Emergent Layers, Chapter 3: Explosive Growth

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This is part 3 in a 4-part series. If y0u haven't done so already, we invite you to start at the beginning with the Introduction, and then continue with Chapter 1 and Chapter 2.

In Part 1 of this series, we learned about the cycle from scarcity at layer i to abstraction and then abundance, with a newfound scarce element emerging at layer i+1.

In Part 2, we learned about the nature of customers being overserved versus underserved, and the particularly explosive combination of customers overserved at level j and underserved at level j+1.

Now in part 3, we're going to combine those two elements — column i and column j — into a common framework.

Recall what this framework is NOT:

-A formula for what the future will be

-An set of rules to determine which companies will win and which will lose

-Anything deterministic

What it SHOULD be helpful for:

-Forming a framework to help us understand how and why new layers of value are created, so that when we see explosive growth happen we're able to understand what's going on a bit more

quickly and efficiently.

So, let's get right to it, and fit the two columns together into a framework we can call Emergent Layer Theory:

-At an initial state, there are scarce resources or elements in the world of which everybody is aware (located at level i). Bounded by these constraints, businesses make money off of points of friction governed by this scarce resource, and measure themselves on performance related to this scarce resource.

-Over time, the nature of competition at this layer will lead to customers & end users with jobs-to-be-done related to this resource (at level j) becoming overserved with features, saturation and expense.

-Meanwhile, these same users will have higher-order jobs, at level j+1, for which they are underserved. However, these users' needs cannot be addressed at level j+1 directly, due to the constraints and points of friction at level i.

-A breakthrough occurs when this scarce resource at layer i becomes abstracted away in such a way that it can grow scalably, and becomes abundantly available. (The people or company who accomplish this abstraction may not initially realize they are doing so!)

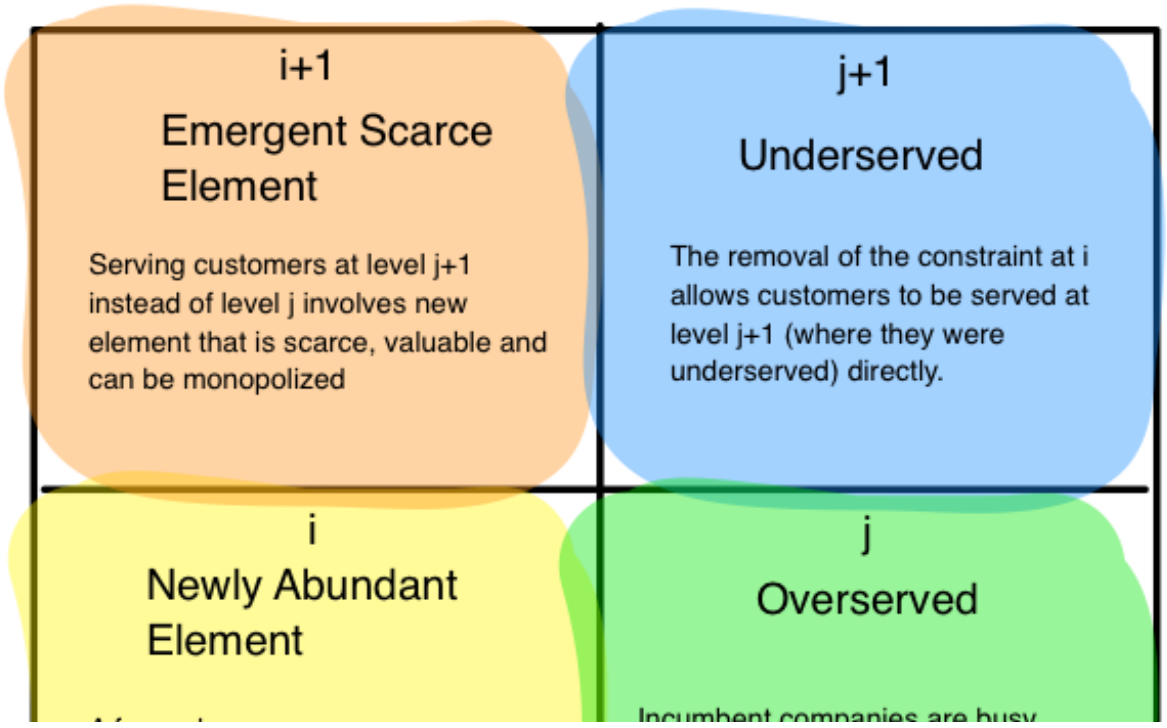
-As a consequence of this abstraction and new scalable abundance of this resource, the old constraints around which performance was measured and profits were made go away. Crucially, the

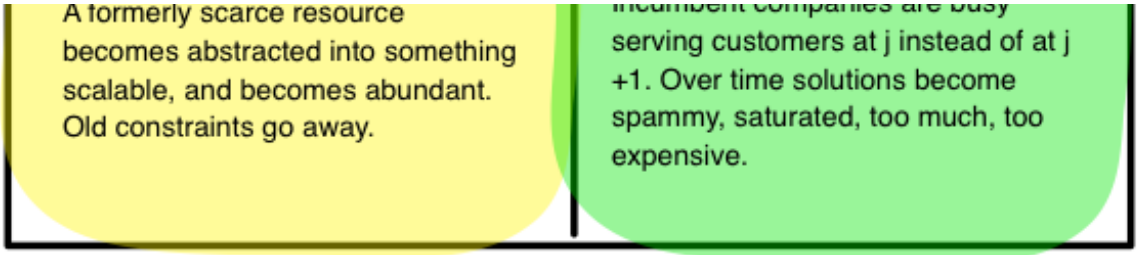
removal of this constraint allows users to be served at the j+1 level need directly, at a higher-order level of value.

-As explained in Disruption Theory, incumbents will initially be incentivized to ignore the new entrants or retreat upmarket, but soon find themselves eclipsed and obsolete. Profit and power leaves the incumbents gradually and then suddenly; it is redistributed to those serving customers at level j+1 directly.

-Out of this newfound abstraction and abundance, a new scarce resource emerges at layer i+1, with its own new elements of performance. The individuals, companies, and institutions that win are those who are able to master the economics of abstracted abundance of the old resources as well as the scarcity of the new one.

-Over time, this new scarce resource becomes established, accepted, and status quo. The cycle is ready to repeat.





This cycle from i to i+1, from j to j+1, and the progressive "levelling up" of value creation gives an answer to one of the great puzzles of business: why haven't we yet built the great companies of the future? In his book Zero to One, Peter Thiel repeatedly comes back to the question:

"What valuable company is nobody building? Every correct answer is necessarily a secret: something important and unknown, something hard to do but doable. If there are many secrets left in the world, there are probably many world-changing companies yet to be started."

So, why haven't tomorrow's great companies been created yet? What are we waiting for? It may be that we're waiting for column i and column j to come into alignment. When abstractions in column i turn a scarce resource into an abundant one and remove some critical constraint, thereby removing a critical obstacle to serving customers at level j+1 where they've had a job all along, a "mega product-market fit" occurs and we see vertical-line growth. Many of the great business of the future which have yet to be created will come from this future alignment between layers i+n and j+n — obvious in hindsight, but presently obscure.

We won't immediately know where these businesses will appear — that's why they're secrets, after all. But we can start by looking at

instances where this has happened in the past. Let's work through a few examples:

WhatsApp:

As North Americans, who have been accustomed to free or very cheap SMS texting as a standard part of cell phone plans for years, we sometimes forget that the rest of the world is different. For most of the planet, the costs of an SMS message make sending them in any large quantity an expensive and limiting endeavour — you can send individual messages, but 'messaging' as we think of it now is prohibitively expensive. They are scarce, and as an SMS client, you're overserved (served *too much)* by paying per message.

Then along came messaging apps like WhatsApp, which used the new power of mobile data (combined with the fact that text messages use very little of it) to abstract away messaging into mobile services that were abundantly available and free. By building something scalable (WhatsApp is supported by a tiny number of engineers, relatively speaking) and serving the customer's need at a higher-order level (communication in general, rather than paying for an individual message), WhatsApp turned messaging into something abundantly available and free. Out of it, a new scarce resource is emerging — the network effects of being the dominant messaging platform as messaging evolves beyond text — and WhatsApp is winning in many (although certainly not all) regions of the world here.

Tesla:

Last week, a quarter-million people put down a $1000 deposit for a car that they've never driven — and for nearly half of those people, that they'd never even *seen*. How did this happen? Because the Tesla Model 3 isn't just a car. Its high performance specs, zero-emissions footprint, and premium price tag does a very valuable job: assigning the status of being progressive *and* cool simultaneously. And you don't need to test drive the Model 3 to know that it delivers that feeling in spades.

Let's face it — relative to previous decades, new cars these days are all pretty high-quality. They rarely break, most of them look nice enough, and they all greatly exceed our everyday requirements for shuttling us around our commutes. We're overserved by cars in general now- not just for their use as transportation providers (which we'll get to in the next example) but also in their literal components and performance specs. They're all more than good enough, at least along the traditional measurements of what you'd look for in a car. And yet for the same underlying reason, the reliable consistency of cars makes it *harder* for them to accomplish that other, more elusive job-to-be-done: "serve as a signal and extension of my personality and brand". In the glory days of car ownership a few decades ago, everyone's car said a statement about them — these days, quite a bit less so it seems. That doesn't mean the need has gone away though; far from it. People love feeling great and showing off. It's especially been a problem for people who consider themselves liberal or environmentally minded- how can you appeal to the "I want to feel awesome" and "I want to feel like I'm saving the planet" at the same time?

Herein lies the genius of Elon Musk's master plan: by starting at the

ridiculously high end and moving down, Tesla was able to establish and obtain a stranglehold on a higher-order job to be done at which we're underserved: *Signal to others that I'm progressively-minded, but also a badass with great taste.* And, for that job, Tesla is basically the only game in town! It's amazing how they've been able to do this. The Chevy Bolt isn't a competitor at all; BMW's electric line barely qualifies. Through their top-down approach, they've essentially leapfrogged competition at level j (conventional car makers, all of whom make totally adequate and relatively undifferentiated products) and gone directly to level j+1 (The "personal identity" component of a car). To do this, they've abstracted away something scarce (that ability to have your cake and eat it too when it comes to wealthy liberal identity expression) into something abundantly available (or, at least, *widely* available if you have the money to spend). If they can pull this off, and actually wedge this desire for self-expression into a true on-ramp for transport electrification, it'll be a remarkable achievement — and sleight of hand.

Uber:

Speaking of cars, ten years ago if you were moving yourself from A to B you couldn't really rely on any one else to help you out — you're stuck with driving a car that you own yourself, which sits idle 90+% of the time. You're greatly overserved by owning this vehicle — what you really need is "transportation", not your own car. But there's no practical way to do this. Of course, you have a higher level job — "I just need to get to B" — but there's no way to do this without your own means.

Meanwhile, if you wanted to earn some extra cash quickly, trust was *also* a scarce resource — if you want someone to pay you money in a world of scarce trust, you have to go find a job, which takes time, commitment and experience. So your higher level job — "I want a bit more money in my pocket" — is underserved.

Then, along came Uber, whose Black Cars for Bros product was *accidentally perfect* for abstracting away trust between passengers and drivers. UberX, and later UberPool, was born. By abstracting away trust between drivers and passengers into something scalable and abundant, both sides of the market could now be served at level j+1 directly: "I just need to get from A to B". "I just want to turn my time and vehicle into money." Over time, a new scarce resource is emerging out of this abundance — the master mapping, routing and liquidity function of a central app — and Uber is making sure that they own it. If you want to get from A to B, Uber's what you use now.

Medium:

It remains fairly difficult for content writers to attract readership, and equally difficult for readers to sift through reams of content to find what's interesting to them. Content writers, particularly those in the long tail of publishers, have found themselves greatly overserved by building their own publishing platform or even using Wordpress / WPEngine. Simultaneously, most of them are quite a bit underserved for the very reason *why* they're writing: they want readers. (I've been there!) Meanwhile, content consumers are greatly overserved by the sheer volume of content on the internet — there's simply way too much! — but underserved on the reason

why they're looking for content — they want reading material that will keep them informed, entertained, and up-to-date.

Enter Medium. By abstracting away content discovery and referral into a Feed format, Medium has created an extraordinarily clean, simple and effective way to serve both publishers and readers at the job they have at level j+1. As they continue to roll out publishing tools (essentially versions of "primitives", in the way AWS builds primitive tools for cloud computing) and attract high-profile authors (the State of the Union was released on Medium the past two years! Now *that's* impressive), they're on their way to creating a valuable publishing network that may remain durable for quite some time.

Intel:

Initially, circuit density and computing power were scarce resources. Hardware manufacturers needed a dedicated set of circuits for every function they wanted their product to be able to do (job at level j: my device must be able to perform x operations), and they all had to be custom designed — which was a ton of work. Those customers also had a higher level job, though, "Compute things in general", but the current constraints and scarce resources prevented customers from being served that way.

Then along came Gordon Moore and his crew, at Fairchild and then at Intel, who figured out "Hey, let's make a generally programmable chip, that can do *all* the functions." By abstracting away the scarce resource at i into something scalable (assembly language), computing functions and power became an abundant

resource, and customers could be served at level j+1 directly. Over time, a new scarce resource emerged out of this abundance — the assembly language standardization — and Intel made sure that they owned that. When everything was written for Intel architecture, they became the only game in town, and anyone who wanted to participate in the benefits of this computing power had to play.

Google:

Initially, the ability to index, locate and understand information on the internet was a scarce resource. Anyone who wanted to find stuff on the Internet had a specific job ("find information about x"), and had to rely on bloated lists, directories and portals (Yahoo! Excite! AOL!) which, as the internet grew larger, became spammy and useless. Those users had a higher level job, too: "Be able to find and know about everything in general" — but the sheer size and growth of the web made this impossible.

Then along came Larry and Sergey, who figured out a clever way to abstract away the structure of the web into links and ranks — and BackRub, later PageRank, was born. By abstracting away that scarce resource into something scalable (PageRank), the Internet's indexing became an abundant resource, and customers could be served at level j+1 directly. Over time, a new scarce resource emerged out of this abundance — the algorithms and understanding that underlined search and intent, creating Google's juggernaut ad business. They became the only game in town, and anyone who wanted to find anything on the Internet had to play. As such, Google's core ad business has enjoyed one of the more

perfect natural monopolies on the Internet, threatened only by the rise of Facebook.

The iPhone:

In the mid-2000s, once we were all hooked on computing, email and other digital services as essential components of our lives, there was a very scarce resource — mobility. With all of these functions restricted to being inside a computer, there was an inherent limit to what we could do without having a laptop open and next to us. Email on your phone, the principal early driving use case for smart devices, had settled into two scarcity-governed realities: the awful Symbian email functions on phones like Nokia's that worked with your wireless carrier (which were barely usable) or you were on Blackberry (which was pretty good; but proprietary, closed, and whose data thriftiness placed a hard cap on what you could render mobile aside from text). Customers were overserved by the sophisticated locked-in Blackberry network (and monthly network fee) while being underserved for application & function mobility in general. Yet in the carrier-centric model of the 2000s, it was hard to break out of this reality — mobile services were built and designed primarily as ways to make money off of mobility as a scarce resource, not as ways to abstract away mobility into something greater.

Then the iPhone changed the world. This new, beautiful, simple and sophisticated device abstracted away mobility into something abundantly present everywhere, all the time, always. With this new superpower, we built mobile apps for everything — not just existing functions that were already important (email, calendar,

maps, Facebook) but brand new services that were never before possible (Uber, Snapchat, and so much more). This abstracted and abundant mobility was a game-changer in every sense, and out of it two new scarce resources have emerged that Apple both owns — the iOS ecosystem (if you want the best apps, you have to be where the dev community is building them — and that's in iOS) and vertically integrated hardware (if you want the best vertically integrated device, you have to go with the vertically integrated premium hardware manufacturer, which of course is also Apple). One decade later, iPhone Inc is the most valuable publicly-traded company on the planet.

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Crucially, we've noticed that in many cases, the people or companies who accomplish these critical abstractions and allow customers to be served at j+1 *do not initially realize they are doing so*. Larry and Sergey just wanted to do search more effectively, and even tried to sell BackRub (PageRank's precursor) to Excite for $1.6 million. Travis Kalanick was originally building a black car service with professional drivers and company-leased cars. Snapchat was initially thought of as [well, you know]. And so on. (However, all things being equal, founders are more likely to identify that something special is happening than your average investor.) It's only when the growth of these products become a vertical line going up that we tend to realize, *wait a minute, there's something going on that's more than we bargained for.* That moment is a good time to use this framework: to identify when growth isn't just growth, but represents some fundamental shift from i and j to

i+1 and j+1.

Other times, however, this process is done very deliberately and methodically. Tesla's case is one example. As another, let's look at at one of the most dominant organizations in the world today, and a Prime candidate for most valuable company of the future: Amazon.

First, Amazon built an e-commerce store, starting with books. Their customers were the group of people who found themselves overserved by all of the trappings of a physical bookstore (storefront locations! cafes! Feature tables! Christmas music!) and thereby overpaying, yet underserved on selection (just get me the exact book I already know I want). They were able to serve these customers at level j+1 by abstracting the bookstore into a search bar and a package delivered to your door, and it worked quite well. After growing the e-commerce business for a decade, and once Jeff Bezos had his "primitives" epiphany in the early 2000s, they began their next phases:

-In the incumbent publishing industry, there are many scarce resources at level i: publisher bandwidth, advance money, printing capacity, shelf space, and so forth. Using the Kindle as a vertically-integrated trojan horse, Amazon is moving in. There are a lot of authors, it turns out, who are overserved by traditional publishing houses like Simon & Schuster, yet underserved for the basic need of "put my writing in front of people". Amazon's search and discovery platform and the kindle's delivery system abstracted away the book publishing industry's constraints, allowing authors to be served directly at level j+1 at a fundamentally lower cost *and*

more effective reach than could be done before.

-In the incumbent shipping and logistics industry, there are many scarce resources: warehouse space, shipping rates, labor, and more. With Fulfilled By Amazon and Marketplace, Amazon is able to serve anyone who is overserved by 3rd Party Logistics providers, and yet are underserved for the basic job of "I just want shipping from X to Y to work, period." By abstracting away 3PL (and then eventually Fulfilled By Amazon) into "fill out this set of inputs and it'll just work", Amazon is able to serve these customers directly at level j+1 while they expand this service through buying up jets, securing an ocean freight forwarding license, and so forth.

-AWS is the same idea — by abstracting away the data center, Amazon is going after everybody who is overserved by on-premise web & cloud hosting and yet underserved for the basic jobs done by EC2, S3, the Database, and so forth. ("Get my stuff working 100% of the time, always.") As demonstrated by Netflix, there does not appear to be any customer with a job so big AWS can't handle it.

-In online marketing and top-of-funnel lead generation, there are many scarce resources: the customer's attention is scarce, advertising is scarce, intent is scarce. With Prime, Amazon is able to serve every customer who is overserved by the sheer number of purchasing options on the Internet, but underserved on convenience (I want one place to go where I know I can get full selection and free shipping, always). By abstracting away these top of funnel resources into one single unified consumer membership *(That the customer pays for!)* Amazon is able to serve these customers directly at level j+1 with an abundantly available

resource that reinforces their stranglehold over every other aspect of their e-commerce.

-With Amazon Prime Video and Twitch, Amazon is going into the content & entertainment business next. Amazon is able to cater to film & game creators who are overserved by traditional producers but underserved for the job of "I just want people watching my show / playing my game." Oh, and by the way it all runs on AWS.

-With Alexa & the Amazon Echo, which could be one of the biggest yet, Amazon has quietly begun to abstract away many of the "pull" features of our phones, forming a Kindle-like trojan horse to a much larger, real-life version of Kindle Direct Publishing: Amazon Rush 1-hour delivery. Once the backbone of this service is fully in place, anyone selling a product or service who is overserved by almost *any* current aspect of the traditional customer funnel can simply plug into Rush and bypass a number of previously expensive steps: storefronts, shipping, discovery, retention, and so forth. Oh, and it all runs on AWS.

Over time, Amazon shepherds their core businesses through an evolution from first-party wedge to third-party service + moat to marketplace + platform. Amazon is able to systematically accomplish this by building abstraction steps for itself, and adhering very closely to *all four steps* in the i+1/j+1 progression:

Level i: newly abundant resource. Every single one of these new ventures leverages Amazon's abstraction of one of its *costs* in order to make it abundantly available to everyone, thereby transforming it into a *revenue source*. Specifically, that abstraction is almost

always something Amazon has built for itself, so that it can internally dogfood it and stress-test it before releasing something bulletproof to the public. (And even if it fails, like the Fire Phone, Amazon can simply learn their lessons, collect their losses, and move on.)

Level i+1: Every venture creates a new scarce element where Amazon can do a complete run-around of the existing industry, gain a dominant position and eventually ride positive feedback cycles to become a dominant player very quickly.

Level j: All of Amazon's customers were getting some version of their job fulfilled by somebody else before Amazon came along; they're not doing anything ultra-new here. But what they all have in common is this element of over-service — I don't *need* all the fancy features and obligations that come with on-premise hosting, or a 3PL, or a brick-and-mortar publisher, or the pull features of my phone.

Level j+1. At the same time, all of these customers are underserved for the reason *why* they have all those jobs — I just want my website to be online 100%. I just want my package to get shipped and not worry about it. I just want my book to be accessible to readers.

Now recall from part 1, when we touched on how branches can sprout off the main stack that spawn many great and valuable companies with winner-take-all dynamics of their own: this is what's going on here.

Consider Kindle Direct Publishing as an example:

Selling books turns out to be directly adjacent to this whole other antiquated industry: publishing. In traditional publishing, there are lots of scarce resources: editorial time & infrastructure, paper & printing costs, book store shelf space, retail inventory, and more. Therefore, profit can be extracted at a number of points along the way: from the publisher, from the retail seller, at the printer, etc. The Kindle allows Amazon to bypass all of those antiquated points of friction and replace them with a single *new* point of friction that it controlled: access to Kindle Direct Publishing. Online publishing thereby became a side branch off of the e-commerce branch, which itself branched off of the web/search trunk. Amazon is now running a version of this playbook on countless side branches, extending off in every direction. It's not the 'tip of the technological spear' in an absolute sense, but from the perspective of this branch, it's not first-mover advantage that matters; it's the last mover that gets it right who wins.

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The takeaway:

Explosive growth can occur when the following occurs:

- **A new abstraction at level i eliminates some constraint, which previously prevented customers from being served at level j+1.**
- **In the wake of this constraint, business models rearrange, profits flee the incumbents, and power gets redistributed in new ways.**
- **Ultimately, the winners are those who can master the new scarce resource at level i+1 and serve customers at j+1.**

Sometimes this process occurs randomly and unintentionally; other times it is done by design. Either way, it's powerful.

In Part 4, we're going to make a bunch of guesses about the future, and try to see how it fits into this i/j framework. You can read Part 4 here.

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Thanks to Ashley Mayer.

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