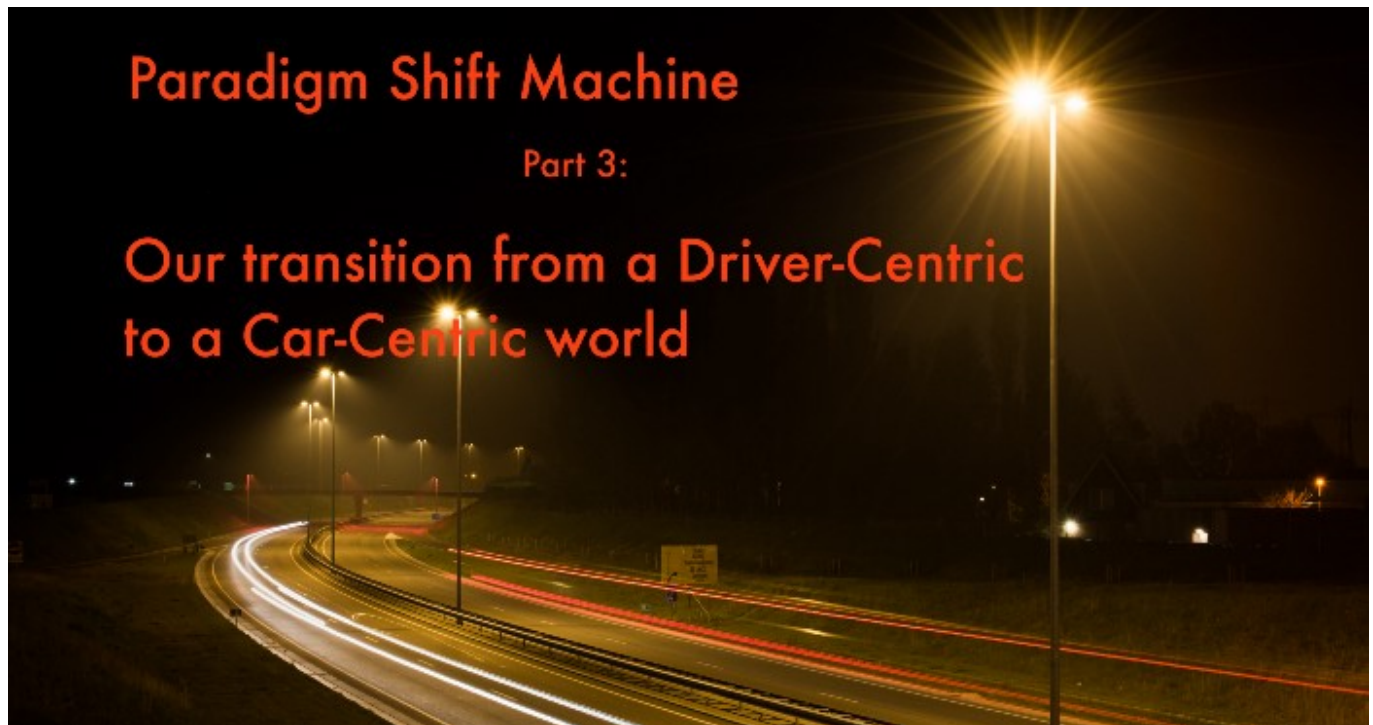


# We're shifting from Driver Culture to Car Culture. Should that change the way we think about Uber?



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*Welcome back. In part 1, we covered a general framework for how to make sense of paradigm shifts in the world. The critical task is to understand the identity of the scarce resource, how technology increases access to that scarce resource, and what emerges as newly valuable. In this section we will apply this idea to the transportation, and consider the impact of on-demand transport and autonomous vehicles.*

Today we're going to talk about a lot of things that are happening and might happen to cars. Thinking about the future of transportation is fun, but tricky. There are three things going on in tech right now that all affect one another: electrification, on-demand access, and autonomous vehicles. We're not going to discuss electrification in this post, because we're saving it for part 4 when we talk about Tesla. The other two, however, are the subject of today's post.

There's a central idea I'd like to address first and it is this:

**We talk a lot about “car culture”:** how our cities, neighbourhoods, jobs and lives are organized around the car. Why do we dedicate such expensive real estate to parking lots next to offices? Why are so many short, single-occupant suburban trips taken in enormous trucks? How have daily routines and cultural norms evolved around the car commute to the extent that it has? Well, here's something to ponder:

**We're not actually in a car-centric culture. We're in a driver-centric culture.** The sacrifices and accommodations we make in our daily life and world, which we've always ascribed to car culture, are much more accurately characterized as concessions to the *driver* than as concessions to the car. We never paid attention to this difference before, because prior to recently it was a frivolous distinction. But times are changing, and this difference is turning out to mean a great deal.

Let's go back to our working definition of technology from part 1: something that increases access to a scarce resource. Setting aside electrification, we're dealing with two major technological steps in transportation, happening *in series*, which increase access to something. One has happened: the smartphone. The other is imminent: autonomous vehicles.

What has traditionally been scarce? Making cars is hard, and buying cars is expensive; accordingly, *a driver equipped with a car is valuable*. Over the last century, we've

organized a great many things around this scarcity: our infrastructure, real estate, jobs, commerce, and much more. But we weren't accommodating cars with this setup. We were accommodating the reality that if you needed ground transportation and a public option was not available or practical (as is often the case, especially in the United States) you had essentially two options:

1. Do it yourself, in your own car that you need to buy or lease
2. Hire a specialist, e.g. a Taxi driver, who can make a profit off that scarcity.

Then came the smartphone with 4G and maps installed. What happened?

We got an explosion of entrepreneurial activity: with new access (via smartphones) to the scarce resource (cars with drivers), we got the result we should expect: a lot of ideas! So much on demand delivery of everything! Very product market fit! Such GMV! Wow! All of a sudden, rather than being restricted to those prior two options, many cars with drivers and smartphones were newly available to move anything you might want — from packages to food to people. There's just one problem: we hadn't figured out the new scarce resource yet. Instead, we saw an explosion of pretty useful on-demand services with anemic or negative gross margins. Remember: if you're sitting at the table with your suppliers, partners and customers, and aren't sure what the scarce resource is, then you're the sucker.



Anyway, it took a few years, but it looks like Uber has finally gotten the paradigm right: Surge pricing.

Uber at this point has pretty explicitly figured out that the real scarce resource in this smartphone enabled world is *liquidity*, and the way you harvest that scarce resource is through a highly dynamic surge pricing approach. Let's work through this idea:

First of all, where is Uber making their profit? Where can they really extract dollars effectively? Well, we don't know for sure, but my guess is that it's from the rider who has no choice but to accept a 2.4x surge fare. In the last 6 months, Uber has really widened the dynamic range of its pricing, particularly when multiple people are sharing a Pool, which suggest to me that they understand the new paradigm of how to make money when access to cars and drivers is increasing:

1. Create and nurture dependence on your liquidity by offering very low base fares for riders, thereby accomplishing two things. The first is getting riders to commit to using Uber by establishing a price anchor in consumers' minds that is very low. This gives us the rational reason we require to mentally commit to Uber and leave our car at home. The second is getting drivers dependent on peak pricing for driving to be worthwhile, thereby making them compete with each other for any fare multiples.
2. Harvest that dependence by dialing up surge pricing during rush hour, where you can now take a much larger cut of the transaction (and no one can effectively object.) This model is essentially liquidity arbitrage: give it out when it's cheap; harvest it when it's scarce. Uber has gone a step further by offering its drivers guaranteed flat rates if they drive during rush hour, on the condition that they accept every pool request that comes to them. It seems generous, but really it's cementing their liquidity arbitrage business. (And then that guaranteed \$40/hour becomes 38, then 36...)

You can think of Uber today as a company who builds liquidity for one dollar and then sells it for five. That's a pretty neat business if you ask me. And they've certainly done

well, with all signs pointing towards their broad success in the short to medium term.

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But then we get to phase two: what happens with driverless cars?

For the moment, let's suspend regulatory concerns (as they will be numerous) and bring ourselves to a world where there are some number of vehicles on the road that do not require drivers. Not necessarily all of them, but at least in cities, we'll get to a point where some of the vehicles are able to operate autonomously. That's the situation we're considering. This will take a different amount of time to materialize in some places than others — likely longer in the United States than in many Asian cities, for instance, that have indicated a more aggressive timeline of adoption.

To what scarce resources do autonomous vehicles *increase access*? Well, there are a few. The first one is that eliminating the requirement of a human driver increases access to the vehicle's underlying productivity potential. A driverless car, particularly one operating in an on-demand service, should be able to achieve a higher density of productivity in both time (on an hourly basis) and probably in space (on a per seat basis). This presents a range of possibilities in terms of the amount of transportation we will consume. Suppose that an autonomous fleet vehicle might be, say, 2x more productive than its traditional equivalent. Is that more likely to lead to passengers consuming the same amount of transportation as before, with half the number of vehicles? Or twice as much transportation, with the same number of vehicles? Or possibly even more?

One consequence of this increased “density of productivity” is that it means a lot of ancillary services to support that productivity begin to make sense. We'll probably see “pit crew” type functions where cars can refuel, get cleaned, and get restocked with items like water or maybe food on a regular basis — whatever it takes to make sure those vehicles are as productive as possible. This also opens the door for a multitude of pricing and service tiers for transportation — similar to how Airlines have spread into business class, coach, budget and ultra-low cost carriers, each with their own strategy of maximizing asset productivity. It'll also probably have quite a bit of impact on what the car looks like. Will these cars be designed for style, for capacity, for ease of servicing? To

stand out, or to blend in? Anything that makes the car more productive in a cost-effective way will be fair game.

The second scarce resource to which autonomous vehicles increase access is *liquidity*. When there's no driver to contact, engage and pay, the supply of vehicles available can become very elastic. Just as smartphones increased access to cars and drivers, making the surge pricing model possible, autonomous vehicles increase access to liquidity in the system. What does that mean? It certainly suggests that Uber's liquidity arbitrage-based business model that we just talked about could no longer work.

I'm hardly the first person to point this out, but consider this possibility: If autonomy increases access to vehicle productivity and liquidity, people are going to get a lot of ideas. Cheap transportation for everyone and everything! We'll see many new businesses created around this increased access — not only for personal transportation, but also for commerce, delivery, and other ideas we haven't considered. In fact, this enthusiasm is already preempted to some extent in Uber's valuation. This is dangerous! There's a common refrain: 'Imagine how much money Uber will make once they no longer have to pay their drivers!' Well, sure, but it also undermines their business model. Without the moat of Uber's driver network and without its ability to freely arbitrage liquidity as it's used to, the barriers to competing with Uber as it is today come down. Justin Waldron has already written about the opportunity this creates for the car manufacturers themselves, and I think his points are certainly thought-provoking. My view is this: if we do reach a point where cities are being flooded by cheap cars (potentially from the auto manufacturers directly), we'd better consider a crucial question: *what else becomes scarce in a world of autonomous vehicles?*

And so we return to our original assertion: that the world we've inhabited up until today, in 2016, was best described as driver-centric rather than car-centric. But in the future that's no longer true: **car-centric is *precisely* the right way to describe how things will be organized.** As our way of thinking shifts from accommodating the driver's productivity to accommodating the car itself, we're going to have to consider very seriously the fact that these cars and the productivity they generate might have a good amount of negotiating power.

For instance, it's misguided to leap to conclusions such as, "with autonomous cars we won't need downtown parking." That's not necessarily true. Passengers won't need

parking. But cars still might. And given how productive those cars are going to be, they'll probably be able to get what they want! If a fleet of cars really *wants* downtown parking to be available, economically speaking, then it's probably going to get it. Same with recharging: it's tempting to think that charging might occur out of sight, out of mind, in an inconspicuous place that's out of our way. But that may not necessarily be what the car wants.

Probably the biggest impact of this separation will be what happens to ownership, financing and operating of these vehicles. Who's going to own all of these cars, and how? By whom does a car *want* to be owned? On the one hand, from a focused Silicon Valley viewpoint it might seem that most personal transport will become strictly on-demand. But there are a lot of folks who genuinely *would* like to have a car that's all theirs, and would actually be quite willing to pay the premium for having their car sit empty some of the time. Furthermore, there may be the new middle ground, articulated in Elon's Tesla Master Plan Part Deux, where cars are still owned by individuals, but rented out on a short term basis when not in use (and thereby making money for their owners).

I'm of the opinion that this hybrid ownership structure of sorts — where Model 3 owners can temporarily put their cars to work — may be a useful transition period feature, but it's not the final model. Once these cars start really being treated as assets, it probably makes a lot more sense for them to be owned in fleets, by someone with a large balance sheet. From there, they can be effectively leased out and put to work over many different tranches of use case — from very short term to long term and everything in between.

This would allow something important to happen — a market for transportation that actually starts to approach efficiency. It'll be an ecosystem of income-generating assets, those willing to pay for their use for a period of time, and one or more markets on which they're exchanged. This feels quite a bit like a bond market: we're talking about issuers who need access to a resource (transportation) and institutions who provide it in exchange for a certain yield and timely return of the principal (fleet owners).





Just as bonds can be issued for a whole range of risk (from AAA to junk), so too will vehicles be used as an asset: from short-term, high-yield trips of 10 blocks to long-term, low-risk low-yield two-year leases, and everything in between, diversified across a fleet. The real goal for autonomous fleet owners will eventually just boil down to risk-optimized fleet performance.

So, what does that mean for Uber? It's hard to say what will happen this far in advance, but let's suppose Uber continues to grow, reaches profitability, and enters the driverless car era in a strong position. Well, once there's a lot of access to liquidity, the barriers to competition come down and you're going to see quite a few entrants. If three or four deep-pocketed entrants (or a bunch of Tesla owners who buy into the owner-sharing model) can enter a city and flood it with cars, Uber's liquidity arbitrage game doesn't work so well anymore.

A participant such as Uber faces essentially two choices: you can try to outcompete your competitors with an integrated solution (Hailing — Network — Cars), or you can try to become an essential horizontal layer of an open marketplace. The first option is pretty straightforward: Uber's role would consolidate into being a large fleet owner/operator, expanding its financing division and keeping itself busy owning, servicing and operating as many cars as it can. That's a fine, important business, but you essentially become United Airlines. And I doubt Uber wants anything to do with a future where it's compared to United. So that leaves us with option number 2: becoming a true platform.



That second path is much more interesting, but riskier. It sure looks like every major player with a mind towards autonomous transportation is angling for that lucrative horizontal monopoly layer of the future. But not everybody gets to win. Uber may have to ask some very tough questions of itself: what competitive advantages do they *honestly* have in this new scenario? They'll have some persistent demand-side competency (experience in Pool routing, for instance). They'll have technical and mapping capital, but Google Maps will likely still be the superior platform, and Google is certainly familiar with scorched earth tactics. They'll have their brand, but loyalty to the Uber flag may last only so long as they're the cheapest or fastest option. They have relationships with automakers, but so do everyone else. Most critically, their biggest weapon today — their supply-side dominance of the driver pool — will be gone.

What do these cars want? What do the fleets want? What is scarce? Ultimately, they have one goal: to be as productive as possible. The horizontal winner here, whomever they may be, will be the company that is most able to help a car or a fleet of cars *achieve more*. This honestly feels very Microsoft-y to me. (Their current mission statement, which I love, is “Empowering every person and organization on the planet to achieve more”. That sounds about right.) That's not to say that Microsoft itself will get into this business (but hey, who knows), but more to make the general point that what these fleets of cars want most of all is to be enterprise-scale productive. That's an entirely different way of approaching the problem than we do today. If Uber succeeds in a driverless world, it'll be because they've learned how to be like Microsoft. If they don't, it'll be because someone else will have.

There's no question in my mind that the broad idea of Uber has won. But real life can be a real bastard sometimes. Would I give Uber as good a shot as any to do well in this new world? Certainly. But is it all wrapped up? Certainly not. We're going to start asking questions from a brand new perspective: the car's perspective. And it's not clear what that really means yet — for Uber, or for anybody else.

Now hold onto all of those thoughts for the time being. In next post, we'll bring in the biggest missing piece — electrification — and bring our car-centric model of the world one step further.

*You can read part 4 here: In a world of energy mainframes, our “PC, meet the Internet” moment is very close*

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