

How Do We Measure the Value of Health?

Marianna M.: So I hope you all have one as well. Is that a whiskey? No. Okay. So I've changed the title a bit from what's on the program because what I really want to focus on is what does it look like if we actually explicitly admit that the value that's created in a sector, and I'll be focusing in the second half of the presentation on health, but first kind of capitalism in general. So on a sector, whether it's energy, whether it's the IT sector, that wealth has actually created collectively by different types of actors. Of course, business and business has different governance structures around the world. And some businesses they maximize shareholder value and other types of businesses, they might maximize something called stakeholder value. Anyway, there's different ways to set up businesses. There's also different sizes. So in healthy big Pharma and small biotech, but also they have interacted very explicitly.

Marianna M.: So where's Michael? Here's my clicker there. Explicitly with, um, different types of government institutions in the u s uh, the National Institutes of health, which spend every year, anywhere between 32 and \$38 billion. So what is the division of innovative labor between this different types of organizations and how might we actually just talk about it and much more explicit ways that also then get reflected in the access to the products that are produced. So instead of having kind of a progressive stance on the redistribution issue and you know, prices are too high, and what do we do about that? How do we bring that discussion about access to health products in a narrative that is actually about cocreation. Okay. And I think if we don't do that, we have a huge problem and we're always just trying to sort of catch up with the problem prices being too high or not enough research, for example, going into the areas that are really needed.

Marianna M.: So what this new title here is really about how do we admit that there's a cocreation and co shaping, um, framework in which products in health come about and how can we use that in order to really radically rethink the system. And I should say that as an economist this time or by the way is not working, it's still at 60 minutes. Is that gonna go down so that I know it does not timer people. There we go. Yes, very good. Let's see. Um, and tonics work. Um, so for an economist with quite interesting in terms of this discussion is that we focus so much on the rate of growth, right? GDP is it rising as it followed by how much and so much of the discussion, um, around these issues. For example, what kind of health products do we have? What kind of prices in do we have as much more about the direction of that growth?

Marianna M.: And this is a really interesting time to be talking about it because after the financial crisis, there's been kind of this thirst for talking about the direction of growth. And in Europe where I'm coming from, there's been for a long time talk about inclusive growth, sustainable growth as there is here actually, especially at the state and city level is quite interesting in the u s um, and of course we have the sustainable development goals which are these 17 very specific targets

that we're trying to reach, um, in the next 20 years. And so what does it mean for how we set up our economy and then specifically the way that the public sector and the private sector interact in order to meet these goals. And the problem in this really, again, is going to be most of my focus cause I say public and private, but what will be arguing is that we've completely missed the plot on what the public sector should be doing, especially in areas where it's putting in so much money.

Marianna M.: Unfortunately within economics we have this really narrow way of talking about the role of the public sector at best as there to fix things when they go wrong. Because we like to sound really smart. We call these things market failures and you know, you have to wait for the market to screw up to then come in and bandage it up. Um, we also use words, which I just heard by the way in two sessions that have been to today, the need to level the playing field. Now leveling the playing field is not going to get you the sustainable development goals, only if you tilt the playing field in that direction. But what does that mean? And again, I'll be coming back to this towards the end. Um, and the other thing is, is really boring way of talking about the role of institutions like the National Institutes of health, which is the most active public sector organization in the health area in the u s so you're de-risking, you're de-risking the risk takers in the private sector.

Marianna M.: You're enabling, you're facilitating. It's not that these words are wrong, they're just really boring. I just think they're kind of lame. Um, and you know, they kind of set up a whole narrative about where the interesting stuff is. So if you're a super smart graduate from whatever university, do you want to work for the DEA riskers or do you want to take risks? Right? It's kind of sets up the whole narrative and problematic ways. And it's not that these big mess ups don't happen, right? These are different types of market failures. It's just that if we were really using this, uh, a framework which has kind of come in and bandage things up, when things go wrong, it'd be almost impossible to understand some of the most interesting things that have happened over the last 200 years of capitalism. And so the basic research stuff that the national institutes of health do are understood and economics as fixing a positive externality problem and creating a public good.

Marianna M.: So positive externalities are areas where the kind of spillovers from that investment are so big that it's really hard for anyone to appropriate the returns just for themselves. So you'll have under investment in that area by the private sector. That's by the way, why I sound American. I'm Italian, I promise. But when I was five, we left Italy to go to Princeton University. Sorry to Princeton, not the university where my father worked as a nuclear physicist funded by Uncle Sam. So the Department of Energy and Princeton University to do nuclear fusion. There's no debate about that all around the world. The state, whether it's the dod, the doe, or the Department of Health Fund, basic research. But to understand that investment in a public good like basic research or clean water is

just the bandaging something up as opposed to a real objective is part of the problem. Equivalently a negative externality would be the opposite.

Marianna M.: When the private sector does too much of something that's not included in its cost structure. So too much pollution, what do you need? The government comes in ideally, often doesn't do this and does something like a carbon tax. So none of these things are wrong. It's just the framing that you're just coming in to fix something, bandaging it up. And so as I said, it kind of creates this dichotomy. And this slide, sorry, uh, is a, is a strange slide here, but it took a long time to make, when I did a Ted talk five years ago, it's like keep putting it in and just thinking to leverage the time for this Prezi that they forced me to do. Actually they did it for me and then I was like, Ooh, that's beautiful. And I put it in. But the idea basically forget that Kafka here is better looking than Zuckerberg.

Marianna M.: But the idea is that, you know, would you want to work with the bureaucrats which are de-risking, facilitating, enabling, administering, spending, regulating or taking risks, right? It's obvious you prefer to be on that side. And the idea is this just a myth, is this just a cartoon image which also justifies how we think about the appropriation of these great rewards and wealth that is created when these different actors interact. And My area and economics is economics of innovation. So I've spent a lot of my time looking at what actually happened in renewable energy, what happened in it, the information communication technology revolution and what was the role of public and private. And of course the private sector is important. We know that we don't even have to have big lectures about an a beautiful rooms like this, but what was the role of the public sector?

Marianna M.: And basically the punchline is if we just use this market fixing perspective, we wouldn't understand any of the biggest technologies that have occurred in our time or in the time of capitalism, which just to remind you, it's not some sort of universal system. It's about 250 years old and it's fundamentally different from what happened before capitalism, which was feudalism, which was 500 years of inertia. So if we don't understand what actually produces innovation, which is a long run driver of growth, we've got a problem also in terms of thinking about the future innovation, but all these big changes. So general purpose technologies, which created massive changes and how we produce stuff, how we distribute it, how we consume it would be impossible to understand historically if the role of the public sector was understood is just kind of patching things up. So I kinda liked this because gpts general purpose technologies rhyme with SDGs.

Marianna M.: And the idea is forget it, we're just ain't going to get there. We're not going to solve these, these 17 goals if we continue to think that the role of the public sector within these is just to fix stuff as it goes wrong. And so what I did in these two books, and sorry this is quite self promotional, but you have an opportunity later to have a glass of wine and by I think at least one of these and have me

sign it. What I tried to do in these two books that I recently wrote, the first one in 2013 the entrepreneurial state was to unpick the narrative that kind of went through the history that, well, I mean all this is subjective anyway, the history is, I interpret it, um, of places like Silicon Valley and looked at the actual role that the public sector took alongside the private sector throughout the whole innovation chain and this whole kind of de-risking stuff.

Marianna M.: I'm like, ah, they took risks. And so the second question is, so if you're taking risks, how do you make sure you socialize not only the risks but also the rewards. And the second book that I just recently published kind of said, well, you know, what does this mean actually about value, how we understand economic value, how it's generated, and the kind of value propositions. And it's quite interesting. Plato, smart guy, he said, storytellers rule the world. And I'd begin with that great quote, um, of Plato in the book on value. And just kind of question what are the stories were being told, whether it's by big Pharma or the Uber's or the hedge funds about where wealth creation comes from. And could it be that that's actually one of the things we have to unpick if we actually care about inclusive growth. And so in terms of the entrepreneurial state point, um, the idea is that, you know, of course, basic research matters and we kind of know that.

Marianna M.: Um, but had we, you know, if we just assume or if we just allow public institutions, whether it's the national science foundation or the National Institutes of health or the Darpas of this world to invest in the science and then to assume that somehow the market mechanism allows the rest to happen. So commercialization than happens through venture capital, uh, the, and the private companies investing in the downstream areas, then we simply wouldn't get innovation cause the story, um, and the entrepreneurial state is actually, there's been multiple different types of public organizations distributed across the entire innovation chain. And that includes, of course, basic research, applied research, early stage finance. So patient, not inpatient patient, longterm finance for the few companies that even want to innovate. You know, both in the public and private sector, many organizations are happy with the status quo. If you want to innovate, you need patient longterm finance.

Marianna M.: And the venture capital sector has been part of the problem because they love to talk about innovation, but they also love to exit and they want to exit in three to five years. And so the death valley phase of the innovation can often last 10 to 15 years. And if you look at the history of biotech, that inpatient venture capital structure actually led to lots of plea pose. Sounds like a disease, but it's not. It's product lists, ips because of this rush to exit. And that's not then surprising that you needed the small business innovation research program in the u s government to through its procurement policy or interaction with procurement to provide this kind of more 10 to 15 year, uh, finance cycles. In Israel, they have something called Yasma. It's a patient, uh, public venture capital fund. And around the world there's different types of public banks,

whether it's the European Investment Bank, the KfW in Germany, in the US, there's only one and it's in North Dakota.

Marianna M.: There's someone, one of the organizers here told me they're from North Dakota. Um, so in the U.S. public banks don't have such an important role, but the point is regardless of the institutional form, whether it's through kind of procurement type related finance, um, which in some ways produced more as law without government purchasing, we wouldn't have actually had this massive amount of uh, a reduction in the costs of the chips that we, that we saw. But anyway, this patient long term finance as much more downstream than the basic research and also even more downstream bold policies have been quite important. So one of the, um, big changes that I talked about in the beginning was the mass production revolution think afford Fordism that would not have had the effect that it had had. There not been policies around suburbanization forget whether that was a good policy or a bad policy.

Marianna M.: It just happened. And that allowed the full diffusion and deployment of the mass produced products. And today when there's all this talk about sustainability, I do think there's an opportunity to really learn from that and ask what is a kind of, you know, what is the role of green kind of demand side policies to allow also the full deployment and diffusion of lots of the ICT information, communication technology products that haven't been diffused. And so what I did in the entrepreneurial state was kind of to unpack the iPhone and to look at, you know, everything that makes this phone and it's not just the iPhone or any smartphone unless you have a stupid phone, if you have a smart phone in your pocket or in your purse, what makes that phone smart is basically stuff that different public entities invested in. So Internet, GPS, touchscreen display, Siri, they, none of those would have happened without the public sector.

Marianna M.: And of course you needed the private sector to do really cool stuff with that. But how there can be an 800 almost 700 page book by Walter Isaacson, who of course is very important here at us. Aspen ideas without one page, one paragraph, one sentence, one word, one word. I would have been happy with any of the public investments that made the whole apple thing possible. That's the problem, right? So it's not to say apple sucks stayed as good. That would be completely stupid. Uh, you know, you needed that really interesting kind of thinking with an apple around design simplicity, the calligraphy classes that a Steve Jobs took and the whole kind of design culture. Of course, that's crucial. And that is innovation. But they basically a massive wave of public investments. And if we don't have narratives and stories and, and ways to talk about these investments than we're going to have a problem.

Marianna M.: We won't have a future wave for the apples, the fruit. It's convenient. It's a fruit to be born. Um, and also the other part of the stories that there's actual organizations listed here. This isn't just public money thrown out of helicopters to be, you know, to produce growth. There was organizations involved. So, uh,

you know, gps, the navy, uh, the Internet, Darpa, what do we know about Darpa? How it was structured, how it welcomed risks very little because we kind of dismiss the role of the public sector and just enabling. And so we don't ask those really fundamental questions that we do ask to private companies. And this is why people go to business schools to do strategic management decisions, sciences, organizational behavior, precisely to ask those kinds of questions within the business sector. How do you think out of the box and remain creative even when you become a big company, when the public sector becomes big, we just say bureaucratic.

Marianna M.: Well, bureaucratic doesn't have to be a bad word. You could have a sexy bureaucracy, a creative bureaucracy. It depends. Um, and anytime a company becomes a big, we ask how can it kind of resist that inertia? And so the lack of the stories and the narratives about what actually led to these public investments, which allowed or smart phones to be smart. This is exactly what's plaguing in many ways the health sector and what allows the large pharmaceutical companies to resist any attempt to reform the system. It's going to hurt innovation. So again, I'm going to come back to this later when I come down much more into health, but already you sort of see where I'm going. This is just quickly the data for SBR, which I mentioned, it's not surprising that the amount of public finance hasn't sort of been reduced. This is just comparing private VC in public VC through the SBA Bir and STTR kind of funds which many a silicon valley companies have had access to.

Marianna M.: So again, you kind of need both, right? But how many people know that lots of the, you know, actual early stage high risk investments didn't come from VC. In fact, they very much in the area of health surfed this massive wave and it's convenient. This looks like a wave. It's also blue of, of a public investments. And so the VC industry in health, the venture capitalists came in to surf the wave in about the mid, late eighties. Um, which is fine, no problem. Do that. But again, how, you know, where is that discussion about the kind of early stage risks? And there's a nice story, which I tell them the entrepreneurial state when thing it was meet that end, the French ex president came to California to learn how, you know, how can we be innovative and France. And so he had a tour and the tour was organized by Kleiner Perkins and the Venture Capital Fund.

Marianna M.: And there was a Nobel prize winning chemist Berg. Can't remember his first name. Uh, take doing the tour and you can imagine which of the two we're talking more Perkins or Berg. It was Perkins. We did this, we did that. But then we'd bust and at one point Briggs like, all right, where were you? Where were you in the fifties and sixties and seventies when so much of the groundwork was being laid for what you then did it shouldn't we be telling that story to our wonderful French politician has come here to learn the lessons for Europe? And in fact, Europe has not learned the lessons. I think in some ways China has learned the lessons, and maybe we'll talk about this a bit in the discussion, but you know what? Europe says, oh, why don't we have googles and Amazons and

Facebooks? Oh, we don't have VC. So they bring in a lot of short term venture capital and still don't innovate.

Marianna M.: They don't, they haven't understood this really important role of a decentralized network of different public institutions along the whole innovation chain, which had been critical to allowing dynamic public and private institutions to do what they do and to have a nice division of innovative labor. We see the same thing and energy, I'm not going to spend too much time on this, but that kind of high capital intensity, high risk, high uncertainty, part of the energy landscape today in countries that are trying to uh, enact sort of a real green transition. That upper right hand quadrant is full of different types of public organizations. Um, and what's interesting is the role of the public sector should be thought to transform, to push the frontier to lead the way in these difficult areas until the private sector sees an opportunity and enters in economics, we call it crowding in.

Marianna M.: And so you see here with wind, they played the role in the private sector, came in and then they reduced their investments. Today in Marine it's still very high risk. There's less scale economies. So the public sector is still playing a big role. This is sort of also a normative point. If you remain in an area, even when it gets easy, you're not playing your role, you should be pushing the frontiers lead the way and really kind of set the path for the private sector. And this is interestingly what this guy, Warren Buffet, very rich investor is often saying and he's not a communist, I promise. He's like, stop reducing my tax. I don't even look at it. I'm happy to pay my tax. I invest when I see an opportunity. And so much of what I'm talking about is kind of the history of where do these opportunities, which the private sector then saw actually come from.

Marianna M.: And if we don't have ways of talking about it, we have a problem. And if you look at the actual organizations that which I've been talking about from NASA and the space missions, Darpa, Arpa III, which today is the sister organization of Darpa, but in the Department of Energy, they don't talk about themselves, is just fixing markets. They have missions, they have a vision, they want to transform their landscapes. So really understanding what that means for how they're organized, but also again, normatively, how they should be organized in terms of really, again, pushing and redefining markets is important. In the case of the NIH, it's not only that they spend over 30 between 30 and 40 billion a year. One of the issues is have they in the course of their evolution kind of given up in terms of really transforming. So most of the funds around drug research, very little is on diagnostics and surgical treatments and lifestyle.

Marianna M.: And if the role of the public sector should be to transform to lead the way, what is the kind of internal culture and debate that should be had around public value, which by the way, the BBC has all the time in the UK and we can, again, I'm sure we won't talk about that later, but I knew it's very interesting if you're interested, I'm happy to tell you more about that. But what is the internal kind of culture that a public organization should be having to make sure that it isn't

just filling a gap. For example, if the big pharmaceutical companies start to spend too much as I think they do on share buybacks, uh, then you come in to kind of invest in those areas that they're not investing in. That's not the role of the public sector. They should also put kind of strong conditions also attached to their own investments to make sure that the private sector is in fact doing its job, even in the upstream high risk area.

Marianna M.: But anyway, this is kind of a broader point, which is do we even understand how these public organizations have been set up? And one of the things I've been doing in Europe and my role as special advisor of the competition commissioner, his name is Carlos Moa. She's a, um, a Portuguese politician who runs the whole innovation budget. It's called the horizon program. I kind of said, you know, let's learn the real lessons from the u s let's learn them, you know, like about the division of innovative labor, but also this role of missions. And so I was quite lucky, I was given the opportunity to write this report, which was then voted on by the parliament, the European Parliament and the council. So now there's a legal framework called missions in the horizon program, which is 100 billion euro program, which, you know, what I said was learned from the moonshot.

Marianna M.: The moonshot was addressing a challenge, which was the space race, Sputnik, the whole cold war thing. But it was very specific. The mission, this is go to the moon and back again in one generation it required many different sectors to invest, innovate and transform themselves, including not just aeronautics but also nutrition, health materials, and then government. What it did was it transformed its instruments. What it does like procurement policy, price schemes, grants, loans to really drive through that bottom up experimentation we know top down doesn't work. The Soviet system failed. So this isn't about communism versus capitalism, but capitalism at its best has been when the public sector was mission oriented and transformed its tools to drive bottom up experimentation in mainly but not only business organizations. And so the idea of, you know, using challenges around aging or climate change or the future of mobility or getting the plastic out of the ocean to really drive through concrete missions, which get lots of different sectors to transform and innovate and bottom up solutions is what this report is about.

Marianna M.: Uh, this plastic free ocean one was quite interesting because it occurred also at the time when there's a wonderful documentary put out by Attenborough on this. And it's amazing the power of culture also to kind of get people to reimagine what's possible. Um, I'm not going to go through that cause I don't have much time. I want to focus on the implications for this sector that Aspen ideas health is doing in the last two days. When you have missions, when you have the Darpa's and the NIH is spending the amount of money that they do and an area, I think it's completely naive, not to really talk about it. And that's that whole kind of iPhone story that I mentioned but also get symbiotic mutualistic partnerships and not parasitic ones. Sorry for the harsh language here. So conditions attached to the public investment. Not a bad idea.

Marianna M.: When the Bay Dole Act came out, how many of you know what the bay door locked was is good? So um, in 1980, it allowed publicly funded research to be patented and the idea was if you don't do that, all the kind of great research that the public sector's funding just remains in the academy, doesn't lead to, for example, new drugs. And it doesn't get commercialized. If you read the act then you know it was a smart act. There was definitely a reason for it to happen and it's kind of good that we can, you know, allow publicly funded research to see its way into new products. There's a specific uh, a bit of the act that says, well we should obviously make sure the taxpayer doesn't pay twice and so let's allow government to have march and writes on the prices of drugs that are publicly financed.

Marianna M.: The US government has never exercised its right to do that. So except when it's funded by the way, by the dod, the Department of Defense but spends a lot also on health for soldiers specific diseases that they might encounter in war there. They're not naive at all. Just like they're not naive when their funding and procuring in whether it's, you know, uh, missiles and the new airplanes that are needed to fight the war, they make sure the prices are right. Reflecting that public contribution somehow. And health. We just allow value based pricing to come in and determine the prices of drugs, which then through Medicare, medicaid or other systems, it gets reduced to get, allow people to have access to it. But the bill as you know, the healthcare budget in this country is extremely high and it's kind of ridiculous. It's called health care budget cause it's not really about care.

Marianna M.: Some ways it's a subsidy to these very high prices set by the pharmaceutical industry. Anyway, there's all sorts of kind of ways to do this. And this isn't about socialism. Uh, the patents in this sector are currently being abused there to upstream. So the patents are basically around the tools for research. They're way too wide. They're used for strategic reasons. Um, there also too strong, there's, there are often very hard to license. So the deal between public and private. When you give a private sector company a 20 year monopoly, which is what a patent is, should be, to make sure that once that, that 20 years are up the public, the state, the taxpayer, the citizen gets what they got in that bargain. It's a contract which is more diffusion, more deployment of this great knowledge, right? Because otherwise we get what we had in the Middle Ages, which was just secrecy.

Marianna M.: The great thing about a patent is it's written down. So once the patent's up, we can actually, you know, it's been codafide you get diffusion. But if in the meantime the patents are being used just for strategic reasons to block innovation or to upstream because we've allowed things to be patented, they shouldn't be patented. Then that part of the deal for the public sector, it doesn't happen. Reinvestment. You have many companies like Pfizer spending an increasingly amount of money and increasing amount of money, um, close to 70% of total net income on dividends and share buybacks. That would be fine if they were just kind of independent molecules doing their own thing. But in a

sector where they're so highly dependent on this close to 40 billion spent by the u s government, there could be conditions attached to that reinvestment. That's by the way.

Marianna M.: But by the way were bell labs came from bell labs, as you might know, is one of the most innovative private sector R and d laboratories in the history of us. Capitalism. It came from the government insisting the at, t, and t in order to retain its monopoly, reinvest its profits into the real economy, into innovation and big innovation that could really benefit the country. Anyway, there's all sorts of other things. Equity. I'll just say something quickly on that. You know cylindra how many of you know cylindra bad, right? And went bankrupt. Everyone's a guy. US government, terrible. Why did you invest in that same amount of money that Obama gave Solyndra as a guaranteed loan? Went to Tesla, a five. It was 500 million. So why is it that we allow, just like we did with the banks, socialize the risk, but prioritize the rewards.

Marianna M.: If you are going to play this mission oriented role big, if, if we don't want the government to be spending than they should just shut down the NIH. If you're going to be spending in these really high risk areas, set it up like a portfolio. There's going to be massive amounts of failures. That's obvious. Talk to any venture capitalists for every success are six or seven failures. Why is it though that the taxpayer was asked to come in and bail out Solyndra and didn't get any equity from Tesla? What Obama did was the opposite. He said, if you don't pay back the loan, Mr Musk, Elon Musk, we get 3 million shares in your company, why you would want 3 million shares and a crappy company that doesn't pay back its loan is beyond me. He had all these Goldman Sachs guys and government, somehow they didn't come through when he needed them.

Marianna M.: The price per share went from nine to 90 2009 2013 multiply that by 3 million. That would have more than paid back the cylinder loss in the next round of investment. But that requires the narrative to change. You're not just a lender of last resort, you're an investor first resort. You're taking risks and the private sector needs that. That's what good. There is a division of innovative labor, but we don't have a story to talk about that. Um, so in this report, which I don't have time to talk about now cause I've used up all my time, I brought some copies, I kind of reflect and this is free on the web, on like the book which you have to buy. I'm just Google this people's prescription. UCL I P P and my center, we kind of just reflected very concretely what could be done in the value chain of the pharmaceutical industry.

Marianna M.: Taking a much more mission oriented approach. Delinking innovation funding from high prices. Why not in some cases use prizes, but also really understanding the success of Barda the biotech. I'm part of, uh, the Department of Defense, which has funded biotech but in these much more, uh, ways that are conditional. So making sure that again, that the prices reflect the public investment, achieving a public return through conditionality and looking at different types of, um, ownership models. Um, and you know, one of the really

big things, this whole value based pricing kind of narrative is really an insult to the word value. So the fact that, you know, nostrum pharmaceuticals recently put up the price of an antibiotic by 400% overnight. And when they were asked, what have you done, how could you do that? And they, and the response was, we have a moral imperative to allow the price to go to what the market will bear, the please.

Marianna M.: Our shareholders. Not only is that, you know, kind of just accepting this idea of maximization of shareholder value in terms of how companies should be set up, but also completely dismisses the collective investments that went into producing the value of those technologies than we've made a whole database about the different types of actors that have gone into some of the big blockbuster drugs of the last, uh, 20 years. And something like 75% of the blockbuster drugs trace their research back to some form of public funding, which again, should at least be reflected in terms of the pricing. But what it's going to be impossible to do unless this word value is really kind of debunked. Um, and what's interesting is, you know, we have art but he now copying Darpa and the Department of Energy, but there's no Harpa are by h. And yet in the research we did for the project, we found out actually there is, it's in a drawer somewhere and this wonderful, uh, interesting person.

Marianna M.: Um, Dr. Jeffrey Lang who was the founder and former director, um, of the biotech office in Darpa is, is kind of thinking about what that would look like. And again, it's just much more strategic and mission oriented organization than what the NIH is currently doing, which is disbursing a lot of grants. But without that kind of idea, this is for the public because you are a public agency and what does it look like to have in the health sector an organization like Harpa working alongside Nih to make sure that we also get a public return for that public investment. Not just in terms of equity, but literally making sure that at least at the citizens, the u s citizens have access, uh, to the drugs that are being related. Last point, when Obama did the affordable care act, Obamacare, I was really struck by the lack of words.

Marianna M.: He had to talk about it when he was accused of meddling and people's health care. What he did was he gave a very classic social democratic response, and you don't use the word social democracy in this country, but that's basically what he did. He was like, yeah, but you know, 60 million people are uninsured. It's the right thing to do. That's that. That narrative is just about redistribution and it doesn't work. It doesn't capture your minds. What he should've said is meddling. What we have cocreated the system. We have spent x amount, again over 30 billion in drug research, and we're simply also trying to make sure that people have access to that public investment. It's a very different cocreation narrative to the one that is just about redistribution, and one of the reasons I think that progressive's around the world, we're kind of losing the story. Losing the battle of the narrative is they focus too much on redistribution. As important as that is and not enough on the creation side. And I'm done.

Speaker 2: [inaudible] that was great.

Olga Khazan: Um, yeah, so I want to dig into some of those ideas. I heard some murmurs and and things and, and, and gas. Yeah.

Marianna M.: So the first thing I wanted to ask

Olga Khazan: about is how, how would you have a more confident government or bureaucracy? How should the government kind of, you know, have those Martin writes or talk about it? Like, no, we, we help create the, you know, the healthcare system without freaking people out. Because I think that's a message that doesn't really go over well with a lot of Americans.

Marianna M.: Well, what's interesting is not so much what the government should do, it's what it's already doing that people don't know. So that Tesla, Solyndra example is really striking, but also the fact again that 75% of new molecular entities with priority rating trace the research back to some form of NIH type funding. And people don't know that. So we don't have a marketing department doing yes government and it shouldn't be seen as marketing in terms of conning people like brainwashing them. Just tell the story. But this, this lack of confidence, not only to tell the story but to get what you deserve. Again, the fact that it's in the bill, the act and they have never exercised that right. You know, it's, it's, it's quite striking how much the counter narrative has is strong. And the reason it's really hard to battle is that there's lobbies, there's companies there is there, you know, just like there's companies scaring workers about unions.

Marianna M.: There's companies scaring people about, um, you know, what it would look like if the government, you know, owned your health care, which is not the point. It's simply, you know, to, to again change kind of the power relationship. But we shouldn't forget that profits are being made by not having the right story told. So, you know, it's not like, oh, this just changed the narrative. It would imply not nationalizing the pharmaceutical industry. And by the way, it's interesting that the chief economist of Goldman Sachs, Jim O'neil, who actually launched our report with us in London, has recently said, and this is a Goldman Sachs economists, we should nationalize the production of antibiotics. If the pharmaceutical industry doesn't do its job. So there is of course that option, but that's not the option I'm talking about. It's not about nationalization or bashing big Pharma. That's doesn't get us anywhere.

Marianna M.: That's the US versus them narrative, which just creates a kind of static situation. But admitting this collective creation of wealth would require then asking are we sure that their rewards to the system aren't being distributed in such a way that had nothing to do with the actual risks taken. And that will imply not only a reduction of prices, but a reduction in the profits being earned. Similarly with venture capitalists, which I've written about quite a bit in the biotech sector, it's not to say that they're useless, but maybe the 20% they're gaining isn't actually matched by the actual risks being taken in the sectors. They're hardly ever

there. And the really early stage. And again, the fact that they are so exited driven means that, you know, they also want their return quite quickly and that's fine as long as the rewards mechanism matches that.

Olga Khazan: Right. And, and you were telling me earlier, you know, I was interested to hear that often we think about, uh, innovation versus redistribution to the people and, and actually Brazil and the suse has the healthcare system in Brazil. It's called the zoo. The suse, um, has, uh, is an interesting counter example of that. Can you, can you talk a little

Marianna M.: more about that? Yeah. So that's, that's almost a, I don't want to say separate, but that's another issue that we're working on, which is, and we have a lecture series with all the videos on the web in case you're interested in this. We've called the innovation in the welfare state. And the idea there is, you know, and it's part of this debunking point. Instead of pretending that innovation occurs in one part of the economy and then it's redistributed through the welfare state, and when a country has a welfare state and another part of the economy, could we actually reimagine the structures of the welfare state, how we provide education, how we provide healthcare to actually be a driver of innovation. Um, I hate to bring in your boyfriend into the conversation, but he asked a wonderful question and the previous session precisely on that. How can we get the Arrow's going the other way?

Marianna M.: Um, you know, how can we redesign in some ways health care? So it's not just benefiting from the great stuff today. Everyone's talking about AI but actually drive some of the direction of that Ai. And what happened in Brazil was that when they finally after sent, you know, kind of decades of not having a public healthcare system, uh, set it up, it's called Seuss. It a public health. Um, academic in by Ya did a project where he showed that the greater access that doctors were having to a much wider, a patient group actually influenced their innovation, influence their understanding. And he traced the learning by doing in innovation in something as boring as cat scan equipment. It was being informed by the new patient group. But that's sort of a separate point, which is, but, but it's related because it's about breaking the myths. And by the way, it's not a coincidence that the tech giants love ubi, universal basic income. Why? It completely repeats the narrative. We create the wealth and we're going to give you a handout, be happy with our handout, 10 k, 50 k, whatever it is. And I'm not against ubi is it's what you call it here. Yeah. But every country has a different way to call it nowadays. It's not that I'm against it. I actually think it's not a bad policy, but I really disliked the narrative behind it. I'd much prefer citizens shares

Olga Khazan: citizen tip of the knees into Tesla or something or how would you have that?

Marianna M.: What the universal basic income. The idea is that the government itself would be giving some sort of basic, you know, I mean this actually, if you look at the history of capitalism, there was a lot of debates about that and speed them, um,

in, in the UK, the ideas that people, or a map DSMs work in order to even to be able to access the economy, you need certain opportunities and capabilities. If you don't have that kind of minimum security, you're just always kind of worried and can become a productive member of society. So the idea is that it would come from public budgets. By the way, when we go to war, no one asks, where will the money come from? We just do it. And it costs so much more than ubi.

Olga Khazan: Right, right. Um, what about prizes? I thought that was an interesting time. How could prizes actually drive innovation and health, which is a often not, you know, you don't, you don't really think of prizes when you think of healthcare. Yeah.

Marianna M.: In many different sectors, prizes have been used and I don't think it should be the only tool, but it's a tool that can be brought up and it has been used in health, but by the Deo de not the Deo HR department of Health. Um, and so the idea is that if you have an area that's just simply get stuck, there's no big innovations in it. The government can say, okay, we're going to get 1 billion. You know, given that they are spending close to 40 billion anyway, 1 billion to the company or set of companies and organizations that come up with the biggest innovation in x area. So you no longer use the price system to incentivize in innovation but a prize. And again, it wouldn't work for every area, but you know, it's, it's, it has worked to incentivize innovation in, um, in the area of, of, of it around the world actually.

Marianna M.: And so, um, you know, just kind of questioning and I mean, I think the interesting thing with prizes is they again, debunk the idea that it has to be through prices that you incentivize or through patents that you incentivize that investment in innovation, right? The history of so many innovations that have occurred, um, in different areas have occurred, for example, with very little patents. And in fact, again, the structure, the governance of the patents have to be very careful not to produce what I call unproductive entrepreneurship is basically just rent seeking. Is there, is there

Olga Khazan: the reason why, um, that kind of thinking is more common in, in defense

Marianna M.: defense space? We got to wind farm, get serious federal around and be captured by some, you know, ridiculous narrative that's being fed to you just to create some rent in system. So, um, no, I mean if you want to win the war, you win the war. You've got to get the troops on the ground, you have to make, you know, invest in the different things you need. Right. And um, it is quite striking actually also the, again, in terms of the narratives, you know, the war on poverty or energy security, you know, the kind of lessons being learned by different areas or we have to frame it like a war and it didn't exactly work when they did the war on poverty, but still it, you know, I don't like the, the idea that you have to frame things as a war to get the funding, but if you want, yeah.

Marianna M.: Yeah. I mean the war on poverty is a pretty good word actually. Um, but you know what I say and entrepreneurial status, the US government has often often talks like Jefferson but acts like Hamilton and now that there's finally a musical, Hamilton people know when I'm talking about, but um, you know, they, they, they talk the free market but they've acted with a very kind of visible hand, not the invisible hand. And the problem is that when you don't talk what you're actually doing, there's also very little learning. This is why through the institute that I ran, which is actually the department, we've set up something called the mission oriented innovation network. And it's 40 global institutions from countries as different as Singapore, Chile, us on different European ones where you have organizations like the BBC, um, which have explicitly just ignored the kind of bullshit around, you're just there to fix markets.

Marianna M.: You actually there to cocreate shape. If the BBC, you know, global player and broadcasting had believed that they were just there to fix markets, they would have at best on great documentaries, which they do. And High Quality News, which we all watch when our board in our hotel rooms. But actually their success is, because they also did soap operas but not Dallas and dynasty eastenders about the working class, you know, serious, wonderful soap opera about working people. And they did that and kind of lead the way which then crowded in private actors. Same thing with talk shows, very different type of talk show in bed was gone. Any funds for example, your, your, you've got your own versions of it. Um, and the U S and so this debate within the BBC of public value, for example, forced that task. Well what is our purpose? And that notion of public purpose has been lost.

Marianna M.: John Kenneth Galbraith wrote a whole book on American and American public purpose. And I just think a bit of that debate really needs to come back to make sure that we're not only investing in the future, which is what the NIH is and the RP is or are doing, but also shaping that area in such a way that really create value for the citizens. Which in theory, you know, the public sectors representing. Otherwise it's easy just to get captured along the way. Yeah. I want to open it up to audience questions. Feel free to raise your, your hand if you have a question. And, um, we have Mike runners, so wait for, wait for a microphone to

Speaker 4: come to you. Thank you. This has been so fascinating. Um, you referenced the sustainable goals a couple of times in your slides and I'd, I'd love to hear you talk a bit more about the developing world. Um, I worked for Aspen Management Partnership for health. So I worked, I say in the Zambian Ministry of Health. Mm, okay. Um, Zambia, Zambia is a country of 18 million people in about 1 million people have formal jobs. So private six is more or less absent. Sorry. Absent. Yeah. And this seems to be in some ways a similar relationship. No, not between public and private, but between public and public. By which I mean bilateral donors coming into the country and the team I sit within the, do you have health seems extremely willing, uh, key to do things differently. Trying to sell that to the people who they need to go and raise money from. Because again,

only 1 million formal jobs. So there's not a lot of revenue coming into government. You need to go and find it from development assistance and the resistance to change resistance to doing things differently. It's not from the public 16 Zambia, it's from other people's public sectors arriving in Zambia trying to fix them. Yeah. And I just love to get your thoughts on that.

Marianna M.: A really good question. So when you say other public sectors, you're actually talking about the philanthropies and the charities mainly. Yeah. Yes. Interesting. So yeah, there's so little work by the way, done on that kind of says, you know, people use the word system of innovation, but the actual system who the different actors are, how they're relating and the kind of mess that occurs when we don't have that transparency, I was actually being done is quite problematic. So you know what's interesting is when I speak to people who work in Africa, they will say, yeah, God, you know, you're talking about like a much higher level. We don't even have kind of the, the, the state structures were lacking the infrastructure we have, you know, missed too much public, not too little public. And when they talk about corruption, I always say, hold on, I'm Italian.

Marianna M.: We taught you how to be corrupt. Donny. And I try it. We, yeah, that's our thing. Yeah. We're number one. Corruption is that so, um, well, the, the mafia, interestingly, there's a bit of a tangent, but the mafia, that's such a bad about the poly. That's what the market used to be called in. They became cousin in Austria and all these great movies about it. And actually then they all moved to America and yet more mafia then, uh, exist in Italy. Um, uh, came about because the state wasn't doing his job right? So it's not that there wasn't a state, it wasn't governing properly. So that's very important when we start looking also at some of the populism occurring around the world today that we like to blame. It's just a bunch of populous. But when the state doesn't have a real kind of sense of public value in public purpose, all the other things happen.

Marianna M.: Now, what's also interesting is when people say, oh, but we just need the basics first. We can't get into this refined level of symbiotic, mutualistic, public private partnerships. We just kind of need the private sector to come in. We have too much public and then problematic public public. I'm always like really? You know, be careful because when you set up that infrastructure, when you get the bridge and the road or other types of infrastructure on health, and if the deal, the contracts, the relationships are wrong, it's going to take decades to get rid of them. So in some ways these are really fertile grounds, but the problem is, is, or political will, what are the organization's, you know, people like yourselves asking the right question, how can we use these, uh, areas in the world where in some ways you want more private, there's not enough private, there's almost too much public and the public public, different types of public that are kind of dodgy to kind of really rethink that space.

Marianna M.: And unfortunately the opposite is happening, you know, and you know, whether it's because of the dynamics that, and on the book on the winner takes all, you know, the role of philanthropies, which is quite problematic. Um, or

again, as you say, the kind of, um, um, how do you say inertial public relationships that exist if you can't get them out of the way. But it's also true in Europe. So in the UK where I live, um, Corbin has recently said, you know, we just need to nationalize rail because it's gone so bad and it has gone bad. They prioritize the rail industry with no conditions attached. So he had Branson coming in, getting a big piece of the public pie and not maintaining it, not investing in it, which is different from other parts of the world where, for example, in Germany where the, you do have private actors in rail, but they have been forced to make sure that this is a green, modern kind of railway.

Marianna M.: And so really rethinking, you know, the opportunity to have serious public private partnerships that are not just about subsidies and guarantees, but our real coinvestment driven by public purpose is I think even more interesting and fertile to do in some, at least African countries. And in Italy, sorry, I keep bringing a better, but hey, I'm Italian. I have to like literally, um, you know, we have many institutions that have actually been quite useful in the past in the public sector, but they were organized in particular ways that the public sector is no longer organized. So Ed, that [inaudible] that [inaudible] which was set up by Mussolini, so not a great start, but then it had a long history and it was public, not politicized, public super politicized, which is the case in many African countries. And then privatized in the second and third stage. We're equally tragic.

Marianna M.: So what does it mean to have a public not politicize institution? And in Italy that meant constructing the autostrada strata. They're solar, the motorway that goes from north to south in four years. Um, so very quickly. And so that is the Darpa model, right? Darpa is public but not politicized. They bring in people for five, for five years and actually say, take risks. Don't worry. They do the whole Steve Jobs, be hungry, be foolish. Which we only allow really in the private sector. If the public sector's foolishness in the front page of the Daily Mail, they too, when it screws up, I'm not admitting that actually learning by doing as normal, but so how to get out of the subsidy guarantee and outside of the iron marshal public private is key, but we can only do that by actually diving in to when did it work, when did it not work, and by dismissing the role of the PR of the public sector, we're actually not getting enough case studies and doing the kind of Harvard case study methodology inside the state and that's what I'm calling for and that's why I've set up the whole department that's kind of focused on that and it's a global project.

Marianna M.: It's not about the UK. Yeah. Next question, Henry. Oh, go ahead.

Speaker 4: Hello, I'm Jason Palmer. I'm a venture capitalist in the education sector and I very much appreciate this talk. I think that the amount of r and d that's gone into healthcare education, energy, many different areas is not very well understood by people in my industry, but just people generally. Now, that said, I do want to say that a little bit of your talk sounds like us versus them. Yeah. And I want to point to two things in your talk where I think there may be some

feedback that I'd like to hear you respond to. One is where you had the five stages that were there that you know, the r and d, n, uh, venture capital was kind of stage four and then there was corporate venture capital, both of which I've done. I would purport that the creation of the product is only half of the game.

Speaker 4: Actually. There's the adoption, the implementation, the scaling, the gross margin. There's actually six through 10 that are not on your chart, which is where actually venture capital does most of its work. That's why we call it series a, series B, series c and companies fail at different stages along that way. So my question to you is, are you open to collaborating with the venture capital industry? We would love to see a lot more r and d and especially in education in healthcare where if you think about it, the buyers are actually the public sector as well, whether it's Medicare, Medicaid, in my industry, school districts, colleges, universities, lots of that funding is public. And um, we really won't solve this problem in, uh, 10 years. Like we could write, actually shouldn't say problem. It's hundreds of problems. Uh, it'll take 40 if we don't work in greater collaborations.

Marianna M.: So thank you. And I totally agree and if it came across a wrong, then I apologize. But the US versus them doesn't work. It just closes, closes the conversation. And we need a conversation to change the current state, which is dramatic, right? Healthcare if not working in this country. You don't need me to come up here and tell you that. So, um, and, and you also said something very important, which is Medicare, medicaid, that's on the kind of demand side. Part of what I'm saying is we'll then get real structure it properly, right? If you're going to spend all that money on the supply side, think of it literally as a system. So the state is on the demand side, medicare, Medicaid, the supply side, close to 40 billion a year on on the NIH and just hasn't thought it through. And again that's what the, the Department of Defense does do in the Department of Health doesn't do.

Marianna M.: So that sort of that point which you made very well. Definitely this wasn't a whole talk on on VC so the details weren't there. But I guess I would kind of come back and say my point as I kind of quickly mentioned is not to say that venture capital is not important. It's totally important. And by the way, it also just like I was saying, the state needs to be structured probably so does VC and in Europe it's been to structure just around the cash, the hard stuff, the kind of mentoring side also that VC has played in this country is very important and and you know, need, you know, we need to learn again what works, what doesn't, but

Marianna M.: you know the returns being earned when there are winds, there's lots of failure. And that's again something I always tell governments to learn from the venture capital's listen to them. They're saying that in order to win you've got to fail. So get both the narrative but also learn from your failures. And if you stopped investing in house and your capabilities and capacity and just outsourcing

everything, which is even now happening in Nasa, you're not going to learn when you mess up. So it's not only to market the fact that you know, for every win, for every Tesla you're going to have six or seven Cylindra is, but when you do mess up, you better have invested in house to learn from that because learning by doing is critical. Right? So again, learning and having that conversation, totally welcome. But the question is, has Kleiner Perkins earned too much given what they actually did in health?

Marianna M.: So you know, gen and tech look at the investments that went in and it's not about bashing Kleiner Perkins. I think they could totally play a role, but the profits being earned in the private sector are not too much from some sort of socialist perspective there too much compared to what they actually did it. Right. And so I'm really keen on also getting PhD students, for example, to do serious databases, not to make accusations, but you need data, you need transparency. Who did what along the risk space across that whole innovation chain and getting that kind of granular, um, you know, phases that you were talking about is, is absolutely central to them. But who did what and are we sure that we're not screwing up in health as we did in finance where the cop, where the public sector bailed out the banks, save the capitalist system.

Marianna M.: And then when Goldman Sachs is making record level profits one year after the financial crisis, they got bailed out by \$10 billion by the taxpayer. And when it was making record level profits, that risk that the taxpayer put in, because of course there was a risk and giving 10 billion to a bank to bail them out wasn't reflected. Right? So we socialize risks, privatized rewards, and that's my only point to change that. We need. That conversation has to be granular. It can't be us versus them, but let's do it. Otherwise, just stop talking about inequality. It's a joke.

Speaker 2: [inaudible] next person.

Marianna M.: I'll start. I'm Tobias Reed. I have the honor of serving as state treasurer in Oregon and I would love to hear you talk about roles

Speaker 5: or recommendations for states in the US context. There's also struck when you talked about the, uh, uh, excessive buybacks were big investors. So love to hear your, uh, your guidelines or recommendations for us in that role as well.

Marianna M.: Right. Well, I'd actually like to hear more from you. So, um, and in terms of, you know, what I'm you were calling for, I think there's such an opportunity to have a real learning and kind of platform of sharing stories between states and cities and different actors in the innovation ecosystem. Um, and so what's interesting in the u s and again, I'm not an expert. I am not that you care about my life, but I was born in Italy, came to this country on us five, lived here 30 years and I have been in Europe again. Um, I have four children all going to state schools and all born in a public hospital and manage just to say, um, the state still works in Europe so well anyway, it's been dismantled, completely dismantled. Can I just

say one thing about education and Italy? Um, only a few were really rich and needed extra attention.

Marianna M.: Did you go to private? If you were super, you know, kind of smart and had no real issues, you went to a public school and that's also, but Princeton high school where I went to a New Jersey, the dismantling of the education system in Italy recently has been very much to try to transform it. So the state system is, is kind of, you know, been defunded. And so the kind of families that used to really rely on the public system or going to the private system and becomes a self fulfilling prophecy. The states in the u s are interesting to me because first of all, they're quite independent. So this return mechanism is there. The federal government is not allowed to make a profit. So Novartis for some crazy reason, reason is working for free right now inside the international space station because international space station is not allowed to charge.

Marianna M.: I have no idea why. Um, when Justin Bieber goes up into space and unfortunately comes back, just kidding. Uh, you're supposed to make jokes have ever done and Hanukkah, um, those kind of 30 million or whatever he's going to pay to do space tourism. Not a penny goes into that public infrastructure, which has enabled that. That's almost, you know, the, that there's a legal issue there. States for example, with fracking are allowed. And so that's one interesting thing. States are also rebelling, you know, just like the state of California did with Governor Brown against the kind of climate change denial cities have done the same thing, including with Bloomberg. Cities are also increasingly like there's a New York, Sarah, I can't remember what stands for, which is basically setting up a new public fund of the asthma type in Israel, in the state of New York. It's really interesting that experimentation that's happening at the city and state level right now in terms of this kind of institutional organizational innovation, which is just as important as technological innovation.

Marianna M.: The welfare state was the social institutional innovation. Um, and so one thing with states that's interesting is first of all, I'm, I mentioned fracking, you know, shale oil and fracking was government funded, right? There's a whole history behind that. And again, once they did it, the private sector came in, which is great. That's the crowding in effect. Um, but how to make sure that also the land that's being supplied for the fracking, etc. It gets, you know, a return. So really having that portfolio kind of analysis, it's, it's happening in some states, but it's not being talked about. It's not being learned from. So I think what's lacking in the u s is that there is a level of freedom that states have, which the federal government doesn't, but because there continues to be an American general this talk Jefferson, but act Hamilton, the lessons aren't being learned.

Marianna M.: So they just remained these kinds of weird exceptions that we can refer to like, oh look, there's a public bank and Dakota, or look that state is actually getting a return from the fracking and it doesn't scale up into how can we design the system differently. And I think that's the opportunity. So having a, a real engagement. Um, and again, that's what we're trying to do. So definitely do get

in touch in this institute for public purpose, um, a global engagement cause there should be global because the lessons are that much more. If we believe in big data, let's get big data on how to structure the public sector differently. But it is interesting that, especially in a situation where there seems to be such as, am I doing this? What is it? Oh my gosh, I took it off. Um, so you'll take it out.

Marianna M.:

Don't worry. I won't take anything. Um, yeah. Where we could really be doing things differently just requires a, oh, sorry. I was saying big data and you know, there's lots of interesting experiments to be learned from in order to scale up and design the system differently. That's exactly what I was trying to refer to. Let's learn from Barda or the DDI NDI schemes in order to ask what would it look like if that was actually used as a more systematic way to think about healthcare innovation. And we are just about out of time. Thank you so much, Mariana. Thank you all so much for that.

Speaker 2:

[inaudible].