

The Great Simplification

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[00:00:00] **Nate Hagens:** Greetings. There are a lot of things I have no idea about in the future. There are some things I'm quite confident of. Humans are going to exhibit amazing resilience. amazing nastiness all kinds of emergent responses. But one thing I'm very sure of is that no matter what happens in the future, humans will continue to innovate and create and invent and problem solve.

[00:00:31] The question is this technology, which has served us in this moonshot of consumption era what will it mean on the downslope or the top of the carbon pulse? And so today's Frankly is about Goldilocks technology. Not too hot, not too cold, but just right for a resource constrained and ecosystem of the Holocene constrained future.

[00:01:03] And today I'd like to outline a preliminary checklist of what such Goldilocks technology might comprise. So in the current world there's basically a simple rule for innovators and entrepreneurs and venture capital people out there, which is revenues minus expenses is greater than zero, then that's profit.

[00:01:42] And if you can do that at scale meaning that people demand and will pay a price for your product, that's the incentive to create something in the marketplace, that is what our system has followed for a very long time. So if you believe the conventional narrative that growth is forever, technology can overcome any shortage of resources via the price signal and innovation, and that the environment and Earth's natural systems and other species don't really matter, then this equation and the resultant inventions makes sense.

[00:02:22] However, and as many of the followers of this show understand, if you believe that we, humans, are connected to every other living thing on this planet of things that are alive today or that will live in the future, we have exceeded or about to exceed many of Earth's boundaries that keep the ecological stability of the Holocene.

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[00:02:45] Most of the natural resource inputs into our economies are non renewable on human time scales. And humans can live well with a fraction of today's per capita resources consumption in the West. If you believe that narrative, then it suggests that our technological inventions in the future are going to have to take on a different categorization, and maybe follow a different rule.

[00:03:17] Okay, so let's break this down a little bit. First of all, let's assume aside for the moment, the five horsemen of the coming decade, which is the financial bend or break moment, which feels closer than it did this week. The geopolitics The complexity, the social contract and the breakdown of the environmental stability of the Holocene.

[00:03:41] Let's set those aside for the moment and let's look at what should business people and investors and inventors be doing? What would a checklist look like for appropriate technology? What I refer to as Goldilocks technology. What would that be? Well, first of all, it's not only in your jurisdiction and your responsibility as inventors as venture capitalists as technological tinkerers.

[00:04:17] You don't have this all on your shoulders. There are some things upstream that have to happen. So let's look at this equation again revenues minus expenses greater than zero. So upstream, revenues depend on sales. Sales depend on humans demanding things. So revenues would equal sales times prices plus subsidies.

[00:04:46] Sales are dependent on marketing and what humans choose to consume, choose to use. That has to do with our values, our consciousness what we think about our consumption decisions, et cetera. Prices are of course wrong because we're pricing these things as if they were um, interests, but they're really capital and we're not including prices of externalities at all.

[00:05:16] And subsidies many of the things that are supported in our current system. Like many of Elon Musk's companies, as one example, are heavily supported by government investment. So, upstream, human value shift, a change in consciousness of consumers would change this equation. What about downstream?

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[00:05:38] Well, downstream are is expenses and expenses are the cost of inputs plus externalities. The cost of inputs, of course, are wrong. We are paying pennies on the dollar for this gargantuan fossil army subsidy added to our economies with no plan for after the the, the shale oil, which is the source rock is gone.

[00:06:05] What will your children and grandchildren use for? energy to power their car in 30 or 40 years or 15 years. And externalities basically our culture does not include the impact on local and global biosphere impacts from our consumption and our prices and our pollution. This isn't your fault as a technological inventor or investor.

[00:06:34] So these formulas probably need to change upstream and downstream from your work, but let's get to the checklist of Goldilocks technology. This is just a draft and it's presented as a draft. in order to get feedback. I kind of like doing these frankly as getting like an idea I have out there in people's minds and to be discussed in an Overton window sort of way at a B minus sort of level, because then I can move on to the next and you all can improve this and maybe I'll hear back from you.

[00:07:11] So here's a checklist. Number one is a Goldilocks technology, which is not too hot, meaning some super drone that takes pictures and can drop marshmallows on your kid's summer campfire birthday party that, that is not really necessary for the future we face and not too cold, which is, we don't want to go back to the stone age and, and have, know, you know thatch, sandals, and the like.

[00:07:42] So what sorts of technology would fit into a Goldilocks scenario? The checklist starts here. Energy inputs. We know that energy primacy, energy is needed for every aspect of a a product's invention, creation, delivery, maintenance, disposal, repair, everything. And that as energy gets more expensive because of the multiplier effect of how much we use in the global system, things get much more expensive.

[00:08:13] So we have to reduce the energy input into our processes faster than prices go up. Otherwise, everything is going to become less affordable, and that has its own complexity. Implications. So top on the checklist is to reduce the energy inputs and, or make better use of the existing energy inputs.

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[00:08:36] That's number one on the checklist. Number two is especially seeing what's going on in the world with the, the move towards a multipolar world and, disruptions in supply chains, and we don't know what's going on in the Middle East, etc. is that the supply chains for key inputs should increasingly be local and regional as opposed to global.

[00:08:59] Because that makes your product more resilient. Now a lot of people will say, oh yeah, but the globalization has continued to scale for a long time. Yes, because we've had pretty much Unrestricted access to low cost credit and letters of credit and very cheap energy and global peace. So in a less stable world, where your key ingredients come from.

[00:09:30] is going to be a pretty important check mark. Third, also on the ingredients the inputs, is we're going to need simpler inputs as opposed to very complicated, expensive esoteric, exotic inputs. Recently I was in India and people in the community in Auroville had created a brick making machine that makes bricks out of dirt.

[00:09:58] And they have a patented formula that you put dirt and water into this machine and you compress it and creates bricks that you can actually make buildings from. I'm sure they've tested soil from around the world and such. So I'm not entirely sure how local the ultimate product is, but this is a simple ingredient.

[00:10:19] The same thing with batteries. We can use sodium for batteries and they're not as good as lithium, but a lot more affordable and scalable to use something as abundant and ubiquitous as sodium or silicon. Next would be on the checklist would be circularity. How much of an entire um, cradle to grave of the inputs and outputs of a system of a product are, are reused.

[00:10:51] Right now, the global supply chain of all of our products, we recycle around eight and a half percent. the rest is waste. Roman Kuznarek was on my podcast this morning talking about Edo Japan where they had kimonos and the kimonos were recycled as pajamas and they were recycled as baby diapers and they were recycled as something else after that.

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[00:11:18] But it was an incredible circular economy in Edo Japan, which we haven't heard much about. So the percentage of circularity in a system has to go up from what it is now. Next on the list is a regenerative synergy. How regenerative, how does the technology synergize with the sun, the wind, the rain, the soil, the natural systems to actually create some synergistic growth?

[00:11:46] Whereas we're not just. Putting some human built biomass onto the surface of the earth and generating dopamine for us, that there's some regenerative capacity with the soil or the primary productivity. or something with the ecological flows. So regenerative capacity. Of course building on that, the next on the checklist is the ecological impacts.

[00:12:15] We don't include that as a cost or a value in our current prices, but if you pollute in a local river, where I live in western Wisconsin, the local dairy, Keeps dumping effluent into the river. They've been fined, but it destroys the trout habitat. There's algal overgrowth and it's, you know, if they get busted, they get fined.

[00:12:37] But think about the ways that on a local or regional and a global basis, we are damaging the ecosystems where we live because we don't have their impacts or their values in our prices. So ecological impact is also on the checklist. Next would be when we solve a problem, are we creating other problems?

[00:13:04] Daniel Schmachtenberger in his Naive Progress podcast a few months ago, talked about yellow teaming, which is when you invent a new product you should ask yourself what would be the first order or the second order negative impacts of introducing this product into the marketplace. Now, I think you can't do this too far because if you imagine all of the negative impacts, we would just never leave our houses and invent anything.

[00:13:33] But I think if there are any ostensible, obvious, negative reverberations from the introduction of some technology, we should anticipate that in the the boardroom and the engineering table as we invent it. Next would be on the checklist of Goldilocks technology. Is the tech affordable and scalable?

[00:13:58] Because there is a huge difference between technology being able to be built and it being affordable and scalable. Because a lot of the gadgets and flying

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cars and such are only going to be helpful to a small portion of humanity, technology should be useful and affordable and scalable, which leads me to a related point is, and a really important one, would the tech In question, be relevant to the futures we face.

[00:14:30] Is it relevant to a resource and material and energy constrained, more local future that has hotter temperatures, higher standard deviation of drought and flood, And global disruptions periodically of supply chains and other things. So we have to consider the use factor of the technology.

[00:14:54] Um, maybe uh, a hierarchy would be basic needs. The Betterment of Life, novelty, and then at the top of when I was growing up, my parents used to go to antique sales all the time and they would refer to something lovingly as QUE which stood for junk fancy junk, J U N QUE. So there's a lot of things that we make in our global economy right now.

[00:15:23] I'm thinking of all the trinket stores. And when you get off the plane and in New York city and things like that, there's so much crap that we literally are mining the earth and turning billions of barrels of ancient sunlight, plus important non renewable materials into, you know, microliters of dopamine and ephemeral feelings.

[00:15:45] So I think the use case for Goldilocks technology is for basic needs and the betterment of life. Last but not least is We have a valueless system right now that as long as revenues minus expenses is greater than zero, that is an acceptable outcome for the global market system and we just assume that's okay.

[00:16:14] So if we can somehow change the upstream and downstream rules or guidelines for this equation to equate to something more of a wide boundary of profitability that recognizes an earth centered, not only a human centered culture, and recognizes that all of us and our descendants are pretty much screwed unless we change the behaviors writ large and respond to events in a more cohesive earth friendly way in, in coming decades.

[00:16:50] So the last on the list would be a wide boundary profitable. So these are 10 initial boxes that we could check. And of course, not every Goldilocks technology

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will check all of these boxes. Maybe they'll check three of them green and five will be in yellow and a couple will be red. I think the importance now is to imagine such a list and get the directional, um aspirations, right.

[00:17:22] **Nate Hagens:** And, you know, move in that direction. So, you know, given that. What are some closing questions about this that I'll pose to you, the viewer. You know, revenues minus expenses is our current market metric, but it actually is our biological driver as well. Optimal foraging theory, animals and nature of which humans are one.

[00:17:44] We like to invest a little and get more in return. So what percent of our optimal foraging instincts. is biological versus what percent is cultural? Like how much could we change that equation towards wide boundary profitable? How would Goldilocks technology of the type I've listed here coexist with the economic superorganism, which maximizes power, profits social hierarchies and growth without caring about these other things?

[00:18:17] Could it be like um, in the movie Contact the second alien machine built in Hokkaido, Japan that's running concurrently with the economic superorganism? How would that look? Could education and marketing change any of the demand side that goes into revenues minus expenses? Could some new earth centered marketing campaign shift some of the things I've brought up in there so that green Goldilocks tech becomes more likely?

[00:18:53] What other things should be on this list? I've offered 10. Can you think of others that should be included? And how would such a checklist, how would such a framework come about? Of course I don't know which is why I'm doing this, frankly to send it out into the pro social universe of thinkers in service of life.

[00:19:15] So that's it for today. Goldilocks technology. Let's talk about it. Talk to you next week. But wait, there's more. Please subscribe to our Substack channel in the link below. We're going to increasingly be posting essays there, especially essays of these Franklies that can be shared with graphics and references and such.

[00:19:37] Lot going on. Please subscribe to the Substack in the link below. .