



## Stanford eCorner

### Exponential Edge for Startups

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Mike Maples Jr., co-founder of venture capital firm Floodgate, explains how three laws of exponential growth favor tech entrepreneurs: Moore's law ensures products will possess unprecedented computing power; Metcalfe's law of network effects compounds the number of users; and the "power law" shows that top performers can achieve runaway success if they get everything right.



#### Transcript

So there's three exponential laws I'm going to talk about. And I think they basically animate startup opportunity. I think that they are, fundamentally, the three asymmetric weapons of the startup. The first is one that probably most of you-- so how many of you have heard of Moore's Law? OK, everybody pretty much. So Moore's Law says that the performance of computing doubles every 18 months at a given price. Now it's funny. We take Moore's Law for granted. But Moore's Law is very profound. Moore's Law guarantees that the tech industry will remain magical. And the reason that Moore's Law is so powerful is because of the power compound interest.

Give me an incumbent of any arbitrary size, give Moore's Law enough time, and it will breach the advantage of any incumbent company, no matter how powerful that company's position is in the market. And so the thing that is so important for our industry about Moore's Law is it guarantees a continuous supply of new, awesome companies that change the way we view the world and that could be potentially disruptive. How many people have heard of Metcalfe's Law? Just a show of hands. OK, so not nearly as many people. So Metcalfe's Law is named after Bob Metcalfe. Bob Metcalfe is widely regarded as one of the prime movers of inventing the ethernet. And so Metcalfe's Law is about network effects. So Metcalfe's Law basically states that the value of the network is a function of the square of the number the nodes. And if you think about it, it makes sense. Every new node that gets added to a network has the potential to connect to all the prior nodes of the network.

And so as the network gets larger and has more nodes, some people argue that it's not 100% exponential, but it approaches exponential increasing returns. OK. How many of you have heard of the Power Law? OK. Not that many, as well. This might surprise you. So there are more than 10,000 startups in a typical year created. And actually right now, we're in a little bit more of a frothy time so it's more like 20,000 to 30,000. 10 of those companies create 97% of all the exit value in the industry. That's really hard for people get their mind around. By the way, this is why venture capital and startups are not an asset class.

Most asset classes follow things like the capital asset pricing model. Or they follow things like a normal distribution of returns, where you have a one sigma event this way for the better, and a one sigma event this way for the worse. That's not how power laws work. They work like this, right? So my first angel fund I had, it had Twitter in it. We made more than 500 times on our investment. It didn't matter that two other companies in that group of investments went public. Twitter dominated all the returns. In the next fund, we had Demand Force returned three times the fund by itself. Lyft has that kind of power in the fund after that. And so here are some other statistics.

So for example, what we find is in a typical startup year, the best startup of the year is generally more valuable than all other startups created that year combined. So Facebook was created in 2004-- more valuable than all other tens of thousands

of startups combined created in 2004. Paul Graham once told me at Y Combinator-- and I think that the values have flipped now because this is about three, four years ago-- he told me at the time that Dropbox was worth more than all 550 other companies that they had run through their accelerator at the time. And that Airbnb was worth more than all the remaining combined, and so on. So what the power law basically states is that generally speaking, the value of the best outcome will exceed the combined value of all the remaining outcomes. And then the value of the second best outcome will exceed the value of all remaining outcomes, and so on. OK. So I said that the first key thought was about exponential reasoning. This is tech entrepreneurship in one slide. It is leveraging the power of Moore's Law and/or Metcalfe's Law to create an extraordinary outcome.

That's the whole business. Everybody I know-- well for the most part-- who's really done well in Silicon Valley was involved in one of those extraordinary companies, either as a founder, as an employee, maybe even as a lawyer. But it's like if you're not trying to be one of the top 10 companies of the year, you're competing with 9,990 other companies for 3% of the scraps in the industry. And so the first thing that I like to emphasize to people when they start a company is, start a company that's worthy of your talents that you think represents the absolute utmost gift you have to offer to this world in your life.