And the tools that we see evolving to analyze the data and, to Greg's point a little bit, like the pipes are now being laid to both capture data, store data, and analyze data. And we've seen a lot of things in like the Kubernetes ecosystem, which is a more recent open source project from Google. It allows a lot of more mass customization and analysis of data at scale. And so, there's just incremental tools that companies are now able to use to systematically target users, acquire users, retain users, and compete.

And so, I think the other point I'd add is that across our portfolio companies and even across our investing team, we're increasingly investing in data science. And we see that almost every one of our companies, they have a large data science effort and they spend significant amounts of money on both human capital, AWS, compute and storage, to really analyze data and try and pick out those trends. I think that's in a world where it's very hard to actually say this is the advantage of data. You can see the investment companies are making around that and you can see the wages that are being paid to those data scientists. And I think some of the degrees that are coming out of Stanford today, to focus on these kinds of skills. And I think that's all indicative to you about, there is real value in that data and there's certainly a concern if you're on the wrong side competitively and a massive advantage if you're on the right side of history.

RYAN SHORES: So, it sounds like it's context specific a lot. And I think one of the questions people ask is "Why are some head starts in data more durable than others?" You know, you have examples of Google overcoming an advantage by Yahoo with respect to data that Facebook, Myspace example I talked about before, what are the factors that matter? Is it the scale of the data? Is it the type of data? What's important when you're thinking about these issues?

KELLAND REILLY: Yeah, I think there's a bunch of different factors and again, it depends, unfortunately it's a terrible answer, but it really is the scale and density of data and if

that's on the path to creating real barriers to entry in modes. And so, we think a lot about like sustainable, competitive advantage. And does this data kind of move you forward or is this just a tactical, hand to hand fight you're, you're competing against right now that's not ultimately going to lead to, to a sustainable business. I think the Myspace/Facebook is a great example, there are some awesome articles online about some of the early history of Myspace and the challenges they had around uptime and management of backend infrastructure. Then, Facebook came along with a relatively newer stack and was able to deal with that scale and produce a better-quality product for the end consumers from a design perspective, from an infrastructure and reliability perspective.

And I think of, over time, incredibly interesting things about some of these businesses is the network effect around data is kind of two-sided and we think a lot about that. Like, I think Facebook's an incredible business that has a data advantage because all your friends are online and all your interests are online and you can connect with that. They also have a massive advantage on the advertising side. And Ari can talk more about that and I can, but the fact that they're seeing you're being displayed a text ad or a video ad or a picture ad and you are not clicking on the picture but you're clicking on the video ad or you're not clicking on these types of ads by this company, but you are on these types of companies and interests, you can really build a much better product as a result for the end customer.

They can deliver you lower ad load with higher click rates, which ultimately improves your experience as a user, while still generating the same amount output per user. So, it's super specific and it's very dependent on the company and the situation you're looking at. But I'd say mass scale is a huge advantage and density and engagement. So, we look a lot of engagement metrics and people accessing the site once a month or once a week or once an hour. And we're lucky to be investors in a company called TikTok and we see kind of the volumes of data that company has produced and, as a result, of the improvement in the profit they can, they can derive from that.

RYAN SHORES: Great.

GREG BACK: I'd just like to build on one of Kel's earlier points, which was the lessons learned from the Myspace/Facebook transition. And, I'd just like to say even though I'm a model driven investor, data is not destiny. Particularly if you're on the early stage side, you see that company building is messy. You've got to get so many things right, whether it be people or infrastructure or hiring or fundraising. And so, I think what we saw there was probably a missed opportunity, from an execution standpoint, for Myspace to have evolved into Facebook. But again, it's easy for us to say, kind of, "Oh, this company has all of this pool of data. You know, they're going to dominate this space." But oftentimes that just doesn't happen because there's so many other things that are required to be successful.

SUSAN ATHEY: Maybe just to build on both of you guys. The importance of a head start and what the entry barriers are really depends also on what kind of tools you're using and what tools are available. So, in the search engine I worked on 12 years ago, you had to write a lot of the algorithms from scratch in order to run them on this data, the size of the search engine. So, even the simple models, you had to have a team of people write them up so that you could actually even run them. Today that stuff is available off the shelf and I do research projects on terabytes of data and you just spin up a machine and somebody has already written the software that will take my model and distribute it optimally and optimize it and I get my results back.

So, something that was a six-month project and a $1 billion business 10 years ago for a bunch of engineers is now something I can give to a master's student and they can run it in an hour. So, if you asked the question 10 years ago about how hard it would be and how important it would be to have a head start, that would be very different today if you were starting from scratch.

And then the value of data also depends on how rich the models are you're using. So, this is something I am exploring in some of my research, just to quantify the quaint which I think is obvious to people who are more experts, but just that, if you take a simple model and you add more data, diminishing returns kind of kick in pretty quickly.

But if you keep enriching your model as you add more data, you can get better and better and better. And you don't hit diminishing returns for quite a while. So, but it used to be that to do something very complex at scale, you had to do a lot of custom engineering while every month that goes by, there are now tools that allow you to do more complex things at a larger scale, which changes the entry barriers. One other point is that it used to be that firms had all this data, but they themselves didn't have the infrastructure to combine it nor did they have models that could really take advantage of it. And still today, a lot of the recommendations you'll see online, they're just not that good yet.

You know, they don't really feel like they know you, but that doesn't mean that that's not possible. It just means that we're not there yet. And I see it getting much better, much more quickly, which will make, I think, some of these super profiles that hadn't really fully been exploited will become a bigger deal going down the line.

ARI PAPARO: There are also some less sexy models of smaller datasets that are very protected because of the quality. So, like Nielsen TV ratings are not big data at all. But it's basically a natural monopoly because it has to be a certain level of quality and it's extremely expensive to maintain that panel so no one can create a new panel for Nielsen TV ratings. Similarly, like some health businesses where it's all about the taxonomy. It's not the volume of data points, it's that… I think with like Flatiron Health in New York that they built a cancer database that was all about the taxonomy and how doctors can use the data, not big data, medium-sized data I guess, but incredibly valuable because they did the work that needed to make the data make sense.

GREG BACK: I'd just like to build on, excuse me, one of Susan's points earlier, which is over the last 10 or 20 years, technology per se has become easier. So, 20 years ago, just getting the software to work was your value creation, that created your company. Nowadays, that's table stakes and so that's good news and it's bad news. The good news is you don't have to spend as much time doing that stuff. The bad news is now you have to do something else. You have to figure out how to create value some other way. So, we're seeing a lot of this hybridization of data, network effects, business model innovation, obviously use, integration of all these pieces together. So, that's not just an opportunity, but it's almost a necessity today to make a great company.

RYAN SHORES: So, Greg, I know one thing we talked about in preparing for this is in your investing models, it sounds like you're spending some time thinking about feedback loops and the idea that more users mean more data, which means better service, which means more users, which means the feedback loop continues. How are you thinking about that from an investment perspective and does it matter in certain areas and not others?

GREG BACK: Yeah, I mean, you're right. That's, that's where I'm most proactive is looking for those loops. And but usually they're not… so, they're like Google. Google has that profile, but usually smaller. So, I mentioned before, I kind of look for opportunities to create mini Googles. And, there's one example I did back when I invested other people's money, which might be instructive. Pre-AI, but we created a new data type, which was real world automotive repair data. So, basically after your warranty is up, nobody cares about your car anymore, including the company that made it. And so, what's also become interesting over the last few years is your tech can't figure out what's wrong with your car and how to fix your car anymore, but they've become these rolling computers even before becoming connected.

And so, we went out to all these automotive tech repair shops, essentially, and said, "When you've got these symptoms, what fixed the car?" And we collected a lot of this initially via a call center and then we obviously digitize it, put it on the web. And over a few years, we basically created this flywheel that started spinning faster and faster and faster. And, at the end of that game we had a database that had years of data aggregation inputs from thousands of sources. And so, it had this extreme defensibility to it. Nowadays, I would look at that database and say, "Well, I'm going to turbocharge that with AI." I can go in there and just improve the value proposition a little bit better. But it's the same concept. It's the same concept.

And, well, all sorts of, variables come into play in terms of how, whether it's going to work or not. And I think Kel mentioned a couple of, how big is the market? How many variables are there? How varied is the data underneath all the variables? How durable is that data? These are the kind of things that I look for.

RYAN SHORES: Professor, what's your perspective on the feedback loop? I mean a lot of people say this is what's leading to the size and the scale of some of the companies that the more data is just, through AI and other mechanisms, producing this environment where you have a winner-take-all or a couple of winners-take-all. Is that too simplistic a way of thinking about it or is there truth to that notion?

SUSAN ATHEY: Well, I think there's obviously a fair bit of truth. There's also some, maybe sometimes, over emphasis on the consumer side because that's what people experience. So, it's certainly the case that if you are a company providing web services, if you're a marketplace and e-commerce platform of some sort, you're going to get this loop where first of all you can start out by just looking at characteristics of what you're selling and you try to rank things that way. So, somebody's searching for something and you just sort things according to price in the broad category. Then over time you can keep running experiments and try to learn more of what it is that people like. How do they trade off delivery time against price? How do they trade off convenience or brand recognition versus price?

If you're trying to help sort or if you're in a marketplace, how did they trade off reputation of the seller against other characteristics? And over time you learn more and more how to rank things and that AI problem is a challenging problem and if you want to start personalizing things, that's yet again a more challenging problem. And actually, the degree of personalization out there today is modest but not that great in most businesses that I see. And so, there's still a lot of upside potential to get even better at understanding. Are you the kind of customer that just wants convenience and get things quickly or are you sort of someone who really wants to see all the options or is really concerned about price?

These are types of things that can be learned more and more over time. And like on the seller, if you're in a marketplace on the seller side of the market, there's a whole other kettle of fish because if you're trying to get a bunch of consumer sellers or small business sellers to provide quality, it's really pretty hard if you really can understand, before someone makes a transaction on your platform, whether they're likely to be a good seller. Maybe by how they signed up and how they answered your screening questions and how they behave, whether they put up good pictures when they created a profile. If all of that can help you prescreen and make sure every customer has a good experience on your platform, that's also an important competitive advantage.

So, these flywheels really can be quite powerful in terms of creating a good product. But sometimes it's the combination of that with a business model. So, if you think about the barriers to entry and some of the sources of advantage and things like search or even Facebook, a lot of that is the ad platform which is going on in the background. So, it's a flywheel between the users

and the advertisers. And then if you monetize better, then you're going to be able to do business deals that help you bring on more consumers. So, like, Google got a 10-point bump in its market share in the mid 2000's from doing a business deal with AOL for AOL to send their searches to Google. Or they did a deal with Apple, where Apple sends all their mobile searches to Google and those business deals can get one because you have the advertisers in the background and that's why you would think about something. A new social network would make a lot more money per user if it's tapped onto Facebook's advertising platform than it would for years as a standalone company that was trying to build its own advertising platform.

So, sometimes these flywheels are… It's not just about the data flywheel, but it's that combined with sort of an economic business that might have indirect network effects, sort of a platform business model. So, I think when you see a lot of market power going on is when you get that combination of the two factors. It's something about the business model that creates market power together with the data advantage.

RYAN SHORES: And Kel, is that the combination you all are looking for? I mean it's a both situation.

KELLAND REILLY: Absolutely. I think it has to be the two together and we talk a lot about a sustainable, competitive advantage from a user perspective and can they attract and retain those users effectively by improving the product every single day. But then can they translate that into actually capturing the value and that's where a little bit like the art and the science kind of meet each other because, it's hard to often know how the industries will evolve and who will ultimately capture the true economic value of those customers. I think the mass personalization thing is a really critical one that we see a lot. I'll give you a quick example like Uber, for example, has a lot of users. A lot of Uber users are very loyal and they will only use Uber and they've only ever downloaded Uber and they're not Lyft users.

There's another side of technology consumers that will actively price compare Uber versus Lyft and on any given route on any given day. And so, Uber will know when you're going into your app, are you going and clicking and going to University Avenue today and then you click out of your app. They also have ability to track your data and the location on your phone. You end up actually in University Avenue 10 minutes later they probably know you'd actually gone across the Lyft, price compared them, chosen the Lyft option, and taken that. So, they now know you're a switcher and they can actively target a campaign to you to drive well, so now every 20 rides you get a ride free or whatever it might be. They can customize those type of solutions.

Whereas my father-law rides a black Uber around and has never downloaded another app and wouldn't even know how to because I didn't download it for him (laughs) and they will, they will price the hell out of him I think on that route. And so, it's, I think, a combination of the tools, the scale of the data you can pick up, and can you actually improve both the product and capture the value I think is a really, that's one of the most challenging parts of our job is figuring out who ended up actually capturing the value you create. Because I think everyone would say their Uber experience has gotten remarkably better over the last five years. You're not going to have to wait 20 minutes for a car to show up now, there's one like around the corner.

But the value capture is being surprisingly lower than people would have thought. Everyone would've thought Uber was a much more profitable business today than it actually is when they were looking at the business five years ago. No one would've guessed how big the company would become from a top line perspective and no one would've guessed how low the margins have been in that business. I think would be a really, relatively fair statement to kind of

think how they investment community thinks about that kind of a business. So, it's really combination of the two.

RYAN SHORES: Greg, did you have something in mind?

GREG BACK: Well, I was going say there's another kind of, two-element character I'd like to share, which is particularly prevalent in the AI world. In the AI world, you typically take a big dataset, and you kind of train your model based on that initial dataset and that gives you the set of so what's. But those so what's then have to be deployed to be relevant to create value. So, I kind of think about it like I've got to have a data lake where I practice fishing and then I've got to have access to a data river where the fish just keep going by and I keep having the opportunity to snag a new one. And you're seeing some of these things showing up today in this kind of Game of Thrones that we're seeing in various spaces. So, autonomous vehicles are a great example.

Waymo, the Google or Alphabet unit, has been pretty well regarded to have the best technology out there. So, they've got the best pool of training data. They went out there, they've been driving around Mountain View for who knows how long. But they don't have the river, they don't have the fleet yet to deploy. And they've been talking to manufacturers for years, but nobody wants to play ball. Nobody wants to have their value eroded by Google. And so, you've got the opportunity for other players like GM plus Cruise, which is kind of integrating, or even a Tesla, which is creating a giant pool of data and also obviously has the fleet. So, you really have to think about, again, do I have the seed corn to create a product that can start that thing spinning? But then also do I have the place to deploy it?

RYAN SHORES: So, let's transfer it to a subject that was mentioned this morning. And as I think on the top of a lot of people's minds, which is data portability. So, Google, Facebook, others have a data transfer project. GDPR has a data portability aspect to it. Other legislative solutions have been proposed, if I could call them that, with respect to data portability. Is this a cure to some of the concerns we're seeing in the marketplace about dominant players and consumers not having options because their data can't be transferred from one platform to another?

ARI PAPARO: You want to jump in?

SUSAN ATHEY: You can go first.

ARI PAPARO: So, I think that the laws on data portability are well-meaning, but not very effective. The ability of a consumer to see everything Facebook knows about you and people are publishing these, like, 80-page documents of every single thing they've ever done is just not meaningful in any practical way.

But the idea to prevent lock-in, like, for example, if, like, LinkedIn didn't let you export your profile to PDF, that sort of thing. It's very helpful to have that sort of portability, but I think in practical terms, the real war comes around interoperability, and how the platform may decide that it only allowed certain parties to do certain things and that's pretty common nowadays.

You, ... You can't ... There's no publicly available API for getting LinkedIn profiles, for example, if you wanted to create a competitor. And in the ad world, Facebook will let you buy ads in a very specific way. Google will not let you use an API to buy ads in many ways.

And these are ... This is where you end up with decisions that may be stifling competition, or in the guise of privacy, but may be actually to keep some kind of moat around your business.

SUSAN ATHEY: Yeah. I'd say that if your solution requires consumers to make, like, the tiniest bit of effort to succeed, the solution is doomed basically. Everybody talks about privacy, but if they have to just do a little bit to even, like checking off the top box or go into settings and change things, just forget it, completely ineffective.

No matter how loud people whine and complain, they just won't be bothered, and they generally won't sacrifice quality of service almost at all, for privacy, historically. Now, people, that might change if you have certain concerns, but, historically, that's just been the empirical fact that's been very widely tested and documented both within business and in academics.

So, when I think about a lot of these rules, they may be enabling, but they only really work if then someone else has a business model and an economic incentive to do all the work for the consumer, and is able to really have a reason to pull the consumer through this process.

I think it can be more effective if there's interoperability on the backend, so this gets back to, like ... A big concern I have from a policy perspective is that under the ... We haven't improved people's privacy very much at all, but we've now created a massive incentive and competitive advantage to merging because if you merge a whole bunch of distinct products, suddenly it's privacy protective to pool all the data and create a super profile.

Again, to me, personally ... And I know a lot about this on the backend ... I would much rather have two separate firms maybe sharing a little bit of data through an API than one firm on both products and fully merge it to a massive super profile about me. That's actually a worse thing.

And, so, under any... Some of the things we need to think a lot about are, how does interoperability work in a way that is protective of consumers and really gives them the functionality that they want, without the consumer really having to worry about it and do a lot of work? And for the business customer, they should be able to be able to choose their tools and data and we really do have the technology to make that happen. Just to be clear, if you have a big company that has multiple products and is sharing data across, it's not like they're shooting your data in plain text between one part of the company and another part of the company. That would be idiotic on their part.

It would be a massive security risk, so even when one company is owning multiple things, in principle, they're already building the technology to kind of share data internally in safe ways. And, so, that... Once that technology exists, it becomes ... Or if it existed to start with because the firm was formed by a merger, it becomes much more possible to think about having that same interoperability go outside of firms.

ARI PAPARO: Yeah. I'll build on that with an example we were talking about backstage or upstairs earlier, which is, a very practical example, which is YouTube. If you want to buy an ad on YouTube, you have to do it through Google. You can't use my company, Beeswax, to buy YouTube ads. They don't let us.

But Google has a different division called DV-360 that's directly competitive with me and they're allowed to buy YouTube. So, Google's giving the information needed to buy YouTube to their division that competes with me, but they won't give it to me. And, in the UK, the Competition Authority has written up a document for comments about how this could be solved because it's an obvious problem.

And Google's response was that it would unnecessarily let out private information if they let a company like Beeswax buy YouTube because, that little skip button, the skip ads button? They predict whether someone's going to skip or not, and they don't want to give me the information, or if they're part of the information, they'll allow us to predict whether someone skips or not.

So, it gets really in the weeds, like, that ... Is that personal information? Is that private, like, a predicted skip rate? I don't know, maybe. There's got to be some way to instrument that, but the folks in that other division of Google know everything about the consumers.

RYAN SHORES: You know, and I think what you're raising is the distinction between first-party and third-party data and is that a valid distinction and what line should we draw? I know, Professor Athey, you've done a lot of thinking around these privacy issues and how they relate to competition. How do you see that playing out in the next five years?

SUSAN ATHEY: Well, I'm a little disappointed I think we have made, like, some very big mistakes in terms of consumer education and regulation. Like, how many products are there out there that have universal warning labels about them, but then actually don't have documented harm?

So, like, the cookie is, like ... Now, who would ever want to defend the cookie at this point because governments all over the world have thought it was so important to warn you about cookies that there's a warning label so you think the worst thing that could possibly happen to me in my life is that cookie occurred. Right?

Something happened, and I don't even know what that means, but it must be very, very bad. It's bad for my privacy. Right? But then, if I… Again, creating a super profile, totally fine, but I shouldn't worry about that because I trust this big company, and, of course, it's true that a large company probably has better security, like, they're probably less likely to get hacked by a nation state or something than a startup is.

And, so, there is some truth to economies of scale and security that would also be true for using the cloud and so on, but at the same time from a ... Sort of ... If my concern is not getting, getting hacked by a nation state, but it's more about just how the data is used or what people know about me, then combining data behind the scenes is probably much more invasive than these sorts of anonymous things.

So, I think we need to, first of all ... I guess one reason privacy's so hard, though, is that a lot of times people's feelings about privacy don't map onto economic costs and benefits. And, so, if people have, like, a specific economic reason that they liked or didn't like privacy, then we could sort of design a system that would solve those problems and make everybody feel better and restore competition, but a lot of the feelings about privacy go beyond just the narrow things.

Is it that I'm worried what could happen if the government changed, or, am I worried about what could happen with the subpoena or an abusive government? Am I worried about breaches and leaks? Am I worried about power? I think a lot of people right now are starting to feel uncomfortable about power.

Going back to John Levin's remarks earlier, where he talked about the political economy. Right now, just across the country, people feel uncomfortable with the power that these big firms have over them, and they feel like data has something to do with that. But how do we ... You know, how do we respect that concern that people have and operationalize it?

It's very difficult because I think each individual has a different feeling about it. It's not necessarily based on education, about facts, and it might change over time, too, because today they're not worried, then they read the newspaper tomorrow about how somebody's kid gets kidnapped because there was a leakage of their nanny's mobile phone and then they're going to think very differently about leakage of that kind of data, so it's also not static.

So, I think we have a challenge as a society. I think what we need to do is educate society as quickly as we can and then try to reflect society's values much better in our regulation, in order to give people what they want while preserving competition and consumer benefits.

RYAN SHORES: I'm going to leave a little bit for questions, but before we do so, let's dig a little deeper on AI, and, Greg, I know you have some thoughts about how that's going to play out in terms of the role of data. Do you want to share some of those thoughts?

GREG BACK: Well, yeah. I mean, it's a ... I don't know if ... How long do we have? Yeah, so, I mean AI, everybody knows, is a big wave that's kind of a horizontal wave that's kind of flowing across the tech landscape and, obviously, data's the center of that.

Right now, ... You know, that was triggered by the recent innovations in deep learning, neural networks, and the infrastructure that those run on, which it's now possible to do things that 10 years ago was not.

So, right now there's kind of this ... There is a value for data that, is ... That has changed the landscape. Some types of data that used to not be very valuable are now pretty interesting. And, so, that's ... I do look for those opportunities to create those flywheels.

I will say, though, that there is ... You know, AI is still in this second inning. I mean, it's a ... There's a non-zero possibility that, meaningful algorithmic change will change the landscape. So, again, right now, algorithms are not going to define your success or failure of your AI model.

It's going to be data and other execution variables, but let's take that autonomous vehicle, example, I mentioned before. There are a variety of different things that can impact the amount of data, the quality of data, that you need to clear a threshold of performance for a given use case.

And, so, in an extreme example, autonomous vehicles have a very high level of performance required. Right? You don't want your car to be, like, 90% accurate. You could have a bad day. A pedestrian could have a bad day. It's good. You know, you got to have that one be really, really accurate.

But what happens if you're able to do some miles out there in Mountain View and then put a simulator together and your simulator runs for a few centuries. You've got something that's introducing random variables into that. Okay. The tree fell. Oh, what happens if the phone pole falls? Okay. The car should behave in the same way, so it's running simulators.

It's got some type of meta-learning capability, where it, kind of, learns from experience just like humans do. "Okay. That pole kind of looks like a tree. I'm going to take that and I'm going to, respond the same way."

So, I think that, again, given we're in the second inning of AI, we shouldn't rule out the possibility that there are going to be these kinds of jump shift, frontier shifts, that are going to impact the landscape.

And, so, right now maybe Tesla has the inside track because they've got the most data and they've got a fleet to deploy it in, but seven years from now your teenager in their basement might be running a simulation on IBM's Quantum cloud and be able to replicate it.

So, you could see a tip from what would appear to be a natural monopoly into something that's completely different. So those are the kinds of things I think about. Venture capital is essentially risk management, so, you place your bets, and you try to ... You know, that's why you have portfolio theory.

You try to anticipate that's going to take appropriate risks and those are some of the things that come to play at the early stage.

RYAN SHORES: Interesting. Anybody else want to comment on AI before we go to questions?

SUSAN ATHEY: Yeah. I just picked up on that. It's actually really interesting. So, the way that you just described the car example, that's basically what happens with teaching the AI's to play go. There's some human data, but then one of the reasons that the AI have been able to play chess and go so well is that they simulated lots and lots of games.

And, so, if you can have the computer generate billions of data points, then it's much easier to create a mapping from board positions to probability of winning. Now, there's some settings

where you can do that and some where you can't, so you were talking about the data river, which I love. I'm totally stealing that.

What I say you need a consumer base, you say a data river, which, basically, is capturing that idea that you want to keep practicing intervening on the world. In the autonomous vehicle example, yes. You can imagine there's a ... Really what's complex there is all the different combinations.

So, if I can learn what's a combination of a kid and a pole, or a combination of rain and a pothole, and you could have ... You could actually use generated adversarial networks to create lots and lots of simulations that look like the real thing, but that have various combinations, and then you could try to get your computer, your algorithm to learn that.

But there are other settings where you just don't know, so I don't know what the right answer is. I don't know how people respond if I show them this user screen versus that user screen. I don't know how people will respond if I have a new product innovation.

And for that, the computer-generated simulations will only give you back what you put in, and so there's going to be some element of that data river, or that ability to keep fishing, that's always going to be relevant, but I guess the percentage of it that can be done by simulation versus where you really need the real consumers might be a variable in the future for thinking about investing.

I mean, Eric Schmidt actually had a quote. Recently in a thing, I was on with him where he talked about how generative adversarial networks could be really one of the most important innovations for science, there's some parts of science where actually, yes, you really could create fake data and advance science, and so that's a really interesting area for future innovation.

RYAN SHORES: So, why don't we, open it up for questions. Do we have the microphone? Yeah. I think we have a gentleman up front. They're going to bring you the microphone here.

AUDIENCE: Let me give you the context to my question first. I am K.R.S. Murthy, I have done 25 big data AI mission landing conferences that were 20,000 total attendees and about 2,500 top speakers from every particular you could imagine, so I'm speaking from experience.

It is what's called bias problem in big data analysis, AI machine learning that's a bias problem and it depends on how their algorithm is written and is there a human being involved. That's where the bias comes in, and there's also bias on how well you do the amount, with a lot of big data, even though you have your own data, which also creates a bias.

Anyone who has done extensive work on the bias problem and how that be solved in terms of not introducing the wrong ... Getting the wrong reserves from conjectures and et cetera.

SUSAN ATHEY: One of the things that was really interesting is probably everyone read in the newspaper about how some of the image detection algorithms were very poor for dark-skinned people, so classification accuracy, like 97% for white people and 75% for darker skinned people.

The less reported part was that a year later, the firms that had been in the news media had corrected, and, basically, it was, like plus or minus, 0.5 percentage points, so, like all within the 97 range for both light-skinned and dark-skinned people. And, actually, a lot of these problems are relatively easily corrected if you know what you're correcting for.

So, you have to anticipate that this would be an issue. Think about the ways in which you would want to relate your data and decide in which ways do you ... Do you want to be fair? Or, where do you need to make extra investment to have more uniform accuracy?

And then there's also lots of different ways you can run experiments, so, like, if you think about bias and hiring, if your dataset only has people who made it through your screen in the past, you can run experiments and expand your pool for a period of time to rebalance your data.

So, the nice thing about algorithms versus humans is humans actually ... It's very hard to make a human less bias, like, we've been ... All been trying to educate ourselves, but, it's a journey and some people just don't want to change the way they think.

But algorithms actually if you recognize the problems and if you're able to change your data gathering techniques, you can actually improve those things. So, actually, I have, in a lot of contexts, especially contexts where humans have to make very quick decisions, more hope for the algorithms than the humans; however, that has a whole bunch of caveats.

You have to understand the context you're in. You have to understand whether humans will overrule the algorithms. You have to have thought ahead of time of what the problems are you're trying to solve, and you also have to make value judgements on what kinds of fairness are important because often it's a theorem you can't have everything. You make trade-offs in terms of fairness.

There was a nice paper at the conference I was at a month or so ago where, people had looked at the behavior of judges, when judges were using algorithms for sentencing, and they found that the judges were systematically deviating from the algorithms in certain ways.

One way was that, it turns out if you wanted lower crime, you want to lock up a lot of young people. You want to lock up a lot of young men because the young men commit a lot of crimes, on average, but the judges were systematically not locking up as many young men as the algorithms were suggesting, and I think that just highlights that, well, which was right?

Are the judges wrong because they aren't listening to the statistics, or was there some part of societal values that was not reflected in the algorithm's recommendations? So, I think that we have a long way to go to think about the interaction between the algorithms and the humans as well as to decide, as a society, exactly what outcomes we want.

But as it all becomes digitized, we're forced to confront things that we just kind of brushed under the rug or thought as hopeless in the past.

AUDIENCE: Good.

GREG BACK: Yeah, what she said. (Laughing). Yeah, no. It's a big issue. I mean AI, these algorithms are black boxes.

AUDIENCE: Yeah.

GREG BACK: ... Explain-ability is something is that…

AUDIENCE: There's also a blank box.

GREG BACK: Yeah. Yeah. So, having that human intuition about ways that, the data might be biased. It's usually a data issue more than it is an algorithm issue from the get go. It's going to be important.

GREG BACK: And it's possible that in some areas, we're going to need some regulation where the people are just saying, "Okay. Explain to me how you fed this algorithm with the fair distribution," and, by the way, as we look forward, I think one of the more interesting areas, and I think Ram mentioned this this morning. One of the more interesting areas of data and then feeding into AI's going to be health data, genomic data, proteins, EMR, all sorts of different kinds of data.

And there, if you get the bias wrong, the stakes are pretty high, so, it's going to be interesting to see what happens if we have, an all Caucasian dataset, or an all Han Chinese dataset. You know, how that plays in, to this brave new world.

AUDIENCE: Okay. Thank you.

RYAN SHORES: I think we've got a question right here.

AUDIENCE: Hi. Thank you for an interesting discussion. So, I understand a lot of the concerns you raised about data, privacy, people don't like how much control they're losing or they don't have, but I don't see how all that is connected to antitrust because the definition I learned this morning about antitrust is non-merit-based behavior that increases or creates market power.

So, all the examples I heard, the companies are spending time/money in collecting that data. They're providing some service in return. So, how is this monetizing data connected to antitrust?

ARI PAPARO: Let me give that one a shot. So, I can give ... I think most of the examples that are happening with these big companies are in that difficult one where there is a benefit, but it also is anti-competitive. So, for example, having the… in the Google example.

I keep using them. I ... We used to work there. I love Google, but, like, they're ... They do a lot of bad things, so (laughing) ... So, Google's example, they use the same cookies on, say, YouTube and their ad-tech stack so they get full matching of users whereas third parties can't.

So that's a competitive advantage they have, but on the others hand, they show better ads, and they give more money to their producers because they have higher pricing. Whole Foods and Amazon. You go into a Whole Foods nowadays and they say, "If you're a Prime member, you get cheaper prices." That's good for everybody.

On the other hand, their advertising business is offering the ability to track an ad from a Fire TV show to someone buying the toothpaste in the store and no one else can do that, so they're wrapping up a whole segment on market that's anti-competitive, so that's ... So, these things all kind of end up in that example.

AUDIENCE: Say more, how does that impact antitrust? They actually bought the different parts of the vending chain and they have the ability to create that product. You can now go and see an ad and go to a store-

ARI PAPARO: Right.

AUDIENCE: ... And do that matching? So, how is that anti-competitive?

ARI PAPARO: Well, it depends on how you define the market. So, if the market is advertising, they have a huge advantage because they also own a supermarket. Those are different businesses. If you think of the market as, supermarkets, it's not.

So, ... I mean, I'm not a lawyer, but it just kind of at some point you have to kind of divide up and say, "Does this company have too much market power that lets them expand into other markets in an anti-competitive way?" and make your decisions that way.

SUSAN ATHEY: So, like, one example might be, suppose you had unique access to certain data, perhaps it was obtained in a legitimate manner, as a company, but then you said, "Well, if someone wants to get access to that data, they have to also use another product that I make."

So, for example, one product might be tools that you use to evaluate ad effectiveness, and so some advertisers might like it if the tools that are used to grade the effectiveness of different ad platforms. We're not owned by the ad platform itself, so I want to compare Firm A's performance to Firm B's performance.

I don't necessarily want Firm A to own the tool that I use to compare Firm A and Firm B. Okay? So, then I say, "But, oh, but if you want to get access to certain data, you need to use the Firm A tool," so now to get access to data using the Firm A's tool to compare Firm A and B in related products. Now imagine that the tool doesn't compare fairly. It makes Firm A's second product look better than Firm B's product. So now this unique data is sort of… The exclusive access to it is allowing the firm to induce customers to use a product that's not a good product

because if a firm wants to use a tool to compare alternatives, they want, usually, if they're trying to compare alternatives, they want a fair comparison.

Why would you buy a tool to compare opportunities if it was biased? A biased tool is not a good tool for a customer. But, in order to get access to certain data, you have to use the biased tool. Now, that's going to help expand the market share of the related product. That could be anti-competitive. So, you're using, say, unique access to one thing, in order to extend your market power or monopolize another market. One of the things that's very tricky about these markets is, behind the scenes, there's maybe ten different products going on behind scenes. There're tools for publishers, there're tools for advertisers, there're data providers, and in many cases there's market power in multiple products here. I would say if you want to think about when you should worry about this and when should you not worry about these kinds of issues, usually these things are much more of a concern if you have two related products and both of them are naturally pretty concentrated.

You have to have two related products, both of which have scale economies, then, now, you've got this strategic opportunity to say, "Oh, if I can have some unique data help me use one product to advantage another product," and I ultimately expect to have a lot of market power there. Those are the kinds of things I worry about. Whereas if you look at a supermarket and say, "Oh, is it a problem the supermarket prominently displays their store labels?" We don't worry about that as much because roughly like batteries and toilet paper and things like that have enough ability that if you raise the prices on those too much, other people can come in and create those products. So, those markets are not so concentrated that I worry about them as much. Whereas if the downstream thing is something like a Yelp where that's a market that there's not going to be that many Yelps, maybe there's one or two. Then, vertical relationships and damage that one product does to another can be much more concerning because those products themselves have a lot of scale economies

ARI PAPARO: If you want to know how it fits together follow me on Twitter. I posted a diagram explaining all of it.

AUDIENCE: (Laughs).

RYAN SHORES: Greg, why don't you have the last word? I'm afraid we're running out of time here.

GREG BACK: I'm not sure you want to do that, but there is one other angle here which I think about as an investor. And, I am of two minds, which that these virtuous circle models, they're in markets that are big enough, complex enough, have the opportunity to create that directionally, that natural monopoly-type thing, that Google-type thing, and that oftentimes is great for the consumer. They get the best experience. I'm not a lawyer, but my understanding is the United States has historically used that test, the consumer test essentially, as the primary test of whether that spinning machine is anti-competitive or not.

Whereas in Europe, they're throwing in the competitor dynamic to a certain extent. So, again, I'm of two minds because I want to create that, essentially, infinite life, defensible spinning flywheel, but I also want to invest in the next one that's going to be able to live in an ecosystem that has oxygen in it. And so, I think there needs to be a little bit of a balance there as well, blending in that competitive consideration.

RYAN SHORES: Yeah. Well, I am a lawyer and you've raised a very difficult issue that people are struggling with, which is, what is the relationship between competition and privacy and data availability, but, unfortunately, I think that's where we're going to have to stop. So, thanks to our wonderful panelists.

Panel 3: Investing in platform-dominated markets

- *Nick Grossman, Partner, Union Square Ventures*
- *Mark Lemley, Professor, Stanford Law School; Partner, Durie Tangri LLP*
- *Patricia Nakache, General Partner, Trinity Ventures*
- *Ben Thompson, Founder, Stratechery*
- *Moderator: Karina Lubell, Attorney Advisor, Competition Policy & Advocacy Section, Antitrust Division, U.S. Department of Justice*

DAVID LAWRENCE: Thank you, so I have to say that I think the panelists so far are vindicating the idea that people in this VC world need to look at markets in a lot of the same ways that antitrust enforcers do, so it's been very stimulating. Our third panel will be moderated by Karina Lubell of the Justice Department and it relates to investing in platform markets. Karina.

KARINA LUBELL: Great, thank you, Dave. So, yes, my name is Karina Lubell. I'm an Attorney Advisor in the Competition Policy & Advocacy Section at the Antitrust Division and I have the pleasure of moderating this third panel, the topic of which is investing in platform-dominated markets. I think we all know that digital platforms are important. They facilitate transactions between buyers and sellers, users and publishers of content, and advertisers and consumers. And I think most of us would probably agree that these services have become an essential part of our society, resulting, not surprisingly, in lucrative business for the firms that dominate these markets.

So, you might expect that the profits the dominant tech firms generate would incentivize entry. Yet today, many of these markets are controlled by one or two key firms. By engaging with the VC community, as we are today, as AAG Delrahim explained during his opening remarks, we're hoping to understand the reason, for the seemingly durable dominance of these tech companies.

Building off some of what we've heard from preceding panels, earlier in the day—we heard panelists debate the existence of a kill zone, which if it exists, may be particularly acute in platform-dominated markets, and we also heard that data, which generates unrivaled value in platform businesses, may also contribute to the creation of significant barriers to entry. So, given these apparent challenges, identifying good investment opportunities in platform markets is no easy task, but we are fortunate today to have an impressive group of panelists who will share some of their perspectives on investing in these markets. So, let me introduce them.

And I'd just like to say, since listing all of their accomplishments would probably take the entire allotted time, I'm just going to mention a few words about each of them, and you all should have the more detailed bios in your handouts. So, starting directly to my left is Nick Grossman, who's a partner at Union Square Ventures, where he leads early stage investment in software-enabled projects. And previously, he led an incubator for startups at the intersection of cities and data.

Next to Nick is Mark Lemley, who is a professor at Stanford Law School, where he teaches intellectual property, antitrust, the law of robotics and AI, video game law and remedies. And he's also a Founding Partner of Durie Tangri, where he counsels clients in all areas of IP, antitrust, and Internet law. Next to him we have Patricia Nakache, who is a General Partner at Trinity Ventures, where she invests in early-stage consumer and business startups. She's also a board member of the National Venture Capital Association, and a lecturer here at the Stanford Graduate School of Business, where she teaches Startup Garage.

And then finally, at the far end of the stage, we have Ben Thompson, who is a business, technology, and media analyst. Ben is the founder and author of Stratechery, a subscription-based newsletter featuring analysis of technology and media companies. Ben also previously worked at Apple, Microsoft, and Automattic.

And just one more word: I'd like to encourage the audience, both in person and on our livestream, to send questions via email, and then we'll also try to leave time for questions at the end with the mic.

Before we get into a discussion about investment, we should understand some of the unique characteristics of digital platforms, and so Ben, I was hoping you could lead us off with that.

BEN THOMPSON: Sure, one... I was at a similar conference to this, a couple years ago, and the people were all, "Platforms, platforms, platforms, platforms." And something about it did not fit right with me and it still doesn't fit right with me because it's happening today. And that is implicit in calling all these companies' platforms is, sort of, it comes with a set of built-in assumptions that they're the same, they function similarly.

And I'm not sure if that's the case, and so I'm going to focus on two companies, which are Windows and Google, and my contention is that the nature of their power, well, the way it's experienced by companies, is very similar. The way they actually attain that power and maintain it. And in the long run, how you might regulate or have remedies are actually quite different. It's important to understand the distinctions. So, the word I use for Google is that it's an aggregator, so I'm going to try, and it's funny even though I say I don't like calling them all platforms, I still fall into calling them all platforms as well. I've been trying to refer to Google as in that category of companies, Google and Facebook being the two largest aggregators, and sort of Windows and like AWS or Apple's App Store as being a platform.

So, basically what a platform is. The word is very descriptive. It is a platform upon which developers can connect with users or, maybe another way to put it, suppliers can connect with certain consumers. They facilitate a connection between the two. And what's critical to understand is that they are market makers. Like, there would not, like, Adobe back in the day on Windows, literally could not serve its customers if Windows was not sitting underneath it or Mac OS, back then. And so, they're a critical piece that make the market work, and you just mentioned that these are important things that drive a lot of value and that's absolutely the case particularly with platforms.

An aggregator on the other hand, intermediates suppliers and consumers. So, you think about it visually, you have a platform on the bottom, and it props up suppliers, and it props up users, and feel lets them have a connection together. In the case of an aggregator, you have a user over here, you have a supplier over here, and the aggregator's sitting right in the middle. And in this case, the reason why they rose up here is they didn't make the market, they made sense of the market. You think about the Internet pre-Google, and there were a huge amount of websites out there, and all the stuff that made Google valuable already existed, but how are you going to find all that sort of stuff? There were search engines. They were all terrible. You would type in the URL or whatever it might be.

And Google came along and said now you could go to one spot and make sense of this massive exploding array of information that was the World Wide Web, and that was tremendously valuable. Users flocked to Google because it was a superior product that was not just valuable in its own right, it actually had no value on its own. Google was only valuable to the extent that the Web was valuable. Well, it turned out the Web is (laughs) exceptionally valuable, and so it followed that Google became exceptionally valuable. And so, it helped users make sense of it all.

What's critical to understand here though is the influence and power that Google had come because users chose to go to Google. They went to Google to use it. No one made Google, made users use Google. No one makes users use Google today. I mean, you can talk about defaults and some on those lines, but the difference is that a user could go to a hotel website directly, or could go to a newspaper directly, they can still type that URL in the bar. Whereas on a platform, if you need that API access, there's a degree of sort of, necessity that is different between sort of platforms and aggregators.

And so, this makes sense when you think about the potential abuse. You could have a platform that sort of restricts access to APIs or charges a tax if you want to use them. I think the most honest example these days is Apple's App Store, where you, to be, to have your app on the platform, you have to abide by their rules. They are leveraging their control of the APIs on their platform to enforce arbitrary rules. By arbitrary, I mean they're not essential for the system to function. Apple decided to put them there, so they are going to be there.

Whereas Google, for example, Google, I wrote on this last year that the squeeze they're putting on the travel agencies, the OTAs like Expedia and Booking, they're putting this module where you search for a hotel, and you can... they'll give you a list of hotels and a map, and all those listings are all ads, so they force Expedia and Booking to buy a bunch of little ads on top of the other ads that they already buy because the users are going there and looking for it.

At the end, what's the reality of it? Well, the good thing for Booking and Expedia is that they can engage in efforts to get the user to go around Google, and come to them directly. Google like… People go to Google it's convenient, but they could go somewhere else. A great example of this is 10 years ago, we all paid for Wi-Fi at hotels. Today, most people don't pay for Wi-Fi. Why? Because the hotels figured out, well, if we get them to sign up on our website directly, or join our membership program, and the membership program's trivial to join, but the point is what they're doing is they're getting... They're using free Wi-Fi basically to get people to go around Google, and go around Booking and Expedia, who are kind of mini aggregators in their own right, and connect with them directly.

And what's interesting about that is that's actually one example where this aggregator behavior is actually driving consumer benefit because it is pushing the suppliers that are being squeezed to sort of innovate in a consumer-friendly manner, so that the consumer will go directly to them. What's incredible is you can't do that on a platform. If Apple decides you're not on the App Store, you're not on the App Store. If Apple decides that Spotify has to pay 30 percent, they want to have like, of buying an app, they're going to pay 30 percent.

And I think the reason why this is important to understand is you think about remedies. The remedy for a platform's actually pretty straight forward. You force them to open up APIs, to open up the connections. A remedy for an aggregator to understand is not clear at all because you're dealing not with a restriction on supply, you're dealing with their ability to harness demand. And as a regulator to come in and tell people how to use their computers or how to use their phones, that doesn't work very well. And we saw this with the European Commission, where, Google had the shopping case, and then Google proposed a change, and the Commission's like, "That sounds great, do that." Six months later, they're just like, "Oh, that was a terrible idea, who thought that would work?" Well, it didn't work because the only way you're going to fix Google's control is by actually getting users to change their behavior, which means either making Google way worse so it's terrible to use, which doesn't sound very consumer-friendly, or like making people do stuff they don't want to do, and you're like pushing on a string. And that's a just different than platforms.

And my concern is if regulations does move forward, and we take the Microsoft playbook, and think about applying that to these companies that actually their power is accrued differently, then we'll have suboptimal outcomes.

KARINA LUBELL: Thanks, Ben. Any reactions to that? Do you all see these markets the same way that Ben has described?

MARK LEMLEY: So, I do think it's a useful distinction, and one way to think about that, distinction is, sort of how the competition occurs, if it occurs at that level, right? And it's perfectly plausible to imagine like two competing Googles, right? And some people prefer one, and some people prefer the other. it's plausible to imagine different platforms too, but you got to buy into the entire ecosystem, right? We have that with phones now, right? You want to, if you want to, use an iPhone, you're buying into a whole series of ecosystems, and you don't get choices across that level.

The one thing I wanted to note is I think it's, I agree with pretty much everything Ben said, but I think it is worth noting that while there are larger network effects in the true platform markets, right, and benefits to being on, or at least connected through the network, there are also network effects in the aggregator markets, they're just of a different type. So, some of you might have re- might have heard Ram Shriram, this morning, say, "Oh, search isn't a network market." I don't think that's right, right? Search isn't a network market in the same way that telephone is a network market. If you're not on Google, you can't find anything that is in the Google ecosystem.

But it's still a network effects market because the benefits that you get, not only by sort of learning what individual users click on, but by what everyone else clicks on and what the relationship is between people who click on X and people who click on Y, feeds back into the search engine. That doesn't make it a natural monopoly, all right, but it does mean that you're going to get certain systemic advantages, by being bigger than or earlier than everybody else.

NICK GROSSMAN: Yeah-

PATRICIA NAKACHE: I would… I was just going to say, so I agree with the distinction as well. I would say from an investment point of view one of the things we look at very closely in looking at new investments, and for existing portfolio companies, is whether they're single points of failure in the business, because single points of failure are bad, and most of our portfolio companies these days do have a heavy dependence on the platform and aggregator companies, and to some extent, the distinction doesn't matter in that context, really.

BEN THOMPSON: Well…

PATRICIA NAKACHE: Because the aggregators have so much-

BEN THOMPSON: Just one point to add…

PATRICIA NAKACHE: ... Yeah.

BEN THOMPSON: … From the supply side, it looks the exact same.

NICK GROSSMAN: Right.

PATRICIA NAKACHE: Yes.

BEN THOMPSON: Ccompletely agree.

NICK GROSSMAN: Well, and I think that you're trying to make the distinction also about looking at them differently from the perspective of "Well, how might you regulate them differently?" And I think that makes sense. From a startup perspective, also, they do sort of look similar, but I think you look at them differently depending on your relationship to them. So, in some cases, you're building on top of them, right? Because I need to be on top of AWS, or I need to be on top of Twilio and I need to trust it as infrastructure. In some cases, you're using them for distribution, so I need to be in the App Store to reach my customers or I need to advertise on

Facebook because that's how people reach users. And so, then you have to think about that sort of dependency. And then, in some cases, you're thinking about competing with them, and then that brings up a whole different set of considerations. So, I think from the investing perspective, it's also not monolithic. You think about the risks, depending on your relationship to the bigger companies.

KARINA LUBELL: That's really helpful, Nick because that's exactly where I wanted to go next, and to turn to both you and Patricia to tell us a little bit about the market features that make for attractive investment. And, I want to maybe pivot a little bit with this question, based on something that I was discussing with a prior panelist who had explained that you only have finite money to invest in somewhere and to the exclusion of somewhere else. And so, I'd love to hear from you all whether there are certain markets that you look to invest in to the exclusion of others, whether it be ad-tech, AI, blockchain, so maybe if you could touch on some of those issues.

PATRICIA NAKACHE: Yeah, I mean, look, from an investment perspective, nirvana is the emerging large market with no competition, like that's nirvana and that's why I think you see… it's kind of these mini gold rushes that happen, right? Like, self-driving cars, crypto. There's just sort of like testing is this the next big thing? And if it is, let's start placing some bets now, and it's why you see self-driving cars that are really, really early in their evolution. They don't have a product in market. They'll get crazy high valuations. It's a bet that it's like the next big thing, right?

So, in this world where funds have a limited fund size, and they have to allocate capital, they would much rather pursue, in general, much rather pursue markets where a market that has tailwinds behind it as opposed to a market that has matured, and that has deep, entrenched incumbents. That said, there are always exceptions to that rule, and, even though there are markets that have been kind of like. a bit of a wasteland from a venture perspective, I'd put ad-tech in that category, like it's been hard to attract capital as an ad-tech startup. There are exceptions.

I mean, there's a company called The Trade Desk that has this like, it's focused on programmatic ad buying, and it was started by a person, an entrepreneur with deep domain expertise. I don't think it was easy to track capital every stage of the way. Company that went public got $13 billion market cap; they're really thriving. So, there are always exceptions, and I think as a venture capitalist, you're always just trying to assess. Is this opportunity differentiated enough relative to incumbents? Do I believe in the ability of this entrepreneur to execute against this idea? And if there's sufficient differentiation, you can build an investment thesis, but it's sort of if you look at kind of the hundred percent pie of allocation of funds, you're probably not going to give the majority to situations like that.

NICK GROSSMAN: I think as… At the beginning, there was this conversation that sort of the antitrust enforcement folks think a little bit like venture capitalists in terms of, how much room is there in the market to maneuver and innovate, and I think we've always been extremely sensitive to platform risk in making investments, extremely sensitive, and we think of it as looking for the freedom to innovate. How much room is there to innovate in this space? Who could shut me down?

And so, back in the day, before there was the mobile app store, if you wanted to get an app onto a device, you had to go cut a deal with the carrier. We were all worried about net neutrality and whether every little app developer that had video in it was going to go have to cut a deal with an ISP. Now people are worried about the app stores and are they going to get cut off? So, I do think we're very, very sensitive to that, and we're always looking for ways of finding freedom.

And that's why we are personally so excited about the crypto and blockchain space because that is one area where the platform is an open, unowned, uncontrolled platform.

And so, some of the earlier, investor comments were talking about sort of team product market and, clearly, we think about those things too. I think we probably think about market and platform risk earlier or maybe more than others might. I think we're very sensitive to it.

KARINA LUBELL: And so, Nick, you'd actually mentioned something when we were prepping for this panel that I'd like to come back to, particularly because Ram Shriram earlier had mentioned, "If you build something complementary to an existing platform," he said, "You're not being ambitious enough." And one of the things that had come out when we were all discussing, last week, was that there are layers of platforms that may offer opportunities for investment. And so, I think what you and Patricia were just describing was sort of looking for the new market, looking for where there's the biggest runway, but I'm wondering if you could tell us a little bit about, this idea of layers?

NICK GROSSMAN: Sure, I mean, I'll give two examples from our portfolio, where we've looked for an opportunity to create a platform that wasn't encumbered by another platform. So, there are plenty of apps that exist on the App Store that don't have any competitive problem with Apple or Google. They're never going to get shut out of the App Store. An example from our portfolio is a company called Carta, which connects ownership of private companies. You know, we're not worried about platform risk with Carta, yet they are creating a very useful platform layer of the interconnections between companies and investors and employees. And for us, we like that because there was an ability to build a network, that was not encumbered by anybody big in the space and we felt very safe doing that.

Another one in our portfolio, is called Cloudflare, which is a security company, you hook your DNS for your website, you need Cloudflare, and they see all your traffic, and they protect you from attacks, and they make your pages load faster. Bless you. Yeah, there's a really strong data network effect. It is a platform of sorts its own right. It's an extraordinarily useful product. It went public earlier this year. It's a fantastic company. And when we made the investment, not only did we see the promise in sort of creating a platform at that layer, which is yet a completely different layer than any of the ones we've been talking about, it was clear to us that it was unencumbered. And so, I think we're looking at both of those factors all the time.

MARK LEMLEY: So, I think one thing to note is it's increasingly hard to tell what's in the same market, what's in an adjacent, market, what's in a complementary market, and what's in a different market, right? And the person who founded a chain of high-end grocery stores probably didn't see, -

NICK GROSSMAN: (laughs)

MARK LEMLEY: ... Themselves as in a kind of market niche that Amazon would come in and eventually occupy.

NICK GROSSMAN: That makes sense now if you look at it.

MARK LEMLEY: ... Maybe the people who founded VR gaming headsets didn't think Facebook would be interested, but you can see the overlaps and the connections, right? And I think one of the interesting things about the growth of some of the big tech, intermediary companies is, right, it's not just growth in terms of kind of saturation of a core market, but it's an interesting and organic expansion into markets that may have some plausible connection, sometimes they don't have a plausible connection, sometimes they're just sort of out there, but may have kind of interesting and previously unsuspected connections, right?

Google gathers enough information in its search, that might actually position it to write better AIs. If it can write better AIs, maybe it can do a better job of generating self-driving cars.

NICK GROSSMAN: Yup.

MARK LEMLEY: ... Right? There's no obvious connection between those two until you kind of follow through the chain of logic. From an antitrust perspective, I think that's important because we are, traditionally very box-centered in antitrust. You are a horizontal competitor, you're in the same market, you're in a vertical relationship, you're a buyer and seller, or you're a conglomerate, which means to say you've got nothing to do with each other, and we mostly ignore you. And I think one of the problems that the tech space and the intermediaries bring is a bunch of things that don't fit neatly into either the horizontal or the vertical box, and therefore, for which we don't have a clear set of rules, turn out to matter, right? Because these companies do have relationships that are potentially going to affect startups, potentially going to affect whether or not you're encumbered, they're going to affect consumers on the back end.

PATRICIA NAKACHE: Yeah, I mean that's one of the things that we look at in terms of the single point of failure, which is: is a company that we invest in that is going to have some dependency, if it does, on one of these platforms, going to get a fair shake? Like that's what we care about, right? Like whether it's in SEO results, whether it's when the same access to location data on the Apple-

NICK GROSSMAN: Yup.

PATRICIA NAKACHE: ... On the Apple platform, so that I think is incredibly, like making sure that startups can get a fair shake when they do have a dependency on these platforms I think is really critical.

NICK GROSSMAN: And Ben, you made that point earlier about platforms and sort of openness, that sort of net neutrality, API neutrality. It was the Windows, part of the Windows settlement to open up the APIs.

BEN THOMPSON: Yeah, absolutely. One thing that I just want to go back to, the point that, and I apologize for interrupting you, but the perspective on this really matters. From a supplier perspective, they both… like Google looks just as evil as Windows, and you know they're- they're preventing me from reaching my customer. And-

NICK GROSSMAN: Distribution?

BEN THOMPSON: ... That's right, it's a distribution issue. But if you look at it from, like, just one remedy for… what's the remedy for the startup? Well, the remedy for the startup if you need to go through Google, and Google's with you, is you need to, you're able to connect with the customer, you need to develop a new sort of strategy to connect with them directly.

NICK GROSSMAN: So, what you do is you buy ads on Facebook -

BEN THOMPSON: (laughing)

NICK GROSSMAN: ... So that you can get your own email mailing list so you don't have to rely on Google.

BEN THOMPSON: Or, if you want an email mailing list, you start a word of mouth business with a name that no one can pronounce.

NICK GROSSMAN: (laughing)

BEN THOMPSON: That's, that's my…

NICK GROSSMAN: (laughing)

BEN THOMPSON: To make a derivate point, but also the way you regulate it. It's going to have to be different. The way it's going to play out is going to be different as well. But the other thing to remember is the consumer perspective, and what I think is so challenging, particularly

someone mentioned last panel with the sort of the US perspective on antitrust and consumer welfare, is it's very hard to make the argument that these aren't incredibly welfare-enhancing companies. All of them. The platforms being large create huge amounts of opportunities, make things much easier to use. Apple adding on features and integrating them together makes it immediately accessible and usable to hundreds of millions of people overnight. And so, if you have a small tech advancement multiplied by 100 million, the consumer benefit total is massive. And it's the same thing with Google or any of these other things, where if you wanted to say, "Oh, some app should be able to be on Apple's app store, and Apple should be able to compete with it."

And now that app has to go through Facebook, it has to buy ads, and it's never going to even reach the scale, that if Apple just put it on and turned it out. Again, I'm not saying I'm defending Apple in this case per se, but the scale happens because consumers find benefit in these platforms. They all have network effects where the more people that are on there, the better that they are and more useful. And then the flip side of that is the way that the speed with which benefit can be dispersed is just astronomically fast, and so anytime you're bringing in consumer welfare on any of these questions, it gets really tricky to say that there is a big problem here.

PATRICIA NAKACHE: But by the way, I would say also that there're a lot of startups that have benefited from these big platforms.

BEN THOMPSON: Absolutely.

PATRICIA NAKACHE: There are reams of startups that have taken advantage of Facebook's incredible targeted advertising platform to grow…

NICK GROSSMAN: Exactly, and now you have independent direct to consumer brands…

PATRICIA NAKACHE: Yeah.

NICK GROSSMAN: … That couldn't have existed without them.

PATRICIA NAKACHE: Right. You know, so they've grown incredibly quickly and cost effectively, thanks to the ad platform, but now they have a single point failure. Right? And as consumers, in many ways, we have a single point of failure. Like we are sort of at the whim, I mean whether you're a consumer, whether you're a startup and I think that's the discomfort as an investor may have. I think consumers we kind of have it too, I think.

NICK GROSSMAN: I have a question, Mark, you mentioned the example of every time you're answering a captcha on a website, you're actually training Google self-driving cars. And on the one hand you can look, it's true. On the one hand how many crosswalks do you see in this picture? On one hand that is…

MARK LEMLEY: Answer quickly because we're approaching the intersection.

NICK GROSSMAN: (Laughs)

NICK GROSSMAN: So, on one hand that's really scary because like who else can do that besides Google? On the other hand, we may get self-driving cars 10 years faster because Waymo has the best data because we're all answering the captcha. So, I find it really hard to make a judgment on it.

MARK LEMLEY: And it's, I mean I will say it connects in an interesting way to the last panel too on data and privacy, right? Because a lot of people say, "Well, gosh, I don't want everybody to have access, all these AI companies, to have access to all of my data." But there are companies that, by happenstance, already happen to have really large training datasets. Google happens to have already scraped and collected everything on the web. Facebook happens to have billions of photos that you've posted, right, and so if we don't have interoperability or open API access right, what happens is the existing winners can get locked in right? Google will make better

AI because Google starts with a better dataset and no one else can go out and build that dataset because they can't go out and build the sort of Google circa 1989.

BEN THOMPSON: Privacy is the best thing that has ever happened to Google, basically.

NICK GROSSMAN: Absolutely. Would it be okay if I put up the pictures?

KARINA LUBELL: Yes, please.

NICK GROSSMAN: Because I wanted to just point out a couple of ideas and really won't dwell on this. But, when we think of how we invest around the big platforms, we basically do it in three ways. So, the first one is what we think of as a vector. So, like compete on an angle that the big companies can't. So, we invested in a search engine called DuckDuckGo in 2011. The idea, like, who's going to invest in a search engine that competes with Google? DuckDuckGo's proposition was that it's private. And it turns out, you could really build a big business if you go somewhere they won't and now they have low single digit market share in search in major markets around the world and they're profitable and growing so it's really, really worked. So, that's one strategy we look for.

The second one relates to what you mentioned Mark, about data. So, we've invested in a bunch of companies that take the flotilla approach. Which is, instead of one company like Google or Facebook sucking in all the data. There are a lot of companies out there that say "Hey, all of you little companies connect to us. Pool your data with us and you get the benefit on a scale of a Google or Facebook but as a collective." So, there's a company called Sift, that's an anti-fraud product for e-commerce. Many thousands of websites connect there no transaction and user-data into Sift and they get the benefit of Amazon-level anti-fraud protection. Cloudflare does the same thing for security. And we found that, I like that approach so we've been investing along that theme consistently for years.

And the last one which I think is really important and I want to mention it because it hasn't come up today but I think it is fundamental to discussions of competition in the tech sector is cryptocurrencies and blockchains. Because what cryptocurrencies and blockchains are, they are open source infrastructure for managing data and transactions, which is what tech companies do and it's also what banks and financial service companies do. But blockchains, writ large, are an open platform that are not owned by one company that is, you know, trustworthy by its nature and that's kind of the whole point. So, we look at the whole category as "Man this is a solution to all these problems."

MARK LEMLEY: Can I just add one footnote there because I think it's not only that it is not sort of beholden to one existing platform or company, it's also not beholden any one country. And I think one of the things we are seeing on the Internet is the development of the splinternet, right? China has a completely different set of market leaders. Russia is now building its own, requiring that Russian apps be sold in Russia to be Russian made, building its own Wikipedia. And I think we're only going to see the kind of increased development of efforts of nations controlling these platforms as well. So, the possibility of something that is actually sort of transnational in the sense that it is not just isn't owned or currently subject to one but can't be in a fundamental sense.

NICK GROSSMAN: And they're open. Blockchain networks are open the way HTTP and SMTP are open protocols. They are just protocols that computers run. And this will be that last thing I show, but we've talked a lot about the history of antitrust in the tech sector and the government response to big tech monopolies over time. And whether it was with hardware with IBM, or desktop OS with Microsoft, well now all the focus is on data platforms, basically, and Internet application platforms. If you look back at the history, every time there was a government intervention there was also a technical intervention.

So, the technical intervention that blew out IBM was microprocessors and open source hardware and basically like cloned computing and open computing that broke the proprietary closed computing. The thing that… You could debate whether or not the US v. Microsoft was the thing that solved Microsoft's monopoly. I would argue that it's really Linux and the web protocols, like SMTP and HTTP, that really did it because you have to have the browser. You had the browser, you had this whole other layer and it's essentially a layer of non-proprietary, open source, unowned layer that was able to pop through and enable blue ocean, free innovation and competition and now here we are at this next layer where we're having this conversation, "Well, what do we do about these big tech companies?"

This is, for us, where the crypto protocols come in because they are essentially open source data. And if the big data and distribution platforms are proprietary data systems, blockchain networks, like Bitcoin and Ethereum and lot of others, are an open version of that. They can't do everything those platforms do, but they can do a lot of things those platforms can do. And so that's where most of our effort… If you ask us, are we worried about consolidation and market power in the Internet today? For sure, and our answer is more on the, let's get the next generation of open protocols at that layer in market in use because we think that's going to be the biggest bang for the buck.

BEN THOMPSON: I think the other thing to note too with this graph is the reason why IBM didn't respond to Microsoft and Microsoft didn't respond to Google what was not because of government intervention. It was because it was a completely different business model and approach that they were unsuited to sort of pursue and go after, not just pursue and go after, to even see that it was a possibility. I mean Microsoft's approach to Netscape: they attack because API, API, API, that's what we do is APIs. Google, they had no competitive response, not because they were in a lawsuit, because Google didn't have any APIs. What was there to respond to? They didn't even conceive of it as a threat. And one thing that's really interesting about regulation and antitrust with the tech industry is there are two regulatory interventions in, sort of, history that were critical to where we are today.

Number one was the settlement with AT&T, where Bell Labs and having it be license free. And number two was IBM when they split apart hardware and software. So, what's interesting about this is AT&T's decision was roundly criticized. Like just, way more than, people hated it. They could not believe the government let AT&T off so easily. And it turned out that was actually the single most critical, sort of, settlement the government has done with antitrust as far as antitrust is concerned.

Number two, the IMB one. IBM actually preemptively split up their hardware and software because they wanted to stop the Justice Department from suing them. The Justice Department sued them anyway, so it didn't work, but actually IBM themselves gave away the crown jewels of their business, which was the integration of hardware and software because they didn't even realize that was what actually mattered. And the point of this is, it's funny because there's two lessons to take away. One lesson is that regulation works. Lesson two is no one knows what in the world they're doing because the two biggest breakthroughs were total accidents and no one involved realized what had happened when it happened.

NICK GROSSMAN: There are also business model shifts. That's a part of each of those. And the one thing I want to mention about why we think crypto assets are so important is that we've talked a lot about the ad business. So, advertising is the dominant business model of the Internet today. You know, crypto assets introduced a different business model where there's ownership of tokens and the ownership of tokens powers the creation of the network. That has a

potential to be a wholescale business model shift for many inner pieces of Internet infrastructure. Subscriptions would maybe be the other one that I think a lot of us are investing in a lot.

But I really wanted to make this point, we don't need to dwell on it but I just feel like if this conversation about competition didn't cover the potential of blockchain networks and crypto assets, I think it'd be missing something fundamental. And my last bit on it is just that the way that we think about crypto assets, specifically, is that they take on some of the functionalities of financial intermediaries and data intermediaries and instead of running those through companies like Google or Facebook or JP Morgan, they run them through protocols, which are open source and not owned by anybody and transparent and rules-based. And there's been crazy advances in cryptography, a lot of them on this very campus that have made this possible. And then this sort of new business model of crypto assets, crypto tokens is driving a lot of this and the thing that I think may be the most impactful for helping competition on the Internet would be to facilitate the evolution and nurture this whole set of technologies. I'll get off my soapbox.

BEN THOMPSON: This just dawned on that. I mean, there's no way Google or Facebook can go into this because it destroys their core business model. Just like Microsoft was going to go into search engines. I mean when they, because it just… They thought licensed software. That was their business model. Just like IBM didn't go into the PC business because it was too low margin and licensing the OEM didn't make any sense. We do a fully integrated full stack subscription. People forget that IBM actually invented subscription pricing, years and years ago. And I think this business model point is underappreciated. It's easy to brush aside and say, "Oh they just do a different busi-…" No, you can't do a different business model, like that's core to how your company got as large as it is, achieved the stock price that it did, and in the mindset of the executives in it. It's a critical part of why these companies don't respond to these sorts of shifts.

KARINA LUBELL: Maybe just one more comment on this topic?

MARK LEMLEY: No, no that leads to… We're going to do exit strategy next?

KARINA LUBELL: Yeah.

MARK LEMLEY: I think this leads quite nicely to sort of what I wanted to talk about. And this is the part where, sort of, our happy agreement goes away and I become the skunk at the garden party. (laughter) But so, I think all of which you've been hearing about is consistent with this idea of Schumpeterian competition. Right? So, it's not that we didn't have dominant players before, it's that you have a dominant player, and then they are blindsided out of nowhere by a new technology that isn't just a direct competitor who came up and did better, but an adjacent company that no one really thought of as the problem or a threat and then suddenly they become the thing, right? Software takes over from hardware, Microsoft misses the Internet, and the Internet just sort of takes over from operating system platforms. It doesn't drive them out of business so much as it kind of makes their business less important. What I think is worrisome in the modern platforms/intermediary environment is, we seem to have sold that Schumpeterian competition. Think of who the dominant tech companies are that everybody talks about it and worries about. They're all more than 15 years old, right? Facebook is probably the youngest, right? But Google, Apple, etc., Microsoft are still hanging on pretty well.

NICK GROSSMAN: Bitcoin is 10 years old and has a $230 billion market cap so there's that.

MARK LEMLEY: Right. Well, Bitcoin might be the new thing and I acknowledge Nick's argument, that sort of Bitcoin might come and serve this purpose. It hasn't yet. But 15 years is an eternity in Internet time, right? And so, what's going on? Andrew McCreary and I have a paper called "Exit Strategy" and we actually tie some of this to the ways Silicon Valley finance happens,

right? So, the venture capital model has done amazing number of things to drive tech and innovation, but the venture capital model is based on the idea that you start a company thinking about how you're going to end it, right? I need an exit strategy, right? My VC's need to get paid. The traditional kind of goal for exit strategy was the IPO. It's still is to some extent, that even… if you can get an IPO, that's great, but some of the evidence we saw from Susan, this morning, and there's a lot more in our paper, suggests that IPOs are fewer, they're bigger, and it takes longer to get to them. Right? So, the idea that your kind of new tech business is going to start to do well, get an IPO, that gets it more momentum, and it stays in business as a working company. It's not that it doesn't happen, it's that it happens a lot less now than it did 10 or 20 years ago.

NICK GROSSMAN: With the exception of the crypto markets where projects (laughter) launch and go public very, very early on.

MARK LEMLEY: And, right, and that might be right. And, you know, that would be great. If it disrupts, then it disrupts and that's great. But in most of the sector's that's not what we're seeing and overall that's not what we're seeing. Right? We see quite a substantial decline. So, VCs want to get paid, right? The founders are getting paid largely in stock want to cash out too, how do you get paid if you're not going to have an IPO? You sell the company. Well, who's going to buy your company? You can imagine various possible folks to buy the company, but I'll tell you who's probably going to buy your company, right, and that's the dominant incumbent.

Certainly, if you're a direct competitor, but even if you are in one of these sort of market adjacencies, right, which could be the next thing that comes in and takes it over, right? So, why is that? Well, they have huge amounts of money. Apple's sitting on a quarter of a trillion dollars in cash. They just don't know what to do with it all. They have the incentive, right? Because how do I hold on to my existing market share? One of things I need to do is make sure that there isn't some new tech coming out of nowhere that's going to a takeover or destroy my market. And often they have the best information, right? They may be able to know the market well enough to know and identify the companies that might be threats and buy them up. And so that's exactly what happens. They buy up. Google and Facebook alone have bought up hundreds of companies.

And some of those companies get the benefit that Ben described. Right? Suddenly, now, I was a small company and now I can reach all of the users in Google or all the users on Facebook and that's great. But a lot of them don't see that. A lot of them get shut down. Some of them I think are shut down, but shut down deliberately. But some of them are bought and shut down as acqui-hires, where I didn't actually want your company at all. Right? What I wanted was to get you to come work on my self-driving car projects, because you're a brilliant AI mind. Some of them are bought and shut down even if I really intended to implement them because the cultural fit doesn't work; because the company that buys it is not, never as interested as the startup that was running it, in kind of making this happen; because priorities shift; because there's not an immediate bottom line payoff and so forth.

So, I think the result is that we are actually reinforcing concentration in the tech industry in a lot of these areas, precisely because people want to get paid. The way they get paid is to sell the company, more often than not, and who do you sell the company to? You sell it to the incumbent. So, I think we need to break that cycle and we to think about how we break that cycle.

KARINA LUBELL: Patricia (laughter) I know you're dying to respond.

PATRICIA NAKACHE: So, look, just, the mindset that I think when investment is initially made in a company is like Plan A is glory, right? Plan A is you are going to build a standalone, large company that has the potential to go public. So, the ingoing assumption and the reason you're making that investment is because that is your objective. There are very few companies that reach

that threshold. I mean look, the fact of the matter is most startups fail. That's the brutal truth, right? Entrepreneurs know it. Venture capitalists know it. So, but the whole reason entrepreneurs take on this incredible risk is because there is an enormous upside when a company does have the potential to become standalone. Or Plan B: get bought, right?

So, I'm very nervous when there's… when we talk about potentially putting friction into what is a very important liquidity outlet for entrepreneurs, and for investors by the way. I mean capital has options. Venture capital turns out to be in very tiny asset class, US venture capital's even tinier. Capital has options of other places to go. So, I think we have to be very careful about not changing the economic dynamic there. So, anyway.

NICK GROSSMAN: I'll add, I mean certainly Plan A is go big and go public. And, if I look back at the liquidity events, the exits we've had over the last six or seven years, far and away the biggest ones have been IPOs. There been six or seven IPOs in our portfolio in the last six or seven years. Those returns make our funds. To the extent that there have been acquisitions, it's not exactly that it's a rounding error on the fund. But it is a… it's fine. But if you… the IPOs produce the biggest returns, full stop. And I think certainly, so I don't think almost any company that I talk to, it doesn't start out saying, "Oh boy. I hope Adobe is going to buy me or I hope Facebook's going to buy me." Now sometimes that's how it goes. And sometimes those acquisitions can be positive for the founders and okay for the VCs. Sometimes, the big companies treat it as sort of outsourced R&D and a way of bringing, you know, innovations that couldn't happen inside their walls, you know.

PATRICIA NAKACHE: Cisco was famous for that. Somebody put up that slide earlier in the day. Cisco was top of the charts with nine acquisitions, right? I think over $500 million.

NICK GROSSMAN: And it's a great innovation strategy if you can do it. And so, I don't… I'm not arguing that there are potential concentration problems with acquisitions, but, for certain, the mindset of venture-backed startups is not "Let's get acquired."

MARK LEMLEY: Oh no, I agree with that. Just to make clear sort of where we agree and where we disagree right? I think that's right. And I think part of the issue is, right we've made that sort of exit to glory harder, right, and it takes longer and fewer companies can do it. Right? And that's driving more of the market into the acquisition space.

NICK GROSSMAN: Into the crypto space. (laughter)

MARK LEMLEY: Well, so crypto, so the reason I think that you keep coming back to crypto is as different may be that there isn't an obvious incumbent against whom you compete.

NICK GROSSMAN: And they're liquid markets now and I would argue that…

MARK LEMLEY: And that might make a difference!

NICK GROSSMAN: We have the opposite problem in crypto markets where projects, early stage projects have listed tokens on exchanges in the US and elsewhere. And so, they're facing the pressures of public markets and the liquidity and ups and downs and all that when they don't even have product market fit yet. And so, on the one hand, in regular companies, you've got companies, like Airbnb and Uber, they're staying private forever and in the crypto land you've got things that are public and they're like seed stage products, but they're publicly traded assets and so it's kind of wacko but…

MARK LEMLEY: I actually think there are some kind of regulatory reasons why that space in particular started going public earlier, but the on the kind of broader point, right? I guess what I want to emphasize is that, sort of, what makes sense from the VC and maybe from the founder perspective in the short run, isn't necessarily aligned with the social interest right…

PATRICIA NAKACHE: Let me just stop you there because what I think what I worry about the most is the unintended consequences of imposing restrictions on them and what we're trying to do is encourage competition. What I worry about is if I'm a founder or I'm an investor and I'm thinking about starting a company in a core market of a large incumbent, but I know that down the road if Plan A doesn't work, Plan B will not exist for me, that changes the… that tips the scales. And so, I just worry the unintended consequence of going down this road is less competition because it becomes even less attractive and trying…

MARK LEMLEY: And that's why I think you need a combination of carrots and sticks, right? So, I think what I want to do is actually not just say, "Hey regulate these mergers," although I think that is part of the package, right? But I think I think that's got to be coupled with, sort of, ways to make sure that we are in fact encouraging innovation in this space. That can be easing some of the restrictions on IPOs, making IPOs easier. It can be and John Grundfest talked about this morning. Making a better and more robust secondary market pre-IPO, so that founders and investors can in fact cash out and get paid even if the company doesn't go public, so that's not the only alternative, right? So, I think you need a kind of balanced package of things to try to encourage.

NICK GROSSMAN: We've also got portfolio companies that have been flipping into more of a data mode, where you know this let's find some long-term patient capital that's willing to step right here and buy us out.

MARK LEMLEY: Exactly right and it might not be venture, might not be something more open.

NICK GROSSMAN: But it's a version of a Plan B that's not on acquisition.

MARK LEMLEY: Exactly right and the significant difference between that version or the secondary market version and the acquisition version is "Do we end up with a free-standing company?" And I think, right now, the risk is that a bunch of successful, not home run yet, maybe never home run, but successful companies that are profitable, right, end up getting swallowed up and either destroyed or kind of built into the board when we could actually have some of those companies operating free-standing market. And if we have some of those companies operating in a free-standing market, one of them is going to turn out to be that, sort of, next adjacent market changer. We have no idea which one, but if we don't have those companies out there, we're not going to see that Schumpeterian competition.

BEN THOMPSON: I think that it's really important here to have a distinction in acquisitions. And I think I've been guilty of this personally. We're what looms large over the acquisition discussion is Instagram. And the reality is 99% of acquisitions are not Instagram and we look at Instagram say, "Oh my God, how did we let Facebook buy that company?" And we think we've got to stop this and what's going to happen to your point the unintended consequence, the casualties could be just absolutely massive. And I think like you even mentioned, if like an acqui-hire, no acqui-hire is successful company. Those are failures, every single one of them. And it's actually to the benefit of… This is a great service these companies provide the Valley where, particularly, not just the entrepreneur but the startup employees who would be unemployed otherwise, they get an easy soft landing into a job at Google or Facebook. And that makes them more likely to leave Google and Facebook again to do something else.

NICK GROSSMAN: Exactly, so we have one in my portfolio where company got acqui-hired essentially into a large private company here in Silicon Valley. They became the in-house machine learning team in one department. They did a bunch of good work. They stayed there for

like two years and now they're like brewing on new startup ideas. And I guarantee that same team comes up with a new startup that they'll launch.

MARK LEMLEY: So, why acqui-hire and not just cherry pick?

NICK GROSSMAN: What do you mean?

MARK LEMLEY: I mean…

PATRICIA NAKACHE: This is because entrepreneurs feel obligation to their employees and to their investors by the way. Usually in an acqui-hire situation, investors are, if they're lucky, getting their capital back. Usually it's partial return capital, sometimes no return on capital. But, they're sort of saying look, "I feel some obligation to all my stakeholders and this is a soft landing." And maybe the technology that we built will be will have some life going forward, right, and so it's way more attractive.

MARK LEMLEY: Yeah, right. I think you're right that Instagram is not… Most of them are not Instagram, although a bunch of other sorts of acquisitions like them. WhatsApp is, I think, an interesting example in that space as well. But I think it's right to distinguish between companies that succeeded, companies that failed, and companies that we don't know yet for sure whether they would succeed or fail, right? And in the failed company defense, in the failed company case, right, absolutely. Acquisition is a great exit, right? And that's been true and recognized in antitrust law more generally, right, not just with acqui-hires, right? That we saw, whether you agree with it or not, the T-Mobile/Sprint decision yesterday. The merger allowed was because the court concluded Sprint wasn't going to make it on its own. If Sprint wasn't going to make it on its own, well then, we do want those assets to go back to productive reuse.

PATRICIA NAKACHE: Right, right.

NICK GROSSMAN: Do you think it's…

MARK LEMLEY: If we thought Sprint was going to make it on its own, though, we'd rather have four competitors than three I think in this case.

BEN THOMPSON: Well, well there's another thing to put… to think about here, just to add to the categorization. There is much more license to do a pure tech startup in a world of acquisitions. You don't need to worry about having a business plan…

MARK LEMLEY: True.

BEN THOMPSON: ... Or a go to market and actually building a company. You can literally go out and build super-cool tech knowing that they're going to be fighting over you, and you'll get acquired. And not just that, then you get the benefits of being dispersed to customers much more quickly. And so, again, you can say, "Well, wouldn't it be nice if someone built amazing vision tech and then they built a whole company around it and IPO'ed, and be a competitor." But there's a time aspect here where building a company's really hard.

And so, we're saying no acquisitions. If you want to build cool technology, you also have to be good at business and build a good business. And I think there's a lot of benefit that comes from startups being able to not have to build companies, but being able to build tricks. That's actually great that you can start a company that is basically a feature and you have a shelf life, and then you go somewhere, but that feature got built and that's a good thing.

MARK LEMLEY: I agree with that, but I think that one of the things Silicon Valley ought to be able to do, and has in the past been proven able to do, is to combine those good business people with good technologies in a way other than the incumbent has the business and so the business goes to the incumbent. Right? So, that can be VCs pairing up good business teams with good tech teams. That seems to me that's what VCs are basically best at. It could be having a good business team that's not actually the dominant incumbent player acquirees. So, acquisitions that

are not acquisitions by incumbents seem to me something we ought to treat a lot more generously than acquisitions by dominant incumbent players.

BEN THOMPSON: But sometimes it's a crappy business.

MARK LEMLEY: So, that's also possible.

BEN THOMPSON: If you want to sell hardware, you could have the best business people in the world and you have a very, very steep hill to climb.

MARK LEMLEY: Right.

BEN THOMPSON: Pretty much any time you want to do a hardware feature, like a camera or something, or something like a detail of it. And again, I think it's just... You would know more about the companies in the dataset than I do. I have a hard time accepting the idea that there's all these would-be successes but for that acquisition. Just, again, I think it's the Instagram effect. We see Instagram, and maybe YouTube going back further, and we're like, "Man, wouldn't the market be better if Instagram were independent." I think it absolutely would be and I think the returns are actually huge to that because an advertiser would not just have to serve another company, they'd have to develop a more modular advertising system, which would benefit tons of other companies. If Instagram could be independent, it would be wonderful. But just because there's that one example, we have to be very, very careful that we react to that one example and then just obliterate the market and opportunities for the 99% of the other examples.

PATRICIA NAKACHE: Right. I agree. Hey, just to go back to one point we were talking about earlier, which I think we are in violent agreement on, which is sort of making it easier for companies to go public. I just wanted to go back to that for a second because…

NICK GROSSMAN: Mm-hmm (affirmative).

PATRICIA NAKACHE: ... I know that some, I think somebody who was up on an earlier panel sort of made the comment of… You talked about the decline in IPOs and actually the number of public companies is dramatically lower than it was a decade ago. I mean, there's only 4,000 public companies today and only about 130 go public every year. She made the point that we are better-off without these smaller IPOs, but she was referring to companies with a market cap less than $100 million-dollars. So, I just want to flag that because that is very low end of the range and, today, it's actually hard to go public if you're going to have less than a $1.5 billion market cap. So, I feel like there's a lot of room to move between $100 million and $1.5 billion.

MARK LEMLEY: Right, and those aren't failed companies.

PATRICIA NAKACHE: No, they're not.

MARK LEMLEY: Right? The companies that are valued at something over $100 million, when they're getting acquired it's not that they've failed and they have to, and maybe some of them, but a lot of them are in fact ones that are potentially, could actually potentially be doing quite well in a market, in a different circumstance.

PATRICIA NAKACHE: But just the cost of going public…

MARK LEMLEY: Yup, yup.

PATRICIA NAKACHE: … the litigation that happens all too frequently when you go public. The lack of research coverage if you're a small market cap company. And all that, sort of, conspires against companies taking that path.

NICK GROSSMAN: I think there's also a fair bit of acquisition activity by what I would consider to be sort of non-technical incumbents: a big insurance company or a big payroll company or it's a big bank or like that. And, I've seen acquisitions in the $100 million to $500 million range that are bringing like software into companies that suck at software. So, I don't know that that's bad either, right? And…

MARK LEMLEY: Yeah, it could be good or bad. I mean I think some amount of that is actually aimed at preventing regulatory disruption. So, there was discussion on an earlier panel about not just sort of the idea of sort of market barriers to entry but a lot of industries are regulated in a way that make disruptive competition harder. And technologies that disrupt to the incumbents in those areas are particularly problematic for the incumbents because they actually have built an environment in which the government barriers make it easier for them to avoid competition. The taxi industry was like that, right?

NICK GROSSMAN: Yeah.

MARK LEMLEY: The hotel industry was like that. And if you can, sort of, make sure that there's not an Uber, Lyft, or Airbnb for your- your regulated industry, you can hold on to a pretty lucrative monopoly.

KARINA LUBELL: That's actually a great segue into our next question or topic, which is the role of sectoral regulation. Some people say that regulation has the effect of fossilizing an industry, and I guess I'm wondering, for all of you… we've heard a lot, particularly in the context of platforms, whether they should be regulated. And so, as we're talking about investing in markets that are dominated by platforms, my question for you is, do you agree that this is creating challenges or could it also create new investment opportunities?

NICK GROSSMAN: So, so I'll get this out of the way really quick, which I think the state of crypto regulation, securities law…

MARK LEMLEY: How did I know you were going to go crypto?

PATRICIA NAKACHE: (Laughs).

NICK GROSSMAN: ... Specifically in the United States, is one of the biggest challenges to that sector. It's a new class of technologies that doesn't fit neatly into existing boxes. The use cases are not really well-understood and all of the major activity is happening in Asia and outside of the U.S. And so, for me, and for us, that is like way at the top of the list of areas where sectoral regulation is causing problems for the tech industry and for this problem we're talking about.

And I think the other one that's on my mind that has been discussed today, which is privacy. And, I worry that increasing privacy regulations will just make it harder for startups and entrench the big companies with existing distribution and ability to get consent from users. And I think that has more or less borne out with GDPR in Europe. So, those are the two that are the bees in my bonnet.

PATRICIA NAKACHE: I think compliance is costly and the proportionate cost, I think, to a startup is a lot higher than to a large established company. And I think I was sharing with you that in financial services it has been documented that companies with revenues of under $100 million, their cost of compliance is like 7.5% of their revenue. Whereas if you look at financial service companies with between $1 billion and $10 billion in revenue, it's like 2.7%. Right? So, it's just so dramatic when you think about, cost structure of a startup. It's just, it has a dramatic impact.

MARK LEMLEY: Another industry example, I think, where this is significant is the content industry. Right? If you build a tech company that interfaces with content, the copyright owners will come for you. They'll do it in the United States, but they will do it even more so in Europe. And under the new European regulations, the European Parliament said, "Well, just do what YouTube did." Right? Which is to say spend $150 million to build a system…

BEN THOMPSON: Over ten years.

MARK LEMLEY: Over ten years.

NICK GROSSMAN: Right.

MARK LEMLEY: ... That is not perfect, but pretty good at filtering out content and distinguishing copyrighted from uncopyrighted works.

NICK GROSSMAN: And by the way, is a hotbed of competitive anti-competitive abuse.

MARK LEMLEY: Absolutely!

NICK GROSSMAN: Because people put in fraudulent take-down requests for content they don't like for competitors they don't want to see.

MARK LEMLEY: Right.

NICK GROSSMAN: And YouTube and Google comply with that to be safe.

MARK LEMLEY: Absolutely, right. And so, right, exactly. So, you see it's going to be… If you're a startup, you could invest all of that money and it's going to be harder and it's going to make your life harder when you do end up and do that. Yeah, there are good reasons to have copyright laws, right? And we want to enforce those copyright laws, but I think the more we build, sort of, sector-specific regulations with this technology, the harder it is to actually develop a startup as opposed to an incumbent. Right?

So, what we end up doing is entrenching the people who got there first, right? I mean, YouTube didn't start with a content ID system. If YouTube had had to start with a content ID system, it wouldn't exist, right? Now, I think it's good that YouTube exists and it's probably good on balance if they've got some sort of filtering system. But the idea that therefore any company who wants to come into this space must have an equally good filtering system is a real barrier to startup entry.

BEN THOMPSON: Yeah, we are back to being in violent agreement.

MARK LEMLEY: (Laughs).

PATRICIA NAKACHE: (Laughs).

BEN THOMPSON: And I think that Mike made the point this morning that YouTube was begging… It's absolutely true they were begging for acquirers. Why'd they sell out? Because they were under such legal threat.

NICK GROSSMAN: Right.

BEN THOMPSON: And the reason why Google got a lot of skepticism for that deal is YouTube…

MARK LEMLEY: You bought an $8 billion liability.

BEN THOMPSON: Right, you bought a lawsuit.

PATRICIA NAKACHE: (Laughs).

BEN THOMPSON: And so, the direction the European Union is going is mind blowing in what a terrible effect it's going to have on competition. But I think the point to keep in mind here is what they're saying about the privacy debate. In my opinion, and I'm maybe a bit of a contrarian on this, I think it's so overblown in many respects. The dangers, right? We heard the comment last panel that data is the new oil, which makes no sense if you actually think about it for five seconds.

The one big reason is… The reason why Facebook and... We'll take Facebook because they have the best data in the world. The reason why my data is so valuable to Facebook is because they have the entire infrastructure to make sense of that data. And, even individually, it's not a big thing, but it's the entire world all put together, right? And so, the way that anyone can just walk up. I want to reach a white male in his 30s in Taiwan. Maybe that's a little too narrowly-focused, but they can accomplish that. It's all the infrastructure that has to be built first that makes the data valuable. And this, by the way, is why Instagram is, for the record, vastly more valuable by virtue of having been bought by Facebook than it would be as a standalone company. Which is something

that's worth keeping in mind. But my data by itself… If I had my data and I walk up to you and say, "Here's my data, how much will you give me for it?" The answer is zero. It is not fungible in a way that oil is fungible.

And the other thing that people have in their mind is, well, Facebook has all this data on you, right? And they picture like the Eastern German Stasi and file cabinets of stuff and they're going to go in and look at my data. You don't scale to that level with pieces of paper and a filing cabinet. You scale to that level by being this unintelligible, primordial sort of soup where I'm represented on Facebook as like these vector calculations that you would literally have to go in and spend months trying to build something if you actually wanted to get the individual.

NICK GROSSMAN: So, let me take the flip side of that. So, in the U.K., they have this thing called Open Bank, right? So, which says that if you have a bank account, the bank has to open up an API to let you export your banking data to someone else. And this is version of data portability and interoperability that is mandated. And it has led to a good interoperability and explosion of new banking products that can, by law, by right, plug in and then suck the data out from over here and do something with it.

So, I agree with you that if Facebook gave me all my data today, and I've downloaded my data from Facebook, you can do it, I don't know what to make of it. But I think, and this ties into the point about the burden of compliance, I think data portability is one of the most interesting vectors for compliance because anybody, any startup could comply with it. They're already built on top of APIs, and to add an API that a user could extract their data at their own choosing would be trivial for a startup to comply with. And you could imagine, and this is to your point, another company coming in, Nick'sAwesomeDataCompany.com, and I will…

MARK LEMLEY: It's overrated.

PATRICIA NAKACHE: (Laughs).

NICK GROSSMAN: ... Be your data advocate, and I will plug into your Facebook and I will plug into your LinkedIn and to your Google, and I will extract all the primordial goop. And it's unintelligible, but guess what? I'm going to build a whole software team and all they do is data mine your own data for you, but guess what? I work for you because maybe you pay me a monthly subscription. I'm just imagining this. And so, I think there is utility and value to be had in aggregating personal data around people, and I also think that it is one of the ways that we can increase competition that's relatively simple and straightforward, relative to other methods.

MARK LEMLEY: But so, let me just, because I think the... Because this is an antitrust conference, let me sort of loop that…

NICK GROSSMAN: Sure.

MARK LEMLEY: ... Back to antitrust, right? Because I think it fits in a very, sort of, surprising and uneasy way with antitrust, so I think there's a lot of kind of general sentiment out there that big tech has monopolies, big tech monopolies have all this information and data on us that gives them an advantage. We need to sort of use antitrust as a tool to break that out. If you think about what that would actually mean using traditional antitrust tools, what it would mean is more data portability, right? So, more companies should have more access to my data for less money. We should have a more competitive market in which people sell my data for advertising. I that's actually probably…Or I sell it myself.

NICK GROSSMAN: Or, initially, I take the data and provision it. And not that they're all just moving it around, but that I can do with it what I want.

MARK LEMLEY: Right. We can…

NICK GROSSMAN: And I can deal with it.

MARK LEMLEY: Right, we will create a variety of different things. I actually think that's probably a better world than the one in which we have. It is the opposite of the world in which most of the privacy advocates who are…

NICK GROSSMAN: Exactly.

PATRICIA NAKACHE: Yeah.

MARK LEMLEY: That are using antitrust are asking for.

NICK GROSSMAN: Yes.

MARK LEMLEY: Right? And so, it is worth keeping in mind when we talk about antitrust and privacy, right? What antitrust wants to give you, which is competition and new startups and

NICK GROSSMAN: Portability, right?

MARK LEMLEY: Yeah, portability, and a bunch of different things. It may be the opposite of what privacy regulators actually want to give you.

NICK GROSSMAN: Yeah.

BEN THOMPSON: We are, again I think, primarily in agreement.

NICK GROSSMAN: (Laughs). Primarily.

BEN THOMPSON: Well just, I want to address your one point about the bank thing.

NICK GROSSMAN: Yup.

BEN THOMPSON: It's very discrete, distinct data.

NICK GROSSMAN: No doubt.

BEN THOMPSON: And so, you don't know what to do with it.

NICK GROSSMAN: Yup.

BEN THOMPSON: Whereas the data Facebook has on me is very not discrete. It's just a mess of…

NICK GROSSMAN: Yes, but…

BEN THOMPSON: If I go into your…

NICK GROSSMAN: But if I get a 100-person software team and all I did-

BEN THOMPSON: I get it. I hear you. I hear you.

NICK GROSSMAN: ... Was data mine other peoples' data, I could make sense of it. I promise.

BEN THOMPSON: Okay, you're making my point, right?

NICK GROSSMAN: Yeah.

BEN THOMPSON: Your software team is going to put forth a lot of effort and value to make that data valuable.

NICK GROSSMAN: No doubt, yes.

BEN THOMPSON: The point of this is that Facebook is valuable not because it has data, Facebook is valuable because they put forth the effort…

NICK GROSSMAN: Absolutely.

BEN THOMPSON: ... To build the infrastructure to make sense of that data.

NICK GROSSMAN: Absolutely.

BEN THOMPSON: And so sure, I'm all for data portability as well. I think the privacy... And this is my point, the privacy thing is deathly for competition, and the shame of it is that no one's actually protecting anything.

NICK GROSSMAN: Right.

BEN THOMPSON: It's a red herring in some respects.

KARINA LUBELL: I think that's actually a really nice point to end on because I want to make sure that we leave some time for questions. I know you all were looking forward to some audience questions.

NICK GROSSMAN: Okay.

KARINA LUBELL: And we only have a few minutes left. But I'd just like to open it up and see if anybody has... I think there's a mic that will, if you could go over there?

AUDIENCE: Thanks. I think I'm going to direct this at Patricia, though anybody can jump in. I was going to ask, I know you testified before the Senate Judiciary Committee, I think earlier in the fall, and maybe it's related to the conversation about regulation. But just generally, what do you think legislators, as distinct from other DC actors, either get right or get wrong about this conversation? Where are the gaps from your perspective as people… and I'm thinking in particular Members of Congress?

PATRICIA NAKACHE: Yeah, so look, I... What was a pleasant surprise for me is that I think there's kind of bipartisan appreciation for this kind of special ecosystem that we have in the Valley, in particular, but kind of broadly. And an appreciation that, we don't kind of want to kill the golden goose, right? That it's a job creation engine, maybe not as many jobs as some people would like, but it's a job creation engine, right? It generates public companies, et cetera. So, that was a pleasant surprise.

I think there's a lot of… still education. And I guess what I worry about the most is this whole notion of unintended consequences that, with the best intentions, about trying to drive competition, which I think we would all agree, there's just no argument there. We want to drive innovation because it's been a real powerhouse for the U.S. economy. But let's do it in a way where we don't... Let's make sure that we don't do it in a way where we unintentionally, actually introduce a drag on it.

If you look at the share of venture dollars deployed in the U.S., relative to globally, it's declined over the last 20 years from 90% to 50%. Now, the pile overall has grown dramatically. So, venture dollars have grown in the U.S., but I'm just thinking, as a share globally it's declined. And, if you start introducing a lot of friction into the system like, maybe restrictions on M&A but, also if you look at immigration, you look at CFIUS; it all starts adding up, right?

NICK GROSSMAN: Mm-hmm (affirmative).

PATRICIA NAKACHE: And sort of starts putting real guck in the wheels.

NICK GROSSMAN: I'll jump…

MARK LEMLEY: So, what then…

PATRICIA NAKACHE: Go ahead.

MARK LEMLEY: Yeah, I was going to say.

PATRICIA NAKACHE: (Laughs).

MARK LEMLEY: I'm very nervous and I think there is a very strong bipartisan sentiment to do something in Congress about big tech. And the worry in Congress is…, right? What you also want Congress to do is nothing, right? And nothing… "Don't just do something, stand there" is actually often the right…

PATRICIA NAKACHE: (Laughs).

MARK LEMLEY: ... Way to think about it. It's not the way people in Congress think about it and there are some really bad ideas floating around with in both sides of Congress right now. From let's abolish Section 230…

NICK GROSSMAN: Yeah.

MARK LEMLEY: ... And get rid of the ability for platforms to actually control the content on their own network. To my personal favorite, which is, we have this problem with these algorithms that are sort of measuring and tracking your behavior, and it doesn't think it's a problem, but we think it's a problem. So, there's a proposal from Senator Thune that we should just have… any company that uses algorithms should just offer a non-algorithmic alternative.

AUDIENCE: (Laughs).

MARK LEMLEY: And there was a great conversation on Twitter about what a non-algorithmic search engine would look like. The best answer of which was, "I'm picturing a computer that is turned off."

AUDIENCE: (Laughs).

NICK GROSSMAN: (Laughs). I'll add one thing, which is I think the one bill we're probably most excited about is the ACCESS Act, which is coming from Warner's office in the Senate. Which is about interoperability and portability and that's, I think, where we think there's a lot of promise.

KARINA LUBELL: Thank you. I think we have time for one more audience question. We'll just wait for the mic.

AUDIENCE: Along with regulations on interoperability and access to data from healthcare systems, what your thoughts were on access to data within government databases? So, datasets at NOAA, other types of data that could be easily anonymized and, otherwise, just shared with APIs on competition. So, either faster data exchanges with agencies, NHTSA too. And thoughts on those?

MARK LEMLEY: I want people to have more access to government data and government to have less access to peoples' data. I mean, that's the short answer.

I do think, but I think there are a lot of things you can do around existing, or could be built, government databases that help get at some of these interoperability problems, particularly for AI, right? Maybe we don't need to sort of force Google to share all of its data if there is a set of data that NHTSA has or somebody else has that could be the basis for building a, sort of, AI to train self-driving cars for instance.

BEN THOMPSON: And did you just mention healthcare? I think there's been the recent debate around Epic pushing back against HHS, wanting to open it up. And I think it's a perfect example of the frustration where privacy has provided a club for companies to be extremely anti-competitive.

NICK GROSSMAN: Yup.

BEN THOMPSON: And that is like the best possible example, where it's your health data, of course you want it be private.

BEN THOMPSON: My health data.

MARK LEMLEY: And meanwhile, Epic just has a complete stranglehold on that entire history.

KARINA LUBELL: I think that's a perfect note to end on, and not that anyone needs coffee after this dynamic discussion, but we will not keep you from it. So before, I would just like you to join me in thanking our panelists for a great discussion.

NICK GROSSMAN: Yes, thank you.

Roundtable: Is there a problem and what is the solution?

- *Erik Hovenkamp, Assistant Professor of Law at Gould School of Law, University of Southern California*
- *Connie Loizos, Silicon Valley Editor at TechCrunch; Founder of StrictlyVC*
- *Ted Ullyot, Adjunct Professor at Antonin Scalia Law School, George Mason University (formerly Partner at Andreessen Horowitz; General Counsel at Facebook)*
- *Moderator: Taylor Owings, Counsel to the Assistant Attorney General, Antitrust Division, U.S. Department of Justice*

DAVID LAWRENCE: I have to say when I started my panel this morning, I bragged about how I thought it was the best assignment. But, over the course of the day, I have to say the competition was more fierce than I expected, which may be fitting. So, our final group, led by Taylor Owings, is going to be sort of a recap on the day's events and some forward-looking thoughts.

TAYLOR OWINGS: Thanks so much, Dave, and thanks so much everyone here for your excellent questions and attention throughout the day. This has truly been an illuminating set of panels and I will harken back to, in fact, one of those questions from earlier, which was "What does all of this have to do with antitrust?" And I'd like to say that's what our panel is here for. So, I'm Taylor Owings. I serve as a Counsel in the Front Office of the Antitrust Division at the Department of Justice and I've been delighted to be joined by several of my colleagues.

Basically, this whole swath of the room over here today, from the Department of Justice, and I think one of the best things, if you ask any of my colleagues about doing what we do at the Antitrust Division, is that we really get to be students in our jobs. And, usually, that's being a student of industry in whatever investigation it is we're engaged in to get to learn a lot about that industry and how the market works there. But today, I think this set of panels and the amount of rapt attention you've seen from my colleagues in hearing what the venture capitalist participants and observers have had to tell us about the way their investment markets work and also what they're observing in the markets in which they invest has been a really exciting and informative thing that we hope to take back to our jobs, our day jobs being antitrust enforcers, and bringing discipline to markets where they are broken as a result of failures in competition by monopolists engaging in anti-competitive conduct or anti-competitive mergers.

And so, I'm going to attempt to elicit some learnings and some feedback and some observations from our excellent panelists here today on what we've heard and some observations about how potential regulatory solutions might interact with some of the observations that we've heard today. And so, we've amassed a group of people who each have a little bit of a different perspective, I think, from which to observe. We have an esteemed academic, an esteemed industry participant, and an esteemed industry observer, and so I will introduce them now.

The first, the academic on the far end, Erik Hovenkamp is an Assistant Professor of Law at the USC Gould School of Law. He has a PhD in economics as well as a JD, both from Northwestern University. He has been a contributor to this body of research and thought on antitrust and competition policy, and especially how it interacts with innovation policy and incentives for innovation. He has published in many esteemed journals including the Chicago Law Review, the Review of Industrial Organizations, I could go on and on. And he has been a lecturer in law at Harvard and Yale Law Schools.

Our esteemed industry observer is Connie Loizos in the middle here. She is the Silicon Valley Editor at TechCrunch, and so I'm hoping today that Connie can provide us a ten-thousand-

foot level observation of trends going on throughout the industry and can bring the sharp wit and perspective that she does to her StrictlyVC daily e-newsletter and event series.

And then our esteemed industry participant right here to my left is Ted Ullyot. He is currently serving as an Assistant Professor of Law at the Antonin Scalia Law School at George Mason University. But he has been a thought leader in both the public and private sectors over his time in both industry, serving as General Counsel for Facebook from 2008 to 2013, as well as on the President's, excuse me, in the administration under George W. Bush, including at the White House as Deputy Staff Secretary and at the Justice Department as Chief of Staff to the Attorney General. He has also been General Counsel at AOL/Time Warner, he was on the board of AutoZone, and he was a partner in the venture capital firm, Andreessen Horowitz.

So, this panel is really, I think, up to the task of reflecting on what we've heard today but of course as always, I'll remind everyone that we have an email address, posted here on our slide, where we encourage you to send questions or observations you'd like the panel to tackle. So, the first thing I'm going to do is turn to the question that we've really heard echoed throughout the day, starting with the panel on kill zones this morning, but even Mike Moritz and Joe Grundfest talked about it really in the very first session of the day, which is the idea of whether there is an impenetrable kill zone around incumbent technology firms and whether that perceived dominance and inability to really enter that space is something that can be solved by having a narrow solution.

Mike, I think, argued that you're never going to invest in a direct competitor to Google but rather a VC firm could be interested in a narrow niche version of search or some other social network or some other company. And the question for my panelists is do you essentially agree with the Mike Moritz model of thinking, that there's no real problem, that a good idea and a niche way of thinking can't solve or do you agree more with the Roger McNamee version of thinking there are real opportunities that have to be built on the backs of platforms and that the essential nature of some of what the platforms are doing, is more along the lines of a common carrier and that we should be worried about these areas around incumbent firms. So, I'll start off with you, Ted.

TED ULLYOT: Well, Taylor thanks, and Makan thanks for having us here, appreciate you putting together today's event. On this, you know I guess I would be in the Moritz school, not the McNamee school, I think pretty firmly. You know, I think there is still plenty of opportunity, plenty of VC investment and the companies that are going to succeed are not dependent on big platforms. I think you even look at the big, so-called dominant tech companies and each one of them comes from a different arena, I think. You look at Google, Apple, Facebook, Amazon, even if you want to throw in Microsoft. Each of them, they all became extremely successful companies, to say the least, and developed in an area that was something new altogether. Right?

So, Microsoft had the OS. Google comes in, doesn't think about the OS, just goes after search. Apple, goes through various cycles as a company and ends up, from 1980s Apple 2e's that we all remember to this. And many other things. Amazon comes in a very different way. Facebook, what was social networking, people had no idea what this was. So, I think there's venture money behind all of these companies and there is an interest in investing and taking a shot, even though, especially with probably what Facebook… You can look at the landscape and say, "Wow, there are these powerful competitors out there and how are we ever going to compete and build a multi-billion, multi-hundred billion-dollar company?" You know, people still did that and still went for it and were still able to build those companies. So, I think you still have a healthy environment today.

You know, to give a couple… another example where we talked about the other day was, map apps. You know, Waze was, I think, a reasonable success, from the perspective of its venture investors, but if you looked in 2000, Waze was bought for what $1.3 billion by Google, pretty nice outcome for the venture investors. If you had said at that time or in 2010, whenever Waze was founded, if you said, "Should I do a map app?" You might say, "No way." Because Google's, you got Google Maps out there, you got Apple that's embedded in the phone. Still, you were able to attract venture money to go after the map space and create a pretty good outcome for Waze. Anyway, so I think it's still, it's healthier than we might think.

CONNIE LOIZOS: I'd like to be in the Michael Moritz camp (laughs) but I am not. I just think that things have fundamentally changed. I think that we've never seen companies with network effects to this degree, companies of this size and stature and power. Waze is an interesting example, and of course Waze now belongs to Google. I think companies only have a finite period of time before they can either sort of coexist, get acquired by these companies, or go out of business, which I think is sort of a scary prospect for the future. And also, I think if Google hadn't been able to acquire Waze, the chances are it would've developed a competing technology. I think we're seeing more of that. I think we are seeing actually less acquisitions by these companies and more sort of just them developing the technologies that they see that are interesting. I don't think you're seeing as many sorts of big acquisitions as you once did so I'm actually sort of more in the Roger McNamee camp (laughs).

ERIK HOVENKAMP: So, I think I might fall somewhere in the middle. I think that it's, the relevance of this kill zone idea to antitrust is not totally clear. We have to, I think, be a little more specific to get into sort of antitrust relevant territory, and we have to ask why are startups not entering this area? If it's not related to some kind of behavior, some kind of fishy agreements between firms then it's not really in conventional antitrust territory. So, for example, if it just seems too hard to sort of compete with this dominant platform because this product is so much better because its network effects are very strong, we can't really pin that on a conventional antitrust violation. So, it might be a problem but I'm not sure that it's an antitrust problem. That said, it's, I think, totally plausible to suggest that there are certain practices that some of these big platforms that are engaging in that really are exclusionary. And that the reason that startups might not be popping up in a given area is because of those exclusionary practices, and in that case certainly, I think it would be an important thing for antitrust to think about.

TAYLOR OWINGS: So, we heard in the prior panel, this concept of platform risk and VC investors thinking about areas where they might be squeezed because they have to build on top of something like an IP provider, or excuse me, an ISP provider, an app store or something like that. I'm going to drill down a little bit more and say, are there specific types of platforms where you see there being a particular problem or a particular lack of venture funding to those types of platforms? Is there something that antitrust enforcers ought to be especially interested in?

ERIK HOVENKAMP: I don't have in mind a particular platform or category of platforms. I would say the following: certain… The incentive, for example, to exclude certain companies from your platform may only arise as a result of acquisitions that you would not call horizontal, meaning that they're not between competitors. So, what might happen is a platform vertically integrates, it makes a vertical acquisition and only then does it obtain, does it acquire this incentive to exclude certain companies, which would be competitors of the guy it just acquired. Okay? Well, to the extent that we agree that maybe there's a problem with platforms excluding a bunch of companies from their marketplace, we're probably going to have to start taking vertical mergers more seriously than the courts are right now. Right now, it's very, very difficult to bring a vertical

merger case under American antitrust law. Some of the problems that have come up today, could be sort of potentially solved, prophylactically, if we had a sort of more robust body of law surrounding vertical mergers.

CONNIE LOIZOS: I would sort of go back to what Patricia Nakache was saying on the last panel, which is that, I think the issue with a lot of these sort of platform companies, sort of their infrastructure that, as Roger was referring to it, is that there is a single point of failure. So, if you want to reach a lot of consumers, you maybe have to go through the app store, which is fairly neutral, I think as this goes. Or you have to use DoubleClick, Google's ad business, for an ad supported business or you have to, if you want to sell products, you have to go through Amazon to really reach scale. So, I feel like that's sort of… It's great if you can, it's great if it's working for you. If it's working against you, you're sort of out of luck.

TAYLOR OWINGS: Erik, I'm going to turn back to you and ask you to share with the audience a little bit about your scholarship with Kevin Bryan, and the antitrust limits on startup acquisitions. I particularly found a lot of the discussion that we were hearing earlier in the day about killer acquisitions and the potential for incumbents to be more voracious acquirers of new tech to relate to your findings or your propositions in that scholarship, and so if you could explain a little bit to the audience why it is that you think that leading incumbent firms have the incentives to acquire new tech.

ERIK HOVENKAMP: Yeah, so first, I'll just start by saying that this notion of a killer acquisition, I think it's certainly an antitrust concern. I think it's one that probably comes up more outside of tech, in areas like pharma for example. Now with respect to my work with Kevin, the idea, the sort of impetus for this paper was to try to make things as hard as possible for a potential antitrust enforcer. In particular, so one thing that Mark Lemley mentioned, is that we've got, we put merger cases into two boxes, and we're not really flexible at all.

We've got vertical, plaintiffs pretty much always lose those, we've got horizontal. Well, it's important, these two types of cases rely on different theories of harm. One is much more bread and butter antitrust, like you're eliminating a competitor, so the market becomes less competitive. The vertical case is a little more, there's more of a story there. It's an exclusionary theory where by acquiring this vertical interest, I now, my incentives changed such that, whereas this guy was maybe happy to sell to my rivals before, now that we're one entity, maybe I don't want him to sell to my rivals. And I think it's really hard in tech in particular to, even answer the question of whether or not an acquisition is horizontal or vertical. And for that reason, I think ideally, you would not… If you think that we antitrust really needs to have a bigger presence in this area, it doesn't mean we're blocking lots of mergers but that we should have some sort of coherent idea of how we want to handle these things. I think, probably, it's best if it does not hinge on this sort of bright line distinction between horizontal and vertical or else that you have a sort of theory of harm that works even if it really is purely vertical because many plaintiffs are just not going to be able to prove that a given acquisition in horizontal.

So, in this work with Kevin, we just sort of work under the assumption that, well, this is an economic model of an oligopoly market in which you've got one big dominant firm and a smaller rival, and startups pop up once in a while and it's assumed that these are vertical acquisitions, meaning that when one of the incumbents buys it, you're not eliminating a competitor. This way we're sort of making things as hard as possible for ourselves in terms of establishing whether a problem might come out of this and so, the idea was just to see if you could come, if you can sort of, arrive at a coherent theory of harm, under certain circumstances when you sort of have a totally laissez-faire, meaning no intervention, attitude towards startup acquisitions.

And so, the result we ended up with is that once the dominant firm becomes sufficiently dominant, sufficiently close to being sort of a pure monopolist, that a number of problems arise, not just with respect to competition in the relevant product market but also with respect to incentives for innovation by prospective startups, innovators who haven't really yet come up with working idea yet. One of those problems, sort of tangentially, maybe relates to this kill zone idea, which is that maybe innovators because they are so intent on getting acquired by the big guy, that they sort of, this is really restricting what kinds of ideas they think of as worthwhile to work on. A good example might be, so you might suppose that the dominant firm and the smaller firm in the market have sort of equally good technologies perhaps in some respect. And so, sort of, prima facie we have no reason to say that an innovator should, work towards making their products compatible with the one rather than the other.

Consumers might benefit a lot more actually if innovators would gear their ideas toward compatibility with the less dominant firm, with its technologies, to the extent that this would allow the less dominant firm to sort of even the playing field a little bit, make the market more competitive, and this would be good for consumers. That is almost never in the interest of the innovator because there is just much more money to be made. If you come up with an idea that appeals to the dominant firm. And so, this is just one possible response to the claim that, if you intervene in startup acquisitions, surely, you're going to harm the incentive to innovate. Well, I think there are certain respects in which, the opposite might be true, that you might arrive at worse incentives for innovations, at least in certain kinds of decision problems when you don't do anything in this area.

TAYLOR OWINGS: Connie, it seemed to me that you might have been referencing something like this when you were saying earlier that you were noticing that perhaps innovation is drying up in some areas. Can you speak to maybe what part of the life cycle that Erik is talking about, what we're seeing today in Silicon Valley?

CONNIE LOIZOS: Well, I guess my big concern, as a reporter who covers Silicon Valley, is I don't think it's a matter of companies sort of strategizing about getting acquired by the big guy. I think a huge problem is, again, we have like five companies that are the most powerful AI companies in the world, and become more powerful every day. They have their hands in everything and they are sucking up the talent in this world. There's like 200,000 people who are AI specialists and before they can even really get going, they graduate from school and Facebook is like standing, on a university campus with like a bouquet and a million-dollar check. So, it's a little bit hard for them to sort of get going when the prospects always of starting a company are very low, your chances of success are, sort of, statistically very low. So, I think that's a huge problem. I don't know how we solve that. I don't know if that's a DOJ thing, but I think that we're talking at a higher level but I think we have to get to the root of letting people flourish for some period of time before they get pulled into these companies. I think that's a huge problem.

TED ULLYOT: But on that often, I mean, I think one of the great aspects of Silicon Valley that's helped create this great new, create so much innovation out here is the free movement, precisely there's the free movement of labor. The non-enforceability of non-competes here, it's a classic element of Silicon Valley. I just think it's been so critical, so maybe that happens. Maybe you graduate from Carnegie and you get the offer right there, but then you come in and perhaps build some financial security for a couple years at Google, but then, you know as we've all seen, time and time again, the tendency is this company's been too big, I'm sick of the bureaucracy, I want to go create my own startup. And so, people get in and get launched that way. And come to

the Valley to work in this relatively secure environment at the big company than roll out and do their own thing.

CONNIE LOIZOS: You're absolutely right. I mean we saw that like with Chris Urmson who was the sort of pioneering engineer at Waymo, who now has…

TED ULLYOT: Bret Taylor

CONNIE LOIZOS: Right, right exactly. So, that does happen, but often times, too, I think those companies do get folded back into their, sort of, original employer. So, I mean…

TED ULLYOT: Sometimes.

CONNIE LOIZOS: Yeah.

TED ULLYOT: You know, Dustin Moskovitz, another counter example that comes act as Facebook, and I mean now Asana is what I think…

CONNIE LOIZOS: Potentially going public.

TED ULLYOT: Potentially going public, I guess, right.

TAYLOR OWINGS: We heard from several commentators throughout the day that a real model for acquisitions is the acqui-hire or even if it's not the acqui-hire, that the most important factor in thinking about VC investing is the people, and that one comment that has really stuck with me is the idea that you can do all the diligence that you that you want about what the addressable market is and where the market might be heading and the solution that the… technology provides to the market. But the market may change over time, and so, in reality, what you need to be thinking about is the flexibility of the people. This, struck me as quite different from the way that we at the DOJ, typically, look at motivations for mergers. And so, I'm curious to hear, I guess I'll we'll start with Erik, your view on the ways, the tools that antitrust enforcers typically use to try to understand the motivations and the likely effects of a merger and how those, potentially, are incongruous with the tech merger world.

ERIK HOVENKAMP: Yeah. So, I think that the biggest difficulty has to do with the horizon on which you foresee problems arising, and in particular sort of how long you think you'll have to wait before they show up. So, in a traditional merger case, you have two firms that are already big. Let's suppose we're talking about a horizontal case. So, these are competitors. Well, the question that we ask that we're trying to answer in the course of the antitrust litigation is: "Is this going to cause prices to go up right away?" Like right after litigation, just as a result of eliminating a competitor from the market.

So, we're able to focus on this very short-term potential problem, not having to speculate about things far into the future, and of course, things are… We have exactly the opposite problem when we're talking about tech acquisitions. We are pretty sure we know what's going to happen immediately, it's almost always going to be nothing because the startup is very small, right? And it's not yet a significant player in the market. On the other hand, we our... We do have maybe significant concerns about how this is, sort of, affecting the trajectory of the market moving forward.

And so, we're worried that maybe this guy, this acquired startup would have been a big deal and a separate big deal, an independent standing competitor and now it's not. And, of course, one problem is that's just a hard question to answer. But another problem is just that the current state of merger laws, just that it's not really... It's all set up around asking this very short-term question and it's not particularly well suited to, sort of, extending itself, in the way that I think you would have to try to do in order to really evaluate these startup acquisitions.

TAYLOR OWINGS: So, Connie, are we missing things as the antitrust enforcers, from having this viewpoint that Erik summarizes? Is your, sort of, again I'll call it a ten-thousand-foot

perspective from which to observe, are you seeing buy and kill strategies being executed that our tools are just not allowing us to see?

CONNIE LOIZOS: You know, I really don't think so. I think he's right. I think there is just so much that happens, and it's so unpredictable. I mean, you can sort of say, "Oh, what did Google know when it bought YouTube?" Well, I think YouTube was actually, as Michael Moritz was referencing earlier, trying to escape some copyright lawsuits. Or what did Facebook know about Instagram that they rest of us didn't see and we should've really stopped that, but and I think there it was sort of more Mark Zuckerberg worrying that Twitter was going to buy Instagram, and buying it then, you know.

And at the time, it also seemed like they were in both cases over paying. But last year I think YouTube pulled in like $15 billion and Instagram pulled in $20 billion, so very smart bets in retrospect. But I don't think we can credit the companies with having the foresight to have known that. I think the problem additionally is, although I think people out here are interested in regulation and I think there's probably some relief that, despite the power of these companies and their lobbyists and their corporate attorneys and sort of divided Congress, I think everybody's very excited that the DOJ is kind of paying some attention.

I do think there is this fear of unintended consequences, again as Patricia was saying. I think it's just, you don't want to invest in a company not knowing what regulation is coming and also how those regulations are going to impact things like five years down the road. It's very opaque.

TAYLOR OWINGS: Ted, maybe you can respond to something that we heard Ben Thomson talk about a lot, which is that the Instagram acquisition stands as kind of this big scary gorilla in the room that everybody's referencing when thinking about, "Have we designed our tools correctly?" What's your perspective on the role of foresight versus hindsight in thinking about that?

TED ULLYOT: Yeah, in the sense, as expressed on the previous panel of how could we have let Facebook/Instagram happen, right? And I think that is massive hindsight bias. I just, I think if you... I did this while hearing that their… Full disclosure is at the company during the acquisition of Instagram.

So, yeah, but I think you just have to go back and remember not only Instagram, which seemed like a very unlikely bet at that point. 18-month-old company, 13 employees, why in the world are you paying this much? You know, a billion-contract prize dropped to $700 million because Facebook stock was performing so badly at the time the deal closed.

But, so not only Instagram, but think about Facebook at the time. Facebook of 2012 was not Facebook of 2019 and 2020. And back there I just googled "Facebook IPO disaster" and a thousand results come out. And so that was the time when this was happening, and I pulled one of them up and, these are a dime a dozen and you can find these, sorry if this interferes with the Wi-Fi here, but I pulled up just some article from that time and this was June of 2012. And this is a professor, I won't name him, but it's not Erik.

But a Wharton professor said, commenting on the massive decline in Facebook stock price between even May and June. He says, "The fact is that Facebook has not yet been able to find an ad model to generate revenue as commensurate with its valuation." Which at the time was… Would that have been probably a $15 billion valuation compared to today, $500 billion? So, there was massive skepticism toward Facebook in the market because you haven't solved... You have no mobile strategy, this is why your stock is tanking.

And so, if you'd met... I think that's... It's important to keep that in mind. So, the time that the FTC was looking at the deal, and it was notifiable, I mean its way above the threshold. FTC looked at it and, Chairman Leibowitz was there and… This is a deal that didn't... It wasn't slipped through the dark. It was out there, everybody knew about it, there were plenty of skeptics. Facebook is a company that hasn't even figured out its own way to do things… It hasn't even figured out its own strategy and is buying this company with no revenue, forget profits.

So, there's I think there is a lot of hindsight bias. You look at the companies today, I don't know that there's anything that FTC would do differently in hindsight. If Instagram had gone on as a... What would be the basis to block the deal at that point? You know, to Erik's point, is this a horizontal merger, is it vertical, what is a photo app relative to a social networking app? What's the market? Isn't the market ad revenue or… Internet ad impressions? It seems to confound inquiry a little bit. And I don't know that there would be anything that the FTC would do differently there.

TAYLOR OWINGS: Erik, your scholarship speaks a little bit about the pros and cons of using Section 7, sort of a prophylactic merger review model, versus Section Two, a sort of after the fact to consider transactions. Can you speak a little bit to that?

ERIK HOVENKAMP: If you have evidence you, it's basically always preferable, I think, to challenge it, ex-ante before it happens, but…

TAYLOR OWINGS: And why is that? Sorry, can you just elaborate a little?

ERIK HOVENKAMP: Oh, well I mean you don't want to have to unscramble the egg. You don't want to have to choose between, in particular, unscrambling an egg and then implementing a behavioral remedy, which is like an order to… you're imposing certain obligations or containing the defendant's behavior in certain ways. This is requiring people to, constantly monitor them. Like Ted does some of this and everybody agrees that these are cumbersome remedies that… They're not… They're inconvenient in certain administrative respects.

So, if you can make a structural remedy work, like divestiture or if you, in particular, if you're sure that something is bad and you can just block it before it happens, you avoid having to choose between two options that you might not like very much.

TAYLOR OWINGS: Well let me push back on that and pause you right there. There's a couple of, I think, important points that you're putting together there. One is the concept of how sure do you need to be if you're sure if something's bad, so that's one question. And the other is the concept of having evidence, right? Is there a distinction in your mind between being reasonably sure and then having evidence or are those one in the same?

ERIK HOVENKAMP: Well, I mean you could have a gut feeling, but I mean, I think that my idea is that when would it be advantageous to go after the fact, to come in after the fact? Only if you're not reasonably confident that it's going to be anti-competitive before it happens and, maybe, you get more information because you've had more time to see what's happening and then you can come in later.

But so, for the federal government, if it wants to come in after the fact, there's really not a statutory bar. If they want damages, there's a four-year statute of limitations under an antitrust statute. If they're just seeking an injunction, there's only a sort of common law doctrine that courts don't actually usually apply to the federal government. So, the federal government can come in after the fact and, if it really wanted to, it could unscramble the egg.

But, again, if you feel like you already know that the acquisition is going to harmful before it happens, it's hard for me think of why you would not want to stop it then, rather than making matters harder for yourself by coming in later.

CONNIE LOIZOS: So, can I ask, so let's assume that we do have to unscramble the egg because we don't have the evidence in advance. We can't know how these things are going to play out, but now we have some evidence that these massive-sized companies that maybe need to be pared back a little bit. So, what remedies… I mean, are we talking about any practical remedies? Is there anything that...?

TAYLOR OWINGS: Why don't I turn that to Erik? (laughing)

ERIK HOVENKAMP: I'm sorry, what was the question?

CONNIE LOIZOS: I'm just wondering, when you say, nobody really wants to have to unscramble the egg, but maybe you have to unscramble the egg…

ERIK HOVENKAMP: Yeah.

CONNIE LOIZOS: ... What does that mean from a law perspective?

ERIK HOVENKAMP: Well, so two... Well, it's just, there are a lot of costs associated with disentangling two companies that have like integrated into each other at all different levels of the business. So, for example, not long ago, an acquisition by Northwestern Hospitals was challenged after the fact. The court said it was just unreasonably difficult to try to disentangle them. Right, so in these situations, usually you'll try to look for some kind of behavioral injunction. And, again, that has a lot of features that are inconvenient. And so, it's not really ideal either, but in some cases, it might be the lesser of two evils.

TAYLOR OWINGS: One observation that Doug Melamed made earlier today was thinking about the incentive problems it might create to look back at past mergers. He mentioned the idea of a company that if they knew they were vulnerable or if a whole industry knew it was vulnerable to retreading past mergers that they might try to scramble the eggs more or that they might try not to grow the acquired business too big to, sort of, tip off the antitrust enforcers or interest the antitrust enforcers.

Do you, Ted, have an opinion on whether those, sort of, reactions to government regulation or exuberance might be realistic? Or, do you think that companies here in Silicon Valley are largely just putting their nose to the grindstone and doing whatever works for the company?

TED ULLYOT: I mean, it's so counterfactual and interesting that it's... The companies today don't think about it that way. You know, today, it's again… First of all, there's the interesting break between deals that are notifiable and that are reviewed over, what is it these days, $95 million or thereabouts? Like sort of deals above that which are all reviewed and all carefully considered and deals below that which can go through without review, which are usually acqui-hire ones.

But whichever way you go, today certainly, once you make the acquisition, you are off and running because you really fear your other competitors so much that you would say, "Yeah, this was an important acquisition for us. For whatever reason, we decided it was important." Whether it's an acqui-hire, whether Brett Taylor was… When Facebook bought his company in '09, former Google engineer now at Salesforce, and just a great entrepreneur and saw the value. When he came in, Brett was such a superstar that the company... Facebook bought his company and then brought him in. He immediately became the CTO.

So, that's an example, you just get him to work immediately as CTO of Facebook, just getting to work. And if it's more of a product, you want to integrate that as quickly as possible. So, I don't... If there became a world in which you were judged six, seven years down the road, and people would say, "We're going to come in and break this up," maybe it would cause people to not want to integrate as much.

I don't think so, though. I think you'll...You know, the fear of getting... The fear of your competitors beating you at your business, the fear at Facebook of Google coming in and with

Google Plus, which was at that time was Google's launch of a social network effort, that you're so focused on that, that you want all hands on deck to get this new acquisition. Whether it's a few great individuals to become top executives at the company or whether it's an actual product, you want to integrate that as quickly as possible. And you're not worried about this outside risk that if we're too successful at staving off the competition from our rivals, then maybe the regulators will come out for us. You're not worried about that.

TAYLOR OWINGS: Connie, how would you view that risk?

CONNIE LOIZOS: I think, it's hard to know. I mean, it seems like it would have a huge chilling effect on innovation, I think, if you thought that there was some chance that your deal would get unwound. I frankly feel very sorry for people who run Harry's Shaving company who thought they had this great deal and now do not. Of course, that's much more recent.

So, I mean, I don't know what the answer is though. I don't know, Mark I think had mentioned sort of making it easier for companies to go public. But, sort of allowing more, trades on a secondary market, which, it is all one kind of organism. There is already a lot of activity on the secondary market. Nick of Union Square Ventures mentioned one of their portfolio companies, Carta, where there's a very active, vibrant... Well, they want to develop, I should say, a more vibrant private secondary market.

But I think, getting a little bit afield… But my bigger concern is it all is part of, I think, income inequality in this country. So, you've got these big companies and then you have few of them going public, more of them staying private, but only accredited investors who are able to invest in these privately held companies. So, I feel like maybe there is a sort of allowing more people to invest in private companies is sort of a piece of this, as complicated and confused as that sounds. Do you understand what I'm saying at all?

TED ULLYOT: I think that will be an argument that venture funding is so plentiful now and venture investing is so successful, right? Which…

CONNIE LOIZOS: Yeah, I'm not worried about the VCs. (laughs)

TED ULLYOT: Right. Well, but if one of the themes here today is venture investment being…

CONNIE LOIZOS: Squashed because of…

TED ULLYOT: Yeah, being squashed because you have these massive platforms, right?

CONNIE LOIZOS: Right. I mean, so just in the same way that they're not investing in social networks, maybe they would invest in fewer companies that could potentially be divested from a platform company. But they'll find other things to invest. There's always something else to invest in robotics, biotech, food, agriculture, they'll find other things to fund.

TAYLOR OWINGS: So, one proposal that we sometimes hear for evaluating whether acquisitions are anti-competitive is to try to detect when an incumbent is overpaying for an acquisition, which might suggest that it's paying to protect monopoly profits. Are there tools that investors use to evaluate the potential for companies that we, as antitrust enforcers, could potentially use in trying to answer this type of question? Ted, can you talk a little bit about model evaluation in this... In light of this?

TED ULLYOT: Yeah, it's nothing that's going to be a surprise to you all, but it's a challenge with startups. The big challenge with startups is a lot of them don't make… literally have no revenue. And even if they have revenue, they probably have no profit or very little profit. So, that's a traditional measure that you would use to try to value a company, but then it turns out to be a lot of speculation if you have a so-called "pre-revenue company."

And you say, "Well what's the..." You might look at then total addressable market, TAM, and say, "Well, what market are we thinking about? What are going for? Sure, we've got no revenue now. We have not even figured out how we're going to make revenue on this." Ad revenue is one way, and ad subscriptions being the main two. "But here's our theory as to how we're going to do it. We're not making any revenue yet," but somebody nonetheless sees great potential in the company, and is willing to make a bet.

So, those are some of the tools that… This is why that it's an interesting problem that you've identified today of venture and antitrust. Companies, just by definition… Venture firms are investing in companies where success is highly speculative. You're investing, you're putting out a bunch of bets on many companies, many of which are going to be total failures, and you hope that a few of them do pay off, and you don't know which ones are going to pay off.

You know, you come in, there were early investors in Facebook who were late to the game because Myspace was out there. Right, and you had companies with two different trajectories there. You take Slack, right, which we had a report, had some great news this week. Slack started off as attracting venture funding as a gaming company and then ends up being a productivity tool today in a publicly traded company and a quite successful one.

The VCs that invested, Andreessen Horowitz is one, I was not there at the time, it was before my time, but Andreessen Horowitz among others invested in Slack when it was a gaming company, and the success turned out not to be in games, but in this absolutely different field of collaborative communication.

There are tools that you could use and tools that you probably do use, but whether it's a venture investor investing in these companies or whether it's an acquirer buying that company, often it's no revenue and just an outright... There's a big bet, some of which pay off, some of which don't pay off. That's where the companies can be successful.

TAYLOR OWINGS: So, Connie, what do you think? Is there a way to tell whether an acquiring incumbent is overpaying?

CONNIE LOIZOS: No, Ted's absolutely right. I mean, there's no math. It's like a crazy math. I mean, they're betting on really, "They say it and it's true." I think the founder… I think VCs just develop an instinct about a person. And so, in the case of Stewart Butterfield, who is the founder of Slack, he'd previously founded Flickr, so when he had this game company, Tiny Speck, maybe it wasn't so exciting, but they really liked Stewart and I guess they were smart too because Stewart then figured out another company.

But yeah, I mean the history of VC is full of bets that sounded totally crazy and, in retrospect, were super cheap. YouTube and Instagram being two great examples. There're many other companies that sounded super crazy and, in fact, were really terribly mis-priced. WeWork, possibly, looks like it was one of them. So, it's really hard.

And then it's interesting to me, I sat down, not that long ago, with the head of global tech banking at Morgan Stanley and I was asking how, even like IPOs can get sort of mis-priced so badly, where the bank comes up with a price and then the public market investors are willing to pay such a different price. And there's just a lot of guesswork all along the way. So, I don't think that there is a great, tool. I mean, people have seen total addressable market in different ways, so there's not a science to it at all.

TAYLOR OWINGS: Erik, some of your work suggests that antitrust enforcers should be concerned if they see a first-place incumbent acquiring tech that they don't need or plan to use, but are just trying to keep the second-place competitor from acquiring it. Is there on any way to tell in, your mind, if that's what's going on ahead of time?

ERIK HOVENKAMP: Oh. Well, there could be, but it's just hard to conceive of it happening in a typical tech acquisition. This does happen, even in practice sometimes. So, not long ago, the FTC brought this case against a company called Mallinckrodt, was a monopolist in the US in a market for a drug that treated a certain kind of disorder among infants. There was a synthetic version of this drug that was only sold overseas and Mallinckrodt outbid everyone else to get the American rights to that drug.

Okay, now, so it has this original drug and now it controls the synthetic version. From consumers' perspective, they're fungible, okay, and so it seems pretty clear that the only purpose of this acquisition was to eliminate a competitor. Okay, it was totally redundant, in terms of what the acquirer ended up with. The only difference, or the only apparent benefit, to it was eliminating competition.

This kind of thing is, I think, not typical of what you would find in an acquisition in tech. You have… All the products are much more complex and it's pretty much always going to be the case that when you acquire a company there's something in there that the acquiring company's going to use. And so, these sorts of extreme facts aren't going to arise.

Our only point in sort of mentioning that is that if you do in fact have evidence that the company's buying something and not utilizing it very much, that is suspicious. And that contributes weight, I think, to a plaintiff's argument if he's trying to challenge it.

TAYLOR OWINGS: Did any of the discussion during the data panel strike you as relevant to this point? Is it possible that a source of unique data that… we talked a little bit about the flywheel effect from data and how, as a result, there might be a natural monopoly on a certain type of data, did it apply in your mind to any of these topics that you're considering?

ERIK HOVENKAMP: Yeah, I think one of the big things I took away from that data panel, which was really interesting, is that it would be really hard to try to say anything categorical about antitrust and data. Because I think it's going to depend very much on the nature of the defendant's conduct and the relevant data and the extent to which it might create a bottle neck.

In principle, you can imagine facts that would give rise to a problem, an antitrust problem. Where perhaps one firm acquires an essential source of data and is not allowing its competitors to get access to this data. That, I think, if you find facts like that's very much familiar antitrust territory. But it's also not clear that we should think about that kind of case differently than we would, say, a vertical merger case or something like that.

So, I think, there's certainly the potential for antitrust disputes to come up and involve data in some important way. I'm not totally sure that it would be, sort of, shaking the foundations of antitrust. It might just fall within sort of the familiar rubrics that we're used to working with.

TAYLOR OWINGS: Okay, great. I'm going to open it up to a few audience questions before we wrap up the panel. But, we also received one online so I'll start with that one while everyone thinks of their questions here. So, is antitrust law enforcement even the proper tool to address the competitive concerns of the power of technology platforms and their network effects? Do antitrust remedies apply? And then I'll add an appendage here, which is if there were a magic wand available to you to increase competition in some policy-based way, what would that be? Go down the line.

TED ULLYOT: (laughs)

ERIK HOVENKAMP: I'm going to have to think about the wand question for a minute. But, I do think that it's really important in this area, if we… Deciding there's a problem is really only the first question. The second question is like "Is this really an antitrust problem? Is antitrust the right body of law to deal with this?" Antitrust is sort of cumbersome. I mean antitrust litigation

is big and expensive and it takes a long time. And it's not clear that it's the best tool for some of the perceived problems that have come up today. So, I definitely think that's important. I think, for example, there were lots of discussions about potential privacy concerns. And, to me, I'm a little skeptical that antitrust is the right body of law to deal with those concerns.

CONNIE LOIZOS: I don't understand the law. I'm not a lawyer. I don't know anything about antitrust, but I guess I think data portability is very important. I mean, to be honest I think there's a very small number of people who asks these companies to delete their cookies. But I think that should be a remedy that's available to them. I think the company should not make it hard to do, which we'd reported on recently, that California passed this consumer privacy law. But now in some cases I think companies are sort of making it very hard to find the data portals where you say, "Get rid of my information." Or they're making them confusing, so you end up kind of going through a menu and potentially clicking on things that are against your own interests.

That's an aside. But, I don't know how we solve the problem, but I think we have to make this information freer. I think ultimately that's a big part of the solution.

TED ULLYOT: Yeah, I'm probably with Erik on this. That big tech these days seems to be getting blamed by both sides of the aisle for all sorts of, and all sides of every ocean of the world, for all kinds of problems. You know, whether it's censorship or hate speech or destroying democracy or just being too big, income inequality, big tech seems to be... I'm not, no one's crying for big tech and I'm not encouraging people to cry for big tech, but there are a number of… The big tech companies get in that mix of a lot of these hot button, larger issues. And then antitrust comes in, I think some people will say, "Well, big tech is too big, so let's make it smaller." And how do we do that? Well, antitrust… and these are generally not antitrust practitioners who are saying this. So, I do think antitrust is ill-fitting for a lot of those various bills of complaint that are laid against tech.

I think the problem you're focused on today is interesting and it seems to me to lie at the heart of antitrust law, which is how do we promote American antitrust law? How do we promote consumer benefit? And what is the best way to get the best number of products out there and, specifically here, how do we make sure that there is enough venture funding for the next big ideas, so that we'll continue to have robust innovation in this field for the benefit of consumers?

That's great, and I think that is a place that antitrust can think about this as you are today with the conference and say, "Is there a problem? If so, is there not enough innovation? Is that because of inadequate review of deals that because deals that are below the HSR threshold end up being massively impactful?" I think those are interesting questions. But, I think the broader stuff about "Hey, let's just break up big tech because it's big," antitrust is not the right tool there.

TAYLOR OWINGS: Is there any question from the audience? We've got the mic coming to you.

TED ULLYOT: I'm nervous when Doug has got the mic.

TAYLOR OWINGS: (laughs)

AUDIENCE: (laughs) I'm just want to ask the panel what they think about something I've been… This half-baked notion I've had about kind of reframing the merger way of thinking in this context. So, I start with the proposition that was discussed in some of the earlier panels, which is from the perspective of a VC, most of their investments are not profitable. Then they have the occasional home run. So, one way of thinking of that, this jargon isn't quite right although it could be right if I spent more time explaining why it could be, but it is that the median investment from the VC is negative, but the mean is very positive.

So, starting with that frame, now, let's talk about merger law. Normally merger law is, in effect, focused on the median. It's saying, "Is this merger more likely to be anti-competitive than not?" and if the plaintiff fails to prove that, the plaintiff loses. One could think of the acquisition of the nascent competitor, whether Facebook/Instagram is a story or not I'll leave to others, but one could think of that as a little bit like the VC's portfolio, which is if you start a time one, and you don't really know what's going to happen, but you ran a simulation of all the possible outcomes, you'd probably conclude that the median outcome showed no real harm to competition, but that there might be, for some of them, a black swan event. A ten percent likelihood that the acquired firm would have turned into the next big thing. And it didn't because the owner didn't want to cannibalize his current big thing.

So, why not, if you felt maybe after the FTC's investigation, that we could identify three, four, five factors that maybe suggested there was more risk than not, more risk than in other cases, not of a likely outcome, but of a black swan outcome, that would cause the mean of the distribution of possible outcomes of this merger actually to be anti-competitive, even though the median would be very pro-competitive. Maybe you say, in that case, we're going to use, in effect, the mean rather than the median as our lodestar. We're going to say, if two of these factors exist in an individual case, the burden shifts to the defendant. Either to prove that the black swan event is extremely unlikely or to prove that there really are compelling efficiencies that would justify allowing us to run the risk of, hypothetically, a ten percent chance of killing the next big thing.

TED ULLYOT: And when you're talking about the current, just announced FTC inquiry into below…

AUDIENCE: Well I imagine that would generate these, what I'm calling, factors…

TED ULLYOT: Yeah, so very early stage, sub $90 million acquisitions and you can even see some transactions... I mean I expect we'll see that in some case. I assume we'll see some economist bring the Melamed theory in some opposition to a merger, just going back and tracing a number of small deals. But I think, most of the deals, I'm trying to think if there's any that are the hot button mergers that got through that were not notifiable.

AUDIENCE: I'm not saying this model should apply only to the sub…

TED ULLYOT: But that's where you would find the clues, as to what…

AUDIENCE: I'm saying that might be one of the sources of data that could cause the legal community to say, or the economy community to say, we think we've identified a half of a dozen factors for the evidence of a high probability of a black swan. They say this is more likely than the others to indicate, you don't have…

TED ULLYOT: If there are common factors, I'd be surprised. I think the cases we think about with these big acquisitions by the major tech companies, or even in the case of Facebook/Instagram, a non-yet major company at that point, that they're fluke-ish, interesting, varied, hard to distinguish the false positives from the false negatives. I bet it's very interesting though.

TAYLOR OWINGS: And I think that harkens back to what we heard in the panel just prior to ours, which is, if you did identify some of these factors, does that mean that investment funding would dry up for startups that might be rich in these factors and how does that interplay with what we're trying to encourage in the investment community and in competition through innovation more generally, as well? That'd be one of my reactions.

AUDIENCE: You could imagine a world in which if that kind of acquisition were prohibited, you would have more venture money. Because the venture firms would know that the large firms couldn't then use various kinds of anti-competitive tactics to coerce a sale to the large

firm and that the venture firms could then look at this as a pure play for, from a competitive point of view, what you might call the black swan outcome. From their point of view, they would call the next big thing and they might regard it actually as a more open field.

TAYLOR OWINGS: I think we have time for one more question if we can grab the mic over there.

AUDIENCE: It's the end of the conference and one concept has not really come up much. I'm curious to get some opinions on that. So, Joseph Schumpeter's concept of creative destruction is probably the best paradigm for creating competition and reducing market power. And, technological innovation is often driven by patent protection, which enables new entrance to gain market power against the incumbents, who will inevitably fight. Today's incumbents practice efficient infringement and they copy and the new entrants, generally, are less able to enforce their patents today than they were a decade ago, for example. Any thoughts regarding trying to improve this situation?

ERIK HOVENKAMP: If the patent is valid, then you should think it's bad if the incumbents are infringing it. But, I think, reasonable minds can differ about whether very many of the patents, especially in tech that are really important, are important because they represent really novel contributions or if they're just valuable because they were able to claim more than the patentee was rightly entitled to. So, I'll just leave it there.

TAYLOR OWINGS: Connie, maybe, do you have a perspective on the trends toward investment in patent protected areas versus reputational or user-based technology?

CONNIE LOIZOS: I don't. I'm sort of removed from it. I feel like the startups I talk to, and even the bigger companies, will tell you that they try not to focus on the patents. I mean I think that they maybe file them sort of defensively. But, I don't think people are, I don't know, focused on patents as... I don't have transparency into that, frankly. What do you think, Ted?

TED ULLYOT: Yeah, I mean, I think if we're talking software patents in particular, I don't think… Erik, I think framed it out very well. Software patents, not popular among your rank-and-file Silicon Valley software engineer. There's just a sense that's "Let's open source this stuff. Innovation's going to come from open sourcing. Much better innovation's going to come from open sourcing my ideas rather than walking down to the legal team and, you know, helping them file a patent application." So, that's software patents. I mean, hardware patents quite different. I think bio patents, very different. Attitude among both investors and engineers there, but I think, Connie, your sense of where engineers and founders are in the software space is in accord with mine.

TAYLOR OWINGS: All right, thank you very much and please join me in thanking our wonderful panelists.

Closing Remarks

- *Manish Kumar, Chief, San Francisco Office, Antitrust Division, U.S. Department of Justice*

MANISH KUMAR: Good evening everyone. My name is Manish Kumar, and I promise to keep my remarks short. But it is just a tremendous honor to have an opportunity to close out today's fantastic program.

So, I work at the San Francisco Office of the Antitrust Division. We are your friendly, local antitrust agency. We're just up the road. If anyone should find themselves in the middle of a price fixing conspiracy, we have a very generous self-reporting program and I'm happy to give you my business card. And unlike the FTC, you can't like us on Facebook, but you can tweet at us.

Today's discussion reminded me of the idea that what's past is prologue. And a couple of times we've talked about the Microsoft case. And in fact, Professor Melamed was too humble to say that he actually worked on and supervised that case. And in that case more than two decades ago, the Department, including a team of attorneys consisting of attorneys from my office, filed a lawsuit alleging that Microsoft had illegally maintained its monopoly position in the personal computing operating system market by, among other things, limiting the ability for consumers to use alternatives, such as Netscape. And we heard a little bit about that this morning.

And, I thought it was interesting to note, the government's proposed findings of fact in that case. So, what the government filed with the district court, in connection with that enforcement action, contained the following description of Microsoft's anti-competitive conduct.

The government alleged that Microsoft's response to the browser threat was to embrace, extend, and extinguish. In other words, Microsoft planned to embrace existing Internet standards, extend them in incompatible ways, and thereby extinguish competitors. And, I wanted to mention this because I thought it did have some interesting parallels to some of the discussions we had today about data portability and market adjacency and kill zones. And I think it, in many respects, shows how the incumbency challenge, the difficulty of competing with established players who have either more information or better positioning in a market, how that really has been a perennial issue from the perspective of antitrust enforcement.

And, I think minds may differ on this, but I happen to believe that the government's successful case against Microsoft, somewhat ironically, may well have paved the way and made room for some of the market leading platforms that were the subject of our conversations today. And also, from my perspective, I think that the Microsoft case proves that antitrust doctrine can be flexible. It can be adaptable, even in the context of new technology.

And my office, and the rest of my colleagues at the Department, we'll continue to enforce the antitrust laws as diligently and as conscientiously as we can. Even if that ends up involving the next breakthrough technology from Silicon Valley. And I think we will certainly be mindful of what was sort of a refrain today about unintended consequences in the course of that.

So, reflecting on what we accomplished today, I think it was a really fascinating and unique conversation. You know, it was a dialogue involving members of academia, the private sector, and then government. And I think, really, this dialogue has been incredibly informative for us. I know I have learned a great deal and my colleagues sitting at the tables over to the right of the room have also learned a great deal from this really fascinating discussion. And so, we'll be taking what we have learned from this today back with us. And I know that it's going to inform us and guide us in our enforcement actions.

But that learning by the Department is not limited just to today. I wanted you to know that there is a public comment period, during which anyone can provide additional feedback and thoughts about the topics that we discussed today. And in order to do that, if you go to the… I'm sure this is a very tech savvy group, if you just go to the conference website there's instructions about how you can submit that feedback and we look forward to receiving that. And we will be looking at that very carefully.

So, on behalf of the organizers of the workshop, the Rock Center for Corporate Governance, the Stanford GSB, and the Department, I really wanted to thank all of our distinguished panelists for your fascinating commentary today, on these important issues. And I also wanted to thank the audience members for the excellent input that you had and the excellent questions. So, thank you to everyone and I hope all of you have a great evening.