The final of the AAA strategies that I'm going to talk about is a strategy of arbitrage. And this is very different in some sense, from the adaptation and the aggregation strategies. Adaptation and aggregation, one can sometimes think of as being two ends of a horizontal continuum. Complete aggregation of course, means running everything in an integrated way around the world. Complete adaptation means zero aggregation, and lots, and lots of local variation. So, there's an obvious tension between adaptation and aggregation, but they are related to each other. Arbitrage strategies in some sense, are orthogonal to, or quite unlike these other two kinds of strategies that we've talked about because these other two kinds of strategies basically see differences as constraints that must be adjusted to or overcome. Arbitrage strategies in con, in contrast focus explicitly. On exploiting particular differences as a way of creating value.

Again, let me give you, let me motivate arbitrage with an example. And partly because partly because arbitrage is often associated with really low-wage, low-skill industries. Let me try to use and example that reminds us that the scope for arbitrage isn't just confined to things like making clothes and shoes and so forth. It can actually apply across the range to include even high tech sectors. So let me tell you a little story about a company called Tata Consultancy Services and I should begin by saying that Tata Consultancy Services is an Indian software company. It's company, I should add that I spent more than ten years working as chief strategy advisor to. So, what follows may be slightly skewed toward the company, I just thought you should note that particular point. But even allowing for some bias on my part this is been a hugely successful company, the last time I check it had a $65 billion market cap and this was in Fall 2013. Now, this is really interesting because I remember I first started looking at the Indian software industry and met TCS as it's hugely known, rather than Data Consultancy Services, back in mid 1990s, when Michael Porter and I were doing a competitiveness study for India.

And since software was one of the sectors we were looking at as we were trying to gain a handle on Indian competitiveness, I was very struck by a World Bank report that came out in 1994. And that suggested that, yes, the Indian software sector had worked very well up to that point but was going to, according to the bank, run out of room to grow within two or three years after which a collapse would ensue. So interesting prediction that, you know, while the industry was successful through the early 1990's, its days of great success were soon going to be behind it. It's worth the juxtaposing this against the TCS experience to get a better understanding of how arbitrage strategies actually work in practice. So, on this slide, what I've done is taken some historical data for TCS, that covers the 1990s and half-way through the first decade or so of the 21st century. I've calculated everything on a U.S. dollars per employee basis as a way of stripping out some of the fluctuations between the Indian Rupee and the U.S. Dollar. Most of TCS's business is denominated in dollars and so for that reason as well. This is this is seems a suitable focus. Let's just look, let's just contrast the world bank's prediction of this industry hitting a wall by the mid second half of the 1990's with what's actually happened.

So, to start with total costs per employee, those clearly have shot up over this period. They're running almost as four times as high by the mid 2000s as they were back in 1989, 90. So in some sense, this is what the World Bank was predicting. The World Bank was referring to this notion that with a limited number of high-quality graduates coming out of Indian engineering institutions as demand for them to be software programmers escalated, their salaries would shoot up sharply as well potentially undercutting the business model for the entire industry. So, the banks' argument was really, you know, they are going to be, engineers are going to be more and more costly going forward and pretty soon, this will simply choke the industry. Has the second part of the bank's prediction been borne out? Well, just look at TCS' profit per employee, and this net profit. So, although it's cost per employee went up by a factor of nearly four over this period, it's net profit per employee went up by even more, a factor of five slash six over this period. And so clearly, using a little bit of deductive logic what was going on was that the revenue per employee was going up faster than the cost per employee, which is why more and more economic value was falling through to the bottom line, over this entire period. So, this slide makes a couple of interesting points about arbitrage strategies.

The first one is, you know, arbitrage is potentially a strategy that is available to all comers. Any other Indian IT firm, any foreign firm setting up in India. So, it is critical to try and see how you can take generic resources like Indian software programmers. And add some proprietary sauce, some distinctive corporate capabilities to convert them in to higher value output, than a firm that lacked those capabilities might be able to. So, what we see over this period, is TCS, upgrading itself, developing the ability to undertake larger projects, et cetera. All of which were responsible for growing the revenues faster than the cost. And so, this is a little bit of a reminder that, you know, it's a, you have to think about both costs and revenues when you are looking at arbitrage strategies. And while you might experience cost pressures over time, which is clearly what happened here the way of making an arbitrage advantage sustainable is by making sure that you're doing the kind of things necessary to keep growing the revenue line faster than the cost line. So, a great example of economic arbitrage may not last forever, but has already lasted for close to 20 years since the World Bank's grim report, rather than the two years that they were predicting. So something worth taking seriously, worth doing that reading that's assigned on arbitrage.

Now there are many kinds of arbitrage and here let me just return to the cage framework again. To give you a broad sense of all the possibilities that cluster under the heading of arbitrage so that we don't end up reducing it to just one kind of strategy under one strategy rubric. So, think about the components of differences identified in the CAGE framework, which is what we focused on for the last five sessions. Each of them could potentially be an underpinning for an arbitrage strategy.

So, to start with cultural differences there are certain kinds of products where they're important country of origin effects that really help the marketability of your product. So, good example is French perfumes around the world France is associated with superior capabilities, knowledge, in terms of making perfumes. And as a result to be able to say made in France is actually a huge selling point for perfume. And so, this is clearly taking advantage of differences in how perfumes from different countries are perceived around the world, in that sense, it is an arbitrage strategy. Worth adding that these kinds of strategies aren't just confined to traditional products or products that are long established like French perfumes,. Think for instance of Brahma beer, which according to one source is one of the ten most valuable beer brands of the world, ahead of Beck's. Now Brahma in Brazil is moderately priced, not particularly distinguished beer, the reason Bruma has been doing so well overseas is that they completely changed everything about the beer to make it appeal to foreigners. So the packaging is different, the formulation is different, and all that the one. The one, the reason for going to all this trouble was when Interbrew, the then Belgian brewer, bought the Brazilian parent of Brumba. They said, wait a minute, here's Brazil If we could have a beer that sort of borrowed from Brazil's cache as a young, fun-loving exciting country, that might actually sell well overseas, and that has, in fact, turned out to be the case. So both French perfumes and Brahma beer from Brazil reflect country of origin effects. We can think of lots of other ones for instance, all the labels of origin that are widely used in the European union to distinguish champagne from France from other sparkling wines, or patanig, negra ham from Spain from other hams, are also examples of cultural arbitrage.

Even more common in some respects is administrative arbitrage. Which takes account to the fact that taxes, regulations, institutional protections worry around the, vary significantly around the world and that they're therefore maybe ways of taking advantage of that. Probably the image that comes most to mind is the image of, you know, just taking advantage of very poor health safety and environmental legislation in emerging economies to make certain kinds of products much more cheaply then they could be made in the West.

So that's an example of optimizing across differences in regulations. Similarly, one can think of tax management given the huge variations in tax rates across different jurisdiction virtually, every major company I can think of, practices tax arbitrage. And since these examples seem to be mostly negative, and things that you personally might have objections to doing, it's worth remembering that not all administrative arbitrage is necessarily questionable in the same terms. So, for instance I recently found myself setting up a non-profit and, looking around at where in the US incorporated, like many other people, I finally did come to the conclusion that Delaware was the best place, given that the institutional differences between it and other states within the US. And so you know, non-profit is not meant to engage in any behavior. And so the fact that it's simpler to incorporate and has more protection from people trying to divert it's activities away from what I would like them to be in Delaware, should be counted as a good thing rather than a bad thing and I go into this example just to make the point that not all administrative arbitrage is necessarily bad let alone illegal.

Geographic arbitrage is the notion of taking advantage of distance rather than rather than treating it as a major hurdle. And so, you know, a good example would be supplied by, for instance, salmon exported from Chile to Northern Europe or fresh flowers being sent from Africa to Europe at times of the year when the flowers don't grow in Europe. But again those are kind of old fashion examples. So one can think of modern examples as well for instance it's in portions of the software industry where it's important to actually have developers working on a project around the clock. There's some advantage to actually having your development centers disbursed around the world because then you can do what's called following the sun. The people who are fresh in the morning the far East start work then as they get a bit tired out the works shifts Westward, and the work shifts further Westward as the sun goes Westward. So, while geography, while generally as we emphasized a deterrent to international interactions, in certain selective circumstances can in fact be the basis for powerful strategies. And then, finally of course, there's economic arbitrage, which is what we tend to think of most often when we talk about arbitrage TCS of course on the previous slide was a great example of not just how powerful economic arbitrage can be. But how long lived the opportunities that it affords can turn out to be as well.