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I am Vinay Gupta of the Hexayurt Project. I'm am also part of the Ethereum project, I was the project manager for the initial launch of Ethereum. I want to talk today about a number of things… A bit of a complex pattern, but I guess we'll take it a layer at a time and see where we go. So, the Hexayurt Project status: we did a count this year, done by a friend of mine called Jay who's one of the hexayurt mailing list folks, and we had 2,200 hexayurts on the playa this year, which is really a lot of buildings. I mean, 60,000 people go to Burning Man, 2,200 hexayurts, say two or three occupants per hexayurt, so potentially 10% of people on the playa were in hexayurts this year, which I think is kind of a big deal – we'll see how big it is in 2016.

As always, the general reminder: do not *moop*! The panel materials that most people are using are fragile, they have a tendency to tear and blow away if you put them on a roof rack. In 2014 they had an enormous amount of moop from panels that were just tearing off the roof racks just as people were entering the freeway and it was creating an enormous amount of mess, like entire hexayurts wasted, so make sure they're strapped down, typically two sheets of plywood. Also, it's a little late this year but I want to see more experimentation in the materials that people were using. Hunter Xci 286 is basically very much like the standard grade of polyiso, but it has a much, much thicker coating of aluminium on both sides so it's much more resilient. The other thing that's worth a look is honeycomb polypropylene, which is not as insulating but is incredibly tough and durable, and I wonder whether it'd be worth taking a look at quad-domes that are honeycomb polypropylene, possibly with just drilled holes and zip ties to hold the buildings together, or possibly lashing with something like Dyneema or Spectra line. Anyway, that's the update on the hexayurt. That is not what I'm actually here to talk about here today, but I wanted to just do the reminder while I'm here.

What I want to talk about today is how we allocate risk and capital to generate forward motion. Silicon Valley as an institution is now probably 50 years old, and the sort of venture capital nexus at the heart of Silicon Valley originally started out as rich old geeks funding other young geeks to go out and build amazing stuff. It assumed a whole bunch of super-detailed technical knowledge embedded in tight verticals, where people that had invented the transistor were inventing the people that were deploying the transistor who'd invest in applications using the transistor. That sort of running progression of technical expert to technical expert to technical expert was the basic template the VC ran on in the very early days, Fairchild semiconductor and all of that. The problem is that that's no longer how VC works. Generally speaking, VCs are people that understand money really well and don't really understand technology at all, and this in some cases is a counterbalance to the sort of technocentric perspective that the people who are developing the technology have. Often the funders are in a position that they're the people who actually do the thinking about what the market can understand and tolerate. "No, we don't think that people are going to let drones into primary schools for delivering school lunches. I'm sorry."

But what's come out of that is that a VC has increasingly began to look like something between investment banking and loan sharking. At the very high end with things like Y Combinator you have things which are essentially finishing schools for entrepreneurs with an intense cultural transmission and tuition, YC is essentially the American equivalent of Eton, but the generic venture capital has become very, very, very finanicialised and very focused on the money. That's not necessarily a bad way of doing things, but it's a really poor fit for an environment where the speed of technology development has accelerated by somewhere between a factor of two and a factor of four relative to where it was in the 1990s. So we have this problem that the actual environment that we're in has sped up enormously without the capital allocation mechanisms changing to keep pace, and the necessary skills to be able to estimate risk in new technologies have increasingly diverged from the basically finanicialised focus of venture capital. That pattern of less technically sophisticated decision makers and faster-moving technology is resulting in I think quite a large misallocation of funds.

You hear people complaining about this in the Valley, the lack of problems or the "problem" problem, where people are sinking enormous amount of resources into figuring out how to get sushi delivered at 11 PM on a Friday night, but the actual problems that people face in their lives are much more to do with things like "How do I identify the health insurance I ought to buy? How am I going to find a place to live when it's $4,000 for a one bedroom apartment?" on one side, and on the other side it's like "Why can't I find a decent flying game for the Oculus Rift? We've got this enormously sophisticated new hardware platform. I can't seem to locate good software for it." So either it's a discovery problem or the software just hasn't been produced, and hardware getting in advance of software is obviously a massive waste of resources.

So, what I'm going to focus on is what I think is actually wrong with that structure and how we could take corrective action that would result in a new class of enterprises that actually figure out how to allocate the funds in a much more accurate way, potentially at a much higher rate of return, potentially with much lower risk, but certainly with a better-engineered portfolio. So something that actually provides a much more precise,

specific and targeted financial instrument, but not in a way that produces an enormous amount of additional background noise, from risks that you didn't want to run, incidental risks or correlation errors, this kind of stuff. That's the basic direction where I'm going. I'm going to break that down into some sections and pick them off one at a time, and then I'm going to tie it all together with a couple of ideas about where we go next with this.

So, I want to start by thinking about what a startup actually is. Right now most of the perception is that startups are companies, and you're putting money and time and energy into the company to generate a set of technologies which are used by a set of customers which generate a bunch of cash flow and the cash flow eventually turns into money and capital and all the rest of that. I don't think that's remotely what startups actually are. I think that startups are actually factories for producing financial instruments. A good example of this is medical technology. If you're going to take a cancer drug to market, the final stage trial costs something along the lines of 700 million dollars and that's a fixed regulatory cost; there's no way around that, you have to do huge clinical trials. Financing 700 million dollars has nothing to do with anything that resembles a startup; this requires enormous industrial muscle from vast entities that are going to put in huge amounts of capital, and these are like "the GDP of a small country" kind of numbers.

So, in the drug world you start with an idea, you do a bunch of research, you get some kind of promising leads, you then need 10 times the money or 100 times the money to turn those promising leads into an actual thesis that you want to test, maybe you do some early animal models. Then you have to do another stage, another stage, another stage, and the capital required in each stage is 10-20 times the capital requirement of the stage before it; you're scaling by orders of magnitude, and therefore completely different kinds of entities are required to absorb those risks. It's well understood by people in the drug development world that what you're selling on is a set of potential, wrapped up as essentially a financial instrument which goes through four, five, six completely different kinds of hands before it reaches the general market and the kind of billion-dollar final stage investment. Then it comes on to the market, then whoever is owning the thing at the end of the day has an enormous license to print money.

That sort of structure where we conceive of a startup as financial instrument I think is a much better fit for what investors are actually looking for when it comes to buying these things. There's a certain mythology that people are investing in startups because they expect to make more money than they put in, and I don't think that's generally true. They invest in startups expecting to lose all of their money, except for the 1 in 100, 1 in 200, 1 in 500 chance where their money comes back 1,000-to-1, 10,000-to-1 returns. Paul Graham writes about this really eloquently in an article called *Black Swan Farming*, which was the first time that I pricked up my ears and thought, "Oh… venture capital." In Black Swan Farming Paul Graham basically takes people through the fundamental experience that Y Combinator had, where basically they had invested in about 600 companies and three of them actually made all the money, being Dropbox, Airbnb and I think Stripe was the third one. So the companies that made the money produced these 1,000-to-1, 10,000-to-1 returns, there are whole bunch of companies in the middle that don't really make a lot of money but they don't lose any money, and then there's the vast majority of the companies that just go bankrupt immediately.

But that extremely high risk set, he says, they can't accurately invest in those companies because they're extremely hard to predict, so you can only really take a whole bunch of risky bets, hoping that you're buying something below the risk that the company contains ought to be priced at. As a result they've created a culture where they're unintentionally risk averse, because the expectation is that many of their entrepreneurs will get their companies from the initial Y Combinator funding to another round of funding and another round after that, they are not investing in enough crazy stuff because of the fear that they'll be seen as basically just throwing money up a wall, and as a result they're leaving an enormous amount of money on the table because they're investing at too low a level of risk simply for social reasons. The idea that you would come to demo day, he says, and get less than a third of your companies funded is just socially unacceptable.

So, I saw that and thought, "Huh." Coming from a disaster relief background – large-scale natural disasters, including artificial stuff like nuclear terrorism, potentially biological warfare – actually startups don't look particularly risky: nobody is going to die, nobody is going to get beheaded, nobody is going to get thrown off a cliff, nobody is going to get cholera. All we really have is a bunch of people sitting in a safe office environment, spending money to do some research, and if the research is successful then other people buy the research, put in another round of money, and potentially after a while you have progression from one kind of people to another kind of people, and what comes out of that is a gradual climbing up a very long kind of risk cliff. As you climb up the risk cliff you get closer and closer and closer and closer to something that actually looks like a real business, where the thing is run on cash flow rather than investor money, and at that point you're either in exponential growth and you have a chance of becoming a unicorn in which case you're a successful startup, because you have both cash flow and an unbounded open future, or you kind of park as an SME, where you have cash flow but the cash flow is not exponentially growing, the user base isn't exponentially growing, and at that point you've become parked as a small business. And parked as a small

business and failed, Paul Graham says, are exactly the same from the investors' perspective; it really doesn't make any difference for the people putting the money in whether they're getting 10-to-1 returns or zero returns, because the only thing that actually makes it worth doing are the 1,000-to-1 returns.

With that as a background, and the drug industry model of having to basically replace round after round after round of structure with new structure at 10 times the size and scale, it gave me this model that what we've actually got is a whole bunch of pipelines that are taking basic research and taking it to market, and that those pipelines involve an enormous need for capital as you get towards the later stages of those processes. But the early stages are relatively cheap, and as you go from the early stages to the later stages you go from essentially things which are basically just pure risk financial instruments, through to things which are a lot more like stocks or bonds, that have something actually associated as an underlying asset. So we're going from pure esoteric financial right down into real practical business, and that process of transition I think is very poorly handled by the existing institutions inside of Silicon Valley. The sort of A round, B round, C round, D round and all the rest of that kind of structure is built around the idea that things are relatively continuous along that line, rather than understanding that you're going from pure financial instruments to running businesses, and that in the process you're going through a series of phases where different kinds of leadership and governance are required.

The other thing that I want to add about this is that as we've seen in the Ethereum ecosystem, going directly to what we call the ICOs, initial crypto offerings, is a way that some classes of companies can raise enormous amounts of money extremely quickly, the sort of "five million dollars on the weekend" levels of funding. There's also a whole bunch of activity around crowdfunding which I think is worth noting, this notion that you can build things along so far and then you get to a position where you could go down the ICO path, you could go down the crowdfund path, you could take more conventional capital.

So, what I want to talk about next is what it would look like to build something which is explicitly based on the idea that we're going after the 1,000-to-1 shots in a manner which is very tight, clear and disciplined about what that really means in terms of the social dynamics of the enterprise which is taking those risks, and in terms of the risk and reward landscape that you need for entrepreneurs to be willing to strap themselves to that kind of rocket, rather than to buy out at the SME stage when they've got a couple of million dollars of net worth and 30 employees, rather than continuing to double down on their risk until they get to the level where it actually makes a difference to the investors' bottom lines.

I thought about this from the perspective of entrepreneurs in the crypto space. A lot of the entrepreneurs in the crypto space are self-funding, made so much money from Bitcoin and then from Ether that they're in a position where you could coast for months or years. But very few people in that space are in the position where they could support a team for months or years, and there's also this feeling that if your Ether is at $10 a coin it's still probably underpriced, because in the future the potential is that we would be as big as Bitcoin, and in that kind of scenario if you fund a company out of it your company has to do really, really well to be better than the underlying currency instrument.

We're still in an environment in the crypto ecosystem where there's a need for capital, and the world is filled with people who are basically slavering to get into the crypto scene with their capital, because they think that it's going to produce the hard crypto Twitter, the global marketplace that replaces eBay. There is a feeling that there's the potential for crypto to produce such enormous global impacts that it's more like investing in early-stage governments than it is like investing in companies, and I think that's true. The idea of a world which is governed by math rather than by force is extremely appealing and I think in the long run is going to turn out to be a good bet, but getting the capital into the system is quite difficult. It's difficult because it's hard for investors to assess what the risk is of the enterprises they're getting into because the enterprises are so incredibly technical.

There's a need for entities in the crypto ecosystem that have a full set of business and technical expertise to wrap themselves around the problem and understand whether something has the potential to be a "unicorn" – or I think it would be better to call them dragons in the crypto space – or whether it's basically just a bad idea that will scale so far and then get clobbered to death by regulators. A lot of them, for example gambling games are the kinds of things where you think, "Wow, that could really work!" until you think about how hard the gambling regulation is to work with, and then you think, "Actually these people can't do that."

That sort of filtering is why investors need VC: you need a VC company to take a chunk of money, to figure out what is likely to generate a return and to allocate the funds. The problem is that for it to be genuinely effective you have to be looking for companies that have these 1,000-to-1 returns, and to get into that kind of space you need to be investing in things that don't only seem mysterious to you but that actually seem like they are potentially physically impossible, ethically unreasonable, or require patterns of human behaviour that

you just don't believe in. That I think is the first really long lever, that to get into this kind of space you need to think about putting money behind ideas that you personally do not believe in or trust, because if you are a 45 year old man and you completely understand the idea and you think everything about it is reasonable, the idea is not in the future, the idea is firmly in the present. What you're really looking for in this kind of work is things that 25-year-olds look at and are like, "I am really not sure I could use that. That is kind of weird, but interesting," and in that sort of mindset this idea is that we're basically prospecting for pools of high-quality risk in areas that are culturally inaccessible to the vast majority of people that have the capital assets to put behind them.

So, this notion that we are looking for things that are at the very edge of our cultural span – because these are the things which are kind of weak signals or harbingers of the future, and in the event that culture takes that fork through the future, those things go from being marginal to central – is a model for thinking about things like Airbnb, Dropbox, the rest of the big unicorn stories, Snapchat, even Facebook. If you'd actually predicted that most people would only be able to keep track of their relatives, particularly their distant relatives, using a piece of software that had originally been designed for college students to go to parties and figure out who they wanted to talk to… Nobody would have believed that, it seems completely unrealistic because that's across a kind of membrane. In the era when the idea was originally formed, the future in which Facebook became a central part of human culture was behind a set of layers of impossibility, veils of impossibility, and as culture moved in the direction of the bet that Facebook have made, those veils dropped one by one by one by one, until you wind up in a reality where Facebook is the new normal, and at that point because Facebook is the new normal, because it has a billion users, Facebook has wealth equivalent to roughly a small nation state.

So, thinking of this as being a process of attempting to divine long-range trends in cultural evolution in a way that you build out the technology platforms in which those trends then manifest, become mainstream parts of the lives of millions or hundreds of millions of people, and as a result wind up firmly embedded in the economic system is sort of the model of what successful startups are. But that process involves at the beginning extraordinarily high risk, based on bets which seemed unreasonable, counterintuitive and often literally just impossible, only a crazy person would believe this, right through a series of transitional phases until the thing is completely normal. The critical axis of action in that is that at the early stages the kind of intuition that you are required to make those kind of bets is completely different from the later stages where what you need is expertise in dealing with regulatory and legal, and the ability to negotiate with competing, cooperating billion-dollar companies around you.

So, phases of a rocket: little risks become big risks, people who are intuitive and are reaching for the future gradually cross over control of these enterprises to people that are regulators. Right now the gateways of those processes are extremely messy, they're filled with internal conflict and it's very, very hard to get collaboration all the way down those pathways, because the existing set of financial instruments that we're using to do those deals don't incentivise cooperation between the successive phases of different people which are required to take something like Airbnb from being a crazy idea on a website through to mainstream cultural institution on a par with the hotel.

Now that we've got this clear model of phases going from irrational dreams about possible futures, through to the hardcore regulatory grind of bolting these things directly into the existing superstructure, I want to talk a bit about alignment of interests between different players inside of the space of making a transition like that possible. The folks that come in early to these games are by definition somewhat crazy; you have to be somewhat crazy to believe that an idea like this is going to go all the way, but if you don't have that kind of crazy you're also not going to dedicate your life to doing it. So finding sane, reasonable, rational players that are willing to assume those kind of risks right now is very difficult, and part of that is because the basic process of venture capital involves throwing away the rocket at the end of the process.

VC as it currently stands is a bit like the space industry pre Elon Musk: the rocket is assumed to be disposable, it doesn't really get reused, entrepreneurs get strapped on to to the and fire themselves into space, and if it works, they're sitting there on the space station, in their Elysium having quite a good time, and if it doesn't work they fall back to Earth, crash hard emotionally, take a year to wander around India with a backpack, living on rice and beans, and eventually reinvent themselves as an engineer in somebody else's company with their dreams smashed around their ears. We've got to be clear that the failure rate for these companies is on the order of 90% if not higher, and therefore the common experience of most entrepreneurs is that they burn all of their emotional reserves, something like a third of them wind up with clinical depression, and then they hit the ground hard at the end of the process when it doesn't work out; or it succeeds and they wind up completely alienated from the culture around them because now they're very rich and all their friends are still broke, or trapped in high burn rate lifestyles with substantial salaries but no real chance of getting off the wheel.

Getting out of that trap requires a different way of thinking about how we're going to approach this. The first thing is I think that it's important that we think of entrepreneurs as being a scarce resource rather than an abundant one, and we think about money as being a relatively abundant resource rather than a scarce one. It's always possible to find more money in an ecosystem where the world's net worth is something like 30 quadrillion dollars. There is an astonishing amount of wealth on the planet, and actually most of the companies that we're talking about cost the same to run for a year as a typical house costs to buy in some not particularly sexy nation – you go to a second city, these are the kind of prices for a year of operation. So it's not that there isn't a lot of money in the ecosystem. On the other hand, the precise set of skills necessary to master a diverse palette of technologies and pool them together into a coherent vision of the human future, which you can then attempt to slide in front of culture as an option to divert it from the path that it would be on if you didn't exist, that's a pretty rare set of skills.

The first insight that I really had about this was that pulling entrepreneurs out of companies before they're emotionally destroyed, letting them rest up and then refuelling them to do another enterprise is probably a much saner way of approaching this than creating the entrepreneur as being a disposable one-shot rocket. I think that we all know from dialogues that we've had around founder's depression how bad the problem is, and that problem is not inherent to the nature of being an entrepreneur; that's coming out of a combination of Silicon Valley machismo, and investors expecting to drive people until they drop, because they think that the last 2% of the effort in the tank is absolutely likely to make the company succeed. This is exactly the same conceptual error that we get in end-of-life care costs, where we wind up spending something like 40% of the medical budget in the last two months of life for very old people that have zero quality of life and are often unconscious for the entire period.

So, if you think about this as figuring out when to take people off the respirator, if you do it early enough you save the fundamental assets of the company, which are the people's willingness to work. If we get into a position where we all kind of know that an idea is not going to go anywhere – we have lost the shot of being a unicorn, we're negotiating for SME, maybe the SME model isn't useful and we're just going to crash it – at that point the obvious plan is to take the team, soft land the rocket on its tail, send them somewhere warm and sunny for a month to basically eat vegetarian food, do some yoga and go swimming in the sea, and then come back and see whether anybody's got an idea of something else they want to do or whether the team wants to disband.

That approach of rather than basically burning people and then crashing them, that you could soft land people to me looks like an incredibly important recycling of talent inside of an enterprise network. So rather than having to continually mount new entrepreneurs and onboard them, figure out the risks, learn the psychology, figure out whether the team is stable and all the rest of that stuff, what would happen if we actually started looking at this as rather than simply funding companies round after round after round after round until the entrepreneurs are broken, and then at that point you finally admit it won't go, what happens if we pull this stuff out a little bit earlier? Yes, it'd be a tiny number of companies that actually succeed in the gap between "entrepreneur is broken" and "entrepreneur just simply cannot move anymore", but for the actual large-scale risk analysis I suspect that a lot of the people that you would pull out at that point would go on to then found a more successful enterprise on a second or a third try, and you would overall do much better across the portfolio with an approach of treating the entrepreneur as a scarce resource rather than a disposable one.

Then we get back to this question of how we align interests. If we accept that you need a succession of different people with different skills to pilot something from a crazy idea about the future of humanity through to something which is bolted to the kind of nation state or global superstructure, then how do we make it possible for entrepreneurs to look at this kind of prospect of like "We're really going to shut this thing down to protect our psychological health so we could try something else."? How do you make it feasible for people to pull the plug? I think the answer is you have to make it okay for them to think of themselves as being important enough, that crashing the entire show is not the future. That shift of understanding that fundamentally the people with the skills are at the centre of the ecosystem rather than the people with the money seems like a fundamental transition that Silicon Valley is yet to make. We're in a position where we're reinventing something that looks an awful lot like merchant banking, in an environment where theoretically we're trying to build the future of the human race. I think that you can see this really clearly in the Elon Musk story, because Musk is very, very clear that he is using capital to affect global transformation, and if somebody was willing to fund him just to do the transformation work and it would be effective without building the machinery around it, I'm sure he would've taken that path.

So if you think of this as following the Musk lead but attempting to ground it into something which is scalable for people that are not quite as extraordinary as Musk is, that's the sort of direction of travel, and then

you around that build this notion that we lay out the hypotheses, we build out on to the hypotheses. If that hypothesis looks good we double down, if the hypothesis looks bad we pull people out at the point where they're being psychologically damaged by the work, rather than at the point where they're no longer able to continue, and at that point we protect both the financial capital and the human capital invested in the enterprise network.

The final thing that I think is worth noting about that part of this model is that in this kind of "monster labs" format, then one of the critical ideas is the idea that you horizontalise risk across the enterprises. What I'd also like to see along these kind of lines is an entrepreneur risk pool where people have the ability to cross-invest in each other's companies, or something like a shared option pool, in a way that specifically incentivises people to take larger risks than their own enterprise, because they are swinging for the fences in a position where they're relatively sure and so the other people that they're in the network with are also swinging for the fences. It's much better for the network as a whole if everybody swings as hard as they can and takes as much risk as they can because this increases the chance of getting the big wins, rather than in a position where people feel like if their particular enterprise doesn't work they're not going to make any money at all.

Horizontalisation of the risk is why the VCs are able to absorb the risk, but we're in a position where we're not making entrepreneurs able to absorb risk at nearly the same level, which is why you wind up with things like founder's depression. That's happening because the instruments around the system are not appropriately valuing the human capital, and entrepreneurs feel chained to a position where if their specific thing doesn't work they get nothing. Both of these are fixable problems.

I mentioned this concept monster labs. I've been thinking basically since I read Black Swan Farming what it would look like if you did a VC that conformed to the outer risk landscape that Paul Graham lays out but had a different culture which made it possible to get into this risk landscape in a way that was socially and culturally acceptable to both the entrepreneurs and the capital behind the VC. What's in my head here is that the VC is essentially a matching engine between people that have money but don't understand what the future is going to look like well enough to lay their own beds or build their own systems, and a bunch of kids with enormously erratic visions about what the future might look like, some of which will turn out to be predictive, most of which will turn out not to be. This is leaving out a huge class of entrepreneurs, people in their 50s who self-fund their own companies and generally speaking don't need VC input but actually create an enormous number of successful startups. What I'm talking about is the things which have the potential to be billion-dollar companies because they get out in advance of human cultural change at a very large level, and then the culture flows on to the platforms that they've created.

Right now it's obvious that the dynamics are beginning to unfold in a whole bunch of fields. If I list them just off the top of my head: VR, AR, AI, blockchains, Internet of Things (IoT), robotics, self-driving cars, drones. That set of cultural shifts… We all sort of know that 20 years from now you're going to be able to turn your light bulbs off and on from home. We don't really understand why that would be useful, but if you go and talk to the power grid companies, the ability to turn off and on enormous amounts of load quickly allows you to build much more energy efficient, much more economically efficient power grids – you don't need all this spinning reserve, it changes the nature of things.

We all sort of know the final direction of travel; what we don't know is how you get there. Entrepreneurs that are betting inside of the Internet of Things space are making the bet that their specific version of that inevitable future is the version of the inevitable future that society will pick, rather than somebody else's vision of the inevitable future. You'll lay all of those things out in front of you as potential scenarios, to bet on each scenario costs you 50, 100, 250,000 dollars; if the scenario begins to look realistic and people begin to have to double down to get some scale, you wind up with a million, two million, five million-dollar chunks going into a company, which is still essentially laying out a thesis for a potential future but might have a couple of hundred thousand users that are investigating and exploring that future as something that could become cultural mainstream, that could become the ordinary norm, something that could become a verb – *to airbnb*, *to dropbox*. We're not yet at the point where you say "*to tesla*," but that could very easily become the thing that you do instead of *ubering*.

So, the idea that you're basically building new verbs into human language by creating platforms which enable activity – *tindering* – is a way of thinking about the things that have the potential to be these kind of billion-dollar enterprises, things which plug into people's lives at that level. But how people will choose what to do, the mass psychology of choice behind why one platform wins and another is inherently non-deterministic; anybody that was capable of predicting human culture at those kind of levels would basically rule the world, there'd be no way around that. So it's not here, it's not happening, there is no predestination. Enormous numbers of chaotic actors creating futures that we can't dream of, and the definition of the future is it's the

present you can't imagine coming, and then it arrives and you know you're in the future because people are flying drones around to take pictures at their weddings. "The hell is that?! Where did that come from?! Where are we? Oh, we're in the future." I mean, have VR gear here that I hardly use because every time I put it on I get future shock. "Oh my God – I'm in the future! Wow, I waited my whole life for this, here it is!"

So, the notion that I have in my head of where in this landscape there is any kind of edge which isn't basically just throwing chips on the roulette table and rolling is I think that the interfaces between technologies which are getting very, very heavy external investment is actually the best place to put your assets. If you imagine something which is using just VR, the VR underlying platforms are getting better say by 20% or 50% a year because billions of dollars are going into these things. Was it Leap Motion that raised something like 800 million dollars of VC and still hasn't done a public demo? That kind of fundamental breakthrough innovation, lots of people are funding that stuff. But if you're at an interface between two or three different fields which are all receiving that kind of innovation, then if your prototype is basically a bit rickety and duct taped together today, if you do nothing other than keep your prototype up to date as the underlying technologies improve, you get enormous compound leverage from all of the underlying technologies getting better.

If you had something that was for example a landing pad for drones that you were going to build on the top of buildings, you might use AI to schedule when people were going to land, you might use blockchains to verify the flight path so that everybody knew when they had their slot. You might then in the event of a crash basically make the insurance claims work by loading all of the telemetry into a VR system that people could then examine to figure out who had deviated from their assigned flight path, and you might feed that as an as input to a mediation system that would make an automated insurance claim. Those kind of highly-compound systems, you could just about prototype that today and it would maybe kind of sort of work under lab conditions, but if you came back to that technology in five years, in all probability every single one of those components would have improved to the point where it was a near-perfect commodity product that did what it did as well as A4 paper works inside of your printers.

The path between a rickety prototype present and the five-year deployable perfect system is paved with other people's money because you have to continually to lay down track, and if you are in a position where you're doing something which your customers are capable of buying today and it's starting to scale, there's a possibility that you're operating too near to the future to actually have a chance at winning big. That's a topic that I'm going to come back to in another talk another day, but the idea that you're basically getting all of this compound leverage because you've got all of these different technologies which are simultaneously improving looks to me to be about the only relatively predictable competitive advantage that I can identify when we're considering building new verbs into human culture. If we're going to be *thinging*, a thing might be more likely to succeed and more likely to generate value quickly if it rests on multiple underlying technologies which are all simultaneously improving.

These are basically the two core ideas at the heart of this kind of monster labs notion. The catchphrase by the way, the reason there's this monster labs thing is because I had a sheet of honeycomb polypropylene that I was looking at for doing prototype hexayurt stuff, and I wrote on the side of it with a chalk pen "Funding Dr Frankenstein because monsters are cool." That kind of stuck in my head for six months as being the sort of appetite for risk that would be required to generate the kind of breakthroughs that we know are technically possible, culturally acceptable maybe in some futures, and how do you get there, and then that kind of stuck as a working title.

So, the basic two principles are, firstly, this notion of conservation of entrepreneur. The entrepreneurs are the scarce resource, we don't want to throw the entrepreneur draft away after every mission. We want to be able to build a hypothesis, strap the entrepreneurs to the hypothesis, launch the hypothesis; if the wings fall off we would like people to eject while they're at a safe enough altitude that they can recover, then we could strap them to another hypothesis. Right now what we're doing is basically having entrepreneurs act like fighter pilots: the plane is expendable, the pilot is expendable; the mission is not expendable. That approach makes a ton of sense if you only got one mission, but actually for most people they're going to do it through round after round after round of companies, either as an entrepreneur or as an employee, until they get to some kind of settled position where they're comfortable or until they max out.

If you think of it as many, many, many, many test planes – three, four or five companies until you find something that really works – then it's much easier to see that landing the plane in good condition is the best thing. "Okay, this isn't going to work. We're not actually going to make a unicorn out of this, we're going to have to return to the ground," best option. Second best option is you eject the team while they're still in the air, they've got parachutes, they land, you can put them into another company if they want to work together; if they don't want to work together you can consider finding ways of placing the team with other companies.

That's hypothesis one. Hypothesis two is this compound value notion, that you basically figure out where in the ecosystem you've got enough space to build something that has two or three of these underlying platforms which are all improving simultaneously and you put these things together. This model of very aggressive care of the entrepreneur as a scarce resource, coupled with risk prospecting in an area that I think is very different from regular VC has kind of persuaded me that there's enough game here for it to be worth taking a shot at, moving from being largely inside of the blockchain space to doing something which is more diversified.

I've talked a lot about theory here. Now I probably ought to talk about what I'm actually doing. My journey to this stuff has been long and, frankly, involved a lot of screwing up. I did my first startup in 1993, dropped out of Edinburgh University Computer Science course to basically be first employee for a medical rendering company, co-invented what I think was probably at the time the world's fastest medical rendering algorithm, eventually the company became a thing called Voxar. Then I went to the States, did a whole bunch of graphics stuff that was flight simulator based, constantly trying to get a set of skills that would be relevant to VR, I was a graphics engineer, and it was basically just one failed cock-up after another. I managed to make it through the 1990s without making any money at all, and then had this radical change of direction to energy policy and the hexayurt and the disaster relief and all the rest of that, I spent some time doing due diligence for an outfit in Chicago. I've never really found an angle on the thing that I believed in, I've never found something where I felt like I had a compelling vision of the future that was my show. I did find that inside of government policy, inside of energy policy, inside of disaster management around the hexayurt, I found the things that were concrete and I got a lot done in those areas, but I've never found something in business that had that sense of "Boom – I'm in the right place, this is my thing."

But actually, slowly, slowly, slowly this VC thing has become that for me, because what I see is there's opportunity to basically intervene in the lives of an enormous number of really smart and talented young people, to give them a shot to live their dreams and to basically drag us along with their dreams. Changing the world in ways that are really substantial and significant is not easy, and it's only really going to get done if we can figure out how to allocate capital to things that really have the potential to make a difference. And I don't mean this is a kind of narrow social change, bottom-billion kind of a sense, which is what you might expect from me, but we have to innovate at both ends. We have to innovate at the high end because that's where you get the cell phone technology that eventually scales globally, and the high end is a place where you polish ideas until they really work for human beings. The low-end innovation, we don't yet have the financial infrastructure to make it possible for billions of poorer people to collaborate between putting their funds into things which are good for them. So until we've got mass collaboration where it's possible for a billion people to put a penny each into a bucket once a day, it's very, very hard to fund the kind of access to markets that would be required to do bottom-billion innovation.

One of my hopes is that over the next couple of years if we can successfully do innovation at the high end inside of the developed world for the people that already have assets, we could then, as the financial infrastructure from the bottom billion comes online, scale down into those markets and into the innovators that are in those markets. But right now without blockchain-based financial infrastructure to enable that ultra-low cost innovation base, I don't think we can get in there. But the high end, what I really want to see is the best of people doing the best of work with the best support possible, to try and build things which genuinely feel like we're in the 21st century in something that's happening.

I mean, this sounds kind of like a fantasy, but it would be nice if Tesla was not the only thing that you look at and say, "Actually capitalism is worthwhile." We're doing a lot of utility innovation right now which is basically taking existing business models and adding a computer to them. There's a lot of stuff around Robin Chase's work on *Peers Inc*, where you do this kind of very rapid roll up of a whole bunch of different assets into these ubiquitous platforms, there's a lot of stuff happening along those lines. But what I want to see is stuff that's really just shocking and amazing, things that basically treat the world like art and you're painting on this palette to make completely new ideas happen in ways that then change and mutate human culture. Because if we can accelerate progress at the bleeding edge by a factor of maybe two or four again in the next decade, we might get the kind of acceleration that it takes to build the technology place and the cultural change necessary to allow us to address things like climate.

So, right now what I'm on is a very, very short-ranged directed acceleration trip, where we try and speed up the ability to get great people working on great stuff, with the expectation that that speed is in and of itself a social good and a toolkit that later on we might broaden into other areas. But for now it is a very straight down the line, straightforward approach: find a set of money which is looking for some very specific, high-risk, high-quality risk, find a set of entrepreneurs that have a real sense of mission, value, purpose, that are super clear about what it is they want to do in the world. Then we wind up with a series of hypotheses about the future which are investable, we build these things out, putting more effort behind the things which

look more attractable and have more leverage, and we have enough horizontalism inside of these enterprises that everybody has a very strong sense, and if it doesn't work out for them, they're still not wasting their time because they're a part of movement which takes care of its own.

I think all of those factors together brought into the correct harmony, with the expectation that these are incredibly high-risk enterprises from which it's necessary to have a plan that allows you to continue your life if it doesn't work, could produce something which is as much a step forward from conventional VC as conventional VC was from going to banks for loans to start businesses. I think that there is another jump to be taken there, and I think that that jump is quite hard to make in the Valley because the Valley is very good at what it does and it's quite hard to get in there with fundamentally new ideas about the structure of the deal. But in the environment where we've got the crowdfunds and the crypto offerings and all the rest of that as options for scaling, that changes the dynamics, the dynamics are changed because of the speed of innovation, particularly self-funding entrepreneurial activity into the blockchain space. We're seeing a lot more interest from areas outside of the US and figuring out how to innovate in a way which isn't simply replicating the Valley, and all those things together begin to sound like the makings of a plan.

Right now I'm basically just sticking a wand in the air and saying, "If you're interested in this, write your name on a piece of paper, and we are going to go and build out the ideas a lot more and we'll get back to you." If you want to be an entrepreneur and you want to talk to us about potentially funding what you're doing, hexayurt.com/capital, there'll be a form there that you can fill in, give us some idea of the direction you're pointed in and the kind of person you are. Similarly, if you're interested in talking to us about helping us get this thing done, that could be expertise, it could be different ideas for how we could approach this, it could be locations we ought to be thinking about operating from, it could be anything along those lines – again, on the website there'll be a different form, put in your information there. We're going to try and pull together a set of people in London to do some work on regulatory, to do some work on business model, to do some work on legal and contractual. My hope would be that if we continue to get stuff done at the pace we've gotten it done recently, we should be in a position to fund the first companies that come out of this process by January or February of 2017. That will be the on the other side of the US elections, we'll know a lot more about the general shape of the future from the process that unfolds there, and once the sea has calmed a little we can actually launch some boats.

I've got two things left on my mind, which are these. In my case a lot of the reasons that when I was doing entrepreneurial stuff in my 20s it was one failure after another was because I didn't actually understand what I was doing; I didn't have a clear template in my head about what a company would look like if it was a successful company. Similarly, the cultural rate of change stuff… I don't think it's just me that has noticed that reality has speeded up enormously in terms of technical innovation in the last couple of years. We're in this position where there's an astonishing forward drive that wasn't there before, and the only thing that we can hope for from doing this is to build machinery that gets people through their lives in a more effective way than the previous round of machinery did. You have something great inside of you, you want to bring it to the world; you need a set of tools to do that, you need a set of people around you to do that, you need money to pay those people to build those tools. All that we're doing is enabling people to get things done. It's just the case of bringing the models up to date with what current social and technical reality allow, rather than operating inside of an older paradigm.

So, in a sense this is an incremental innovation inside of the funding space. It might look quite radical on paper, it might look very strange, but we all know that it's hard to get money into early-stage, high-risk new technology because people are still too conservative, and we all know that entrepreneurs often have a very difficult time psychologically. We take those two challenges as being the core challenges that we're going to attempt to solve, we raise a pile of assets, we also are a startup in our way, and then we go forth and solve. You know the URL (hexayurt.com/capital) – talk to you soon!