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BY HEMANT TANEJA WITH KEVIN MANEY

FOR MORE THAN a century, economies of scale made the corporation an ideal engine of business. But now, a flurry of important new technologies, accelerated by artificial intelligence (AI), is turning economies of scale inside out. Business in the century ahead will be driven by *economies of unscale*, in which the traditional competitive advantages of size are turned on their head.

Economies of unscale are enabled by two complementary market forces: the emergence of platforms and technologies that can be rented as needed. These developments have eroded the powerful inverse relationship between fixed costs and output that defined economies of scale. Now, small, unscaled companies can pursue niche markets and successfully challenge large companies that are weighed down by decades of investment in scale — in mass production, distribution, and marketing.

Investments in scale used to make a lot of sense. Around the beginning of the 20th century, the world was treated to a technological surge unlike any in history. That was when inventors and entrepreneurs developed cars, airplanes, radio, and television, and built out the electric grid and telephone system.

These new technologies ushered in the age of scale by enabling mass production and offering access to mass markets. Electricity drove automation, allowing companies to build huge factories to churn out a product in massive quantities. Radio and TV reached huge audiences, which companies tapped through mass marketing. The economies of scale governed business success.

Scale conferred an enormous competitive advantage. It not only lowered fixed costs — it also created a forbidding barrier to entry for competitors. Organizations of all kinds spent the 20th century seeking scale.

That's how we ended up with giant corporations, and universities with 50,000 students, and multinational health care providers.

Today, we're experiencing a new tech surge. This one started around 2007, when mobile, social, and cloud computing took off with the introduction of the iPhone, Facebook, and Amazon Web Services (AWS), respectively. Now, we're adding AI to the mix. AI is this century's electricity — the technology that will power everything.

AI has a particular property that supplants mass production and mass marketing as a basis of competitive advantage. It can learn about individuals and automatically tailor products for them *at scale*. This is how the GPS navigation app Waze gives you a route map tailored to your destination at a specific moment in time — a map that probably won't work for anyone else or at any other time and doesn't need to. AI enables mass customization for increasingly narrow markets. If a product is custom built specifically for you, you'll probably prefer it to a product that's built for millions of people who are only kind of like you.

This is the basis of economics of unscale. The winning companies in today's tech surge are companies that profitably give each customer exactly what he or she wants, not companies that give everyone the same thing.

There is another, equally important way in which the current tech wave is propelling economies of unscale. Because companies can stay nimble and focused by easily and instantly renting scale, they can adjust more quickly to changing demand and conditions at much lower cost and with far less effort.

Thus, scaled companies find themselves beleaguered by unscaled competitors. Stripe is an unscaled financial services company based in San Francisco that is challenging the big banks. Airbnb, also based in San Francisco, is an unscaled hotel company that is taking customers away from the big chain hotels. Warby Parker is a New York City-based unscaled eyewear company that is threatening the big eyewear brands.

If economies of unscale will rule in this new world of business, how can a corporation, which, by definition is a large, scaled-up enterprise, compete and thrive?

P&G as a Consumer Goods Platform

Smart corporations will learn to harness economies of unscale, but that will require a significant shift in the managerial mindset. Leaders might take cues from the evolution of Procter & Gamble Co. (P&G).

In 1837, William Procter and his brother-in-law, James Gamble, formed a company in Cincinnati, Ohio, to make candles and soap. The company grew slowly and got a boost from contracts with the Union Army during the Civil War. Its breakthrough came in 1878, just as newspapers were reaching consumers *en masse* and railroads opened that could efficiently carry products to any major city. According to lore, one of the company's chemists accidentally left a soap mixer on during lunch, stirring more air than usual into P&G's white soap. The air made the soap float. The company branded the product as Ivory and marketed it nationwide. P&G began to scale up.

After World War II, as the consumer market took off, P&G brought out Tide detergent, the first mass-market soap specifically for automatic clothes washers. By the end of the 20th century, P&G had scaled up to a behemoth, offering more than 300 brands and raking in yearly revenues of $38 billion.

In 2016, analyst firm CB Insights published a graphic showing all the ways small, entrepreneurial *unscaled* companies were attacking P&G. (See "Unbundling Procter & Gamble.") In it, P&G no longer appears as a monolithic scaled-up company that has powerful defenses against upstarts; instead, it is depicted as a series of individual products, each vulnerable to upstart, technology-enabled, product-focused companies. P&G's Gillette razors are being challenged by Dollar Shave Club's and Harry's Inc.'s subscription models; a niche of buyers of P&G's huge Pampers brand of disposable diapers are getting peeled off by The Honest Co.'s environmentally friendly diapers; Thinx "period panties" are going after P&G's Tampax tampons in a new, uncharted way; and eSalon's "custom" hair coloring is competing with P&G's Clairol mass-appeal hair coloring.[1]

This is a clear indication of what big corporations are facing in an era that favors economies of unscale over economies of scale. Small, unscaled companies can challenge big companies with products or services more perfectly targeted to niche markets — products that can win against mass-appeal offerings.

UNBUNDLING PROCTER & GAMBLE
Far from the monolithic giant impervious to threats that some once thought it to be,
P&G has been attacked by startups on all fronts.

SOURCE: CB INSIGHTS

When unscaled competitors lure away enough customers, economies of scale begin to work against the incumbents. The cost of scale rises as fewer and fewer units move through expensive, large-scale factories and distribution systems — a cost burden not borne by unscaled companies.

P&G is aware of the challenges unscaled competitors pose, and it is responding. For about a decade, P&G has been running a program called Connect + Develop. After 175 years of inventing most of its new products in-house, the company's executives came to understand that there were more smart inventors outside of P&G than could possibly be contained inside P&G, and the internet provided a way to reach them.

Connect + Develop invites anyone who has a product that might be a good fit with P&G to submit a development proposal to the company. Though it isn't phrased this way, Connect + Develop positions P&G as a platform for niche products in a way that benefits the company (which captures some of the value of new, unscaled products, instead of competing against them) and

product innovators (who can "rent" P&G's distribution, marketing, and knowledge to bring their products to market).

Connect + Develop hasn't transformed P&G from a scaled company to an unscaled company, but it has moved the company down the right path. According to a 2015 paper by Nesli Nazik Ozkan, an economics professor at Istanbul University, about 45% of initiatives in the company's product development portfolio had key elements discovered through Connect + Develop.[2] A future, unscaled version of P&G might look more like a giant consumer products platform rented by a constantly evolving swarm of small, focused entities — an AWS model for tangible consumer goods.

GE and Walmart Seek Economies of Unscale

P&G is not the only big company experimenting with economies of unscale. General Electric (GE), a multinational conglomerate based in Boston, Massachusetts, is another old, enduring company trying to stay vital in the unfolding era. GE's big bet

is on Predix, an AI-based platform that other companies can use to capture the promise of the internet of things (IoT).

For most of its history, GE has built industrial products — train locomotives, airplane engines, factory automation machinery, lighting systems, and so on. In the 2010s, GE embraced IoT, rightly understanding that many of its industrial products were already jammed with sensors. These sensors could communicate their data back through the cloud to Predix, which, in turn, could use that data to learn even more about GE's machines in aggregate.

Predix helps GE optimize its products for its customers. What Predix learns from all GE locomotives helps a railroad better operate its GE locomotives. In this age of unscale, GE has also opened up Predix to other companies, which use it to create a catalog of apps for industrial designers. Genpact, a global professional services firm based in Hamilton, Bermuda, that was spun off from GE in 2005, used Predix to host its critical spare parts inventory optimizer; and Tech Mahindra Ltd., a Mumbai-based multinational that also uses Predix, offers an app to remotely manage solar farms. GE even hosts a conference called Predix Transform, where industrial developers learn from one another and help build a Predix ecosystem.

As with P&G, Predix isn't overhauling GE in and of itself. But it is one way for GE to take advantage of unscaling, using its skill set and data to create a platform that others can rent.

Walmart Stores Inc.'s acquisition of Jet.com Inc. in 2016 offers another lesson in unscaling for large companies. Walmart was a superstar at building scale, and now, it is supremely vulnerable as retail unscales — which is why it paid $3 billion to buy a barely proven company. Jet.com is built upon a sophisticated AI platform that aims to give consumers the lowest prices possible (even lower than Walmart) by analyzing a range of factors, including how much the customer is ordering and how far the customer is from the product. Most of the products on Jet.com come from independent retailers — more than 2,000 of them. The pitch to retailers is that Jet.com itself won't compete against the retailers, unlike the way Amazon often goes head to head with retailers that sell through Amazon Marketplace.

Seen through one lens, Walmart bought Jet.com for its brain trust and innovative technology. Through the lens of unscale, however, it looks like Walmart is trying out a platform strategy. Perhaps Jet.com will evolve into a way for focused, niche consumer retailers to rent the power of Walmart's platform to sell physical products to anyone anywhere.

Three Ways to Unscale Large Companies

Savvy *Fortune* 500 leaders will find ways to reinvent their companies for the era of unscale. Here are three ways they can stay relevant and play important roles in an unscaled economy:

1. Become a platform. Connect + Develop, Predix, and Jet.com are all examples of platform plays that other large-scale companies can emulate. Electric utilities can adopt a platform mindset and morph their grids into systems that can support thousands of small energy producers. Major banks can become platforms for small, focused financial apps, such as consumer savings apps Digit, Acorns, and Stash.

This is not to say that every corporation must become a platform or perish. Rather, a successful platform strategy offers one path to growth in the unscaled era. Platforms can be enormously profitable and enduring because the companies operating on the platform come to depend on them for *their* success. This is why AWS has emerged as a profit engine for Amazon, with operating margins in excess of 20%, compared to the low single digits for Amazon's retail business.

Vibrant corporations have spent decades building scale that's highly specialized for their industry. They've built efficient factories, distribution channels, retail outlets, supply chains, marketing expertise, and global partnerships. Now their leaders should ask themselves if there's a better business in simply and elegantly renting that capability to other companies.

Imagine Ford Motor Co. as a car-making platform that allows hundreds of small companies to design innovative new vehicles and get them made, marketed, and delivered to customers — all in a way that allows these small carmakers to serve a niche market at a profit. Imagine that Anheuser-Busch InBev SA/NV stopped buying brands and instead became a beer platform by allowing

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microbrewers to rent its production and distribution capabilities to bring their concoctions to market with a few clicks on a web page.

2. Instill an absolute product focus. As companies get big, their focus often gets lost amid process, bureaucracy, politics, concerns about stock price, and a whole lot of other matters that have nothing to do with making a great product for a sharply defined market. They try to create products that appeal to the most people possible so they can achieve economies of scale and become more profitable. But in an unscaled era, making such mass-appeal products becomes an Achilles' heel — a setup for a product-focused small competitor to knock down.

Big companies in the unscaled era should seek to look more like a network of small businesses, each absolutely committed to making a product that's perfect for its slice of the market, because big companies will wind up renting everything else. Companies have been shedding noncore tasks for several decades. Apple Inc. and Nike Inc. contract out manufacturing to Chinese companies, while Netflix runs its entertainment streaming service on AWS instead of building data centers. Next-generation unscaled corporations will outsource far more. Anything that doesn't have to do with developing a great product needs to go.

The product creators will drive business, while top management provides the platform for them to build upon. The *Fortune* 500 corporations of 20 years from now are likely to be smaller, faster moving, and more like a network of small companies than the business giants of today.

3. Grow through dynamic rebundling. The winners in the unscaled economy make every customer feel like a market of one. Products and services that can be tailored to the individual will beat out mass-market products and services. But there is one way a corporation — that is, a collection of products — can maintain an advantage. Once a company comes

to understand a particular customer for one of its products, it can offer that customer other products from its portfolio. A big company could bundle together products tailored to each customer.

To get a sense of how this works, take a look at The Honest Co. In 2012, Honest started selling a line of safe, organic diapers and wipes by subscription. That first year, the company pulled in $10 million in revenue by serving a niche customer who wanted a niche product that was different from mass-market brands. The company used that knowledge to develop other products in the same vein — including shampoo, toothpaste, and vitamins.

By 2016, Honest had 135 narrowly focused products and bundled them into the right set of products for the right customers. That year, sales exceeded $300 million. In a way, Honest had become a mini P&G, offering a variety of items, but with one big difference: The company knew its customers and could bundle its various products accordingly. Each of P&G's products is a stand-alone brand, sold in stores to people P&G cannot know or understand as intimately as Honest does. (Honest's growth slowed in 2017, and CEO Brian Lee stepped down, but the company remains committed to its product bundling strategy.)

Dynamic rebundling allows a company to mimic the advantages of scale without actually building scale. The company can stay nimble and innovative, focusing on product, and use its portfolio to expand its sales to each individual customer. Thus, a future P&G might operate as a platform for thousands of product-focused entities, yet be intelligent enough to understand and offer each customer an expressly designed bundle of products.

The Unscaled Ethos of Amazon

If you want a final glimpse of the unscaled future, look at the ethos behind Amazon.com Inc. In early 2017, CEO Jeff Bezos published a letter to

shareholders in which he wrote, "I've been reminding people that it's Day 1 for a couple of decades. I work in an Amazon building named Day 1, and when I moved buildings, I took the name with me."[3]

Day 1, Bezos wrote, is about constantly creating new, nimble, product-focused businesses inside Amazon, businesses that can be built quickly on top of Amazon's corporate platform and act like unscaled upstarts. To Bezos, Day 2 dawns when a business gets bogged down by its own scale.

How will Bezos manage to keep Amazon cycling through Day 1 over and over again? "I don't know the whole answer," he admits in the letter, "but I may know bits of it." He offered four points that he considers a "starter pack of essentials for Day 1 defense." They align with what we know about unscaling.

The first point is "true customer obsession." In this unscaled era, the products that win make you feel like a market of one. Doing that requires deep knowledge of the customer and a willingness to build products that perfectly address a certain segment, however small. As we've seen, big companies usually fail at this, because they strive to build products for the broadest possible set of customers. "Staying in Day 1 requires you to experiment patiently, accept failures, plant seeds, protect saplings, and double down when you see customer delight," Bezos wrote. And because of that approach, over the years Amazon has brought us things like the Kindle, Amazon Web Services, and Alexa. The company seems to renew itself constantly.

Bezos's second point is "resist proxies." Scaled companies can get lost managing things that don't matter. One example is process. Too often, Bezos writes, "the process becomes the thing. You stop looking at outcomes and just make sure you're doing the process right." Other bad proxies include market research in place of actually knowing customers. "You, the product or service owner, must understand the customer, have a vision, and love the offering." That intentionally sounds like instructions for a startup company. Bezos wants Amazon to feel like a collection of startups.

His third point: "Embrace external trends." As Bezos notes, "The big trends are not that hard to spot (they get talked and written about a lot), but they can be strangely hard for large organizations to embrace." Newspaper companies saw the internet coming from a mile away, for example, but delayed moving online until it was too late for many of them. If a big company operates as a collection of nimble small companies, it is more likely to spot and react to new technologies as tastes shift.

The final Day 1 point is "high-velocity decision-making." It fits right into the unscaling playbook. As Bezos writes, "Never use a one-size-fits-all decision-making process." Let the smaller units make their own decisions based on their insights and their customers' realities. The more a company scales, the more complex it gets, and so, decisions seem complex. Executives feel they need a huge amount of input and information before making a decision. All that leads to stagnation and the onset of Day 2. Companies need to make decisions like it's Day 1 and move on fast if the decision proves to be wrong.

Remember, the corporation hasn't been around forever. It was an invention of the Industrial Age and it was created in response to a unique set of conditions. It makes sense that a new set of conditions needs a new structure. Maybe it will look like something that doesn't yet exist. But surely some kind of *unscaled* corporation will emerge in the near future.

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REFERENCES

1. "Disrupting Procter & Gamble: Private Companies Unbundling P&G and the Consumer Packaged Goods Industry," CB Insights, April 19, 2016, www.cbinsights.com.

2. N.N. Ozkan, "An Example of Open Innovation: P&G," Procedia: Social and Behavioral Sciences 195 (July 3, 2015): 1496-1502.

3. J. Bezos, "2016 Letter to Shareholders," Amazon.com, April 12, 2017, www.amazon.com.

MIT Sloan
Management Review