

Executive Summary

# Clash of the Titans: Can China Dethrone Silicon Valley?

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# Executive Summary

Over the last few years, much of our research has focused on helping clients in two closely related areas: understanding the myths and realities of digital disruption, and mapping the evolving nature of technology-driven competition. Thus far, virtually all of this work has sought to assess the impact of digital innovation on both the strategy of the individual firm and the structures of established and emerging industry ecosystems. Important changes are obviously taking place within both domains.

But what if the biggest future disruptions and most important competitive dynamics will not take place between firms and industries, but between nations and cultures? The IT industry has been dominated by Silicon Valley for so long that it can be hard to imagine otherwise – at least for many Americans. But clearly the rapid rise of China (and to a lesser extent India) makes entirely different scenarios possible.

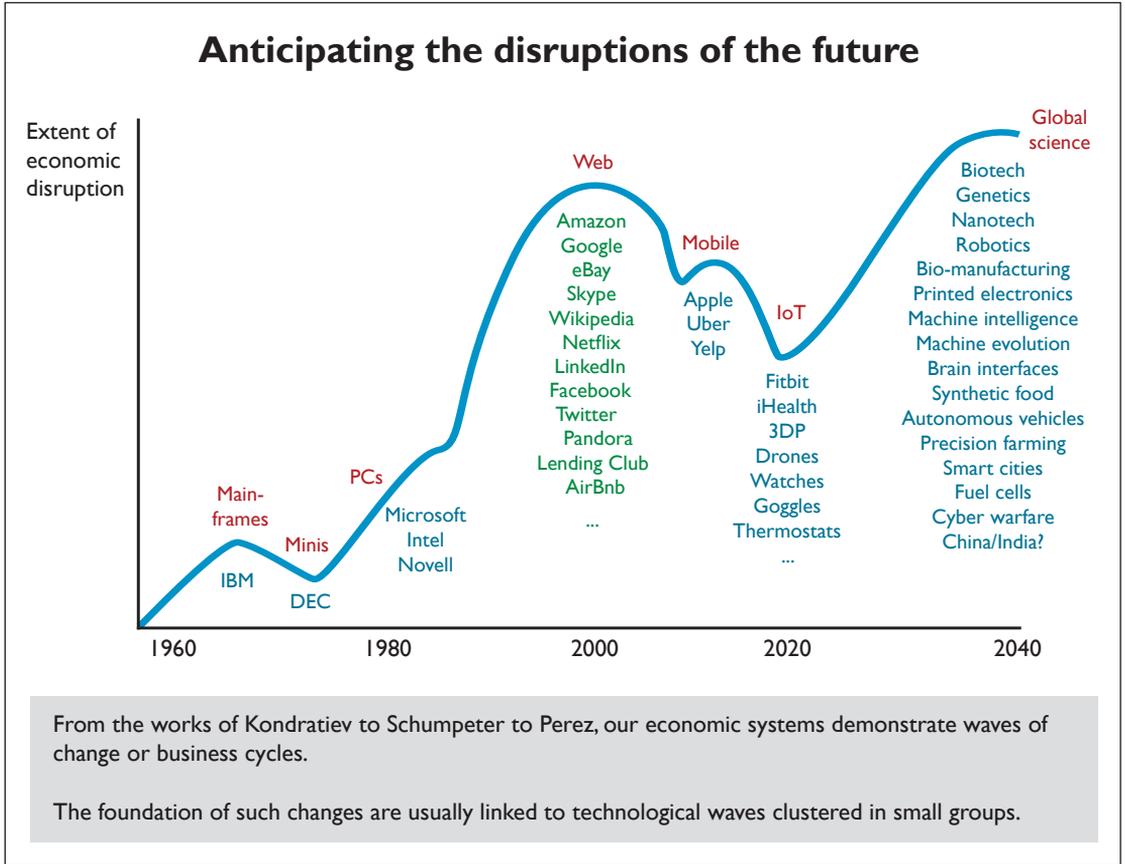
To assess this possibility, at the beginning of 2015 we decided to develop a point of view regarding this potential *clash of the titans*. Given that there are many think tanks, pundits and consultancies that are much more regularly engaged with China than we are, this was a daunting task. But our belief was that if we could frame the rise of China within the context of some of our proven LEF models, we could get beyond the obvious strengths and weaknesses of both titans, and make an original and meaningful contribution to what will surely be a long-running debate.

We believe we have been successful in doing this. When we combined our China analysis with the findings of our disruptive research, we were struck by how closely the timings of the expected maturation of Chinese technological capabilities coincided with our forecasted timings for the next major waves of disruptive change. In other words, it appears that, unlike the rise of other *Asian tigers* in the past, China is 'skating directly to where the puck will be', to quote the famous Canadian hockey player, Wayne Gretzky. Additionally, China's rise is coinciding with the arrival of major new types of hardware – goggles, drones, robots, 3D printers, internet of things (IoT), etc. This also plays very much to China's core strengths.

These two observations are of potentially great importance because they suggest that major new global technology opportunities will emerge just as China becomes most ready to compete for them. At a minimum, this makes significant shifts in global IT leadership possible to a degree we haven't seen since the challenge from Japan some 35 years ago.

Our overall timeframes for disruption, as well as our sense of China's ever-improving capabilities, are the focus of this Executive Summary. As always, we encourage clients to review our full report, which describes many specific Chinese plans, capabilities, companies and initiatives. This analysis makes it clear that the *clash of the titans* has already begun, even as the American and Chinese economies become increasingly intertwined.

## Waves of disruption



The figure above is taken from a recent LEF report<sup>1</sup> and depicts our belief that disruptive change tends to come in waves. But in regards to the future competition between China and Silicon Valley, the most important message of the figure is the great wave of technology-driven changes expected over the longer term. In many ways, the mainframe, minicomputer, PC, internet, mobile and IoT eras can all be seen as part of the process of establishing a ubiquitous *Matrix*<sup>2</sup> of digital capabilities upon which all manner of new value can be created, as science and IT are brought to bear on just about every realm of human activity.

We believe that the total amount of societal know-how needed to develop, deploy and maintain this new world will greatly exceed the capabilities of any one nation, so there will be plenty of room for players from all around the globe. However, given the IT industry's unusual history of very strong de facto market leaders – IBM, Microsoft, Intel, Cisco, Apple, Google, Amazon, Facebook, etc. – the question is: who will be the giants within this *global science* future, where will they come from, and what markets will they serve?

Indeed, in many ways the biggest competitive battlegrounds might not be the head-on struggle between China and the US, but rather over who will provide this future digital infrastructure to the developing world. The recent success of Xiaomi in mobile phones in India and Indonesia may well be an indicator of things to come.

1. David Moschella, *The Myths and Realities of Digital Disruption – An Executive's Guide*, LEF, September 2015

2. Kirt Mead and David Moschella, *Leveraging 'The Matrix' – Digital Ecosystem Dynamics and Strategies*, LEF, May 2015

## Anticipating disruptive change

Points of change	2015	2015-2020	2020-2025	2025-2030	2030-2035	2035-2040	2040-2045	2045-2050
	Now	Near			Far			
IaaS	War (End)							
PaaS	War							
SaaS	War							
Big Data	War	War						
Robotics			War					
Sensor-as-a-Service			War					
Currency			War					
IoT				War				
Immersive				War				
3D printing				War				
Social change				War				
GMO				War				
Genetic engineering				War				
Agents					War			
Printed electronics					War			
Hybrid printing						War		
Materials						War		
Bio manufacturing						War		
Epigenetics						War		

Whilst much of the market cannot be anticipated as it is directly related to individual actors' actions (Hayek's theory of The Pretence of Knowledge), there nevertheless remain points of change known as 'wars' (e.g. the shift from product to commodity and utility) that can be anticipated in advance.

The figure above looks more specifically at the timing of some of the key technology changes we expect. The figure is drawn from our 2014 report *Of Wonders and Disruption*<sup>3</sup> where we discussed how disruptive market shifts tend to go through decades-long cycles consisting of three distinct phases:

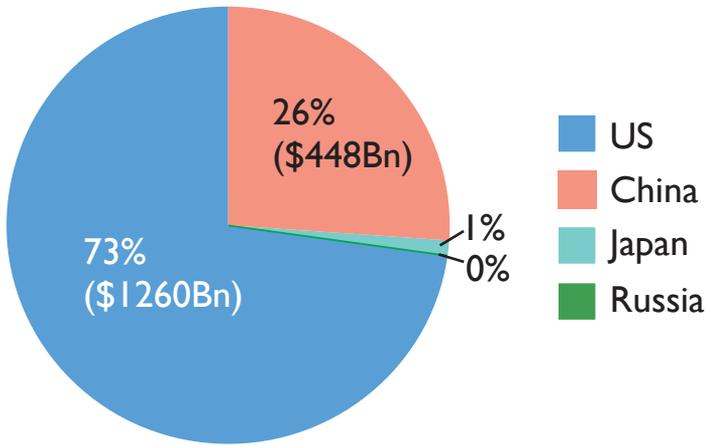
- **Peace** – mature markets tend to have well-established industry leaders, with stable growth and profitability
- **War** – a new technology or approach (such as cloud computing) directly attacks a previously peaceful marketplace (such as servers and data centres), seeking to establish new leaders and business practices
- **Wonder** – once established, a new approach (such as the electrical grid) enables all manner of wondrous – but hard to predict – new uses (such as radio, television and air conditioning) that eventually mature into a new *peace* phase, from which the cycle can eventually begin anew

The figure forecasts the timing of a wide range of emerging technologies from this *Peace*, *War* and *Wonder* perspective. We put the graphical emphasis on the *War* phase because the onset of this phase is much more predictable than the wondrous applications it will eventually enable. But the key point is that most of the major disruptive changes shown won't really kick in until 2025-35. This means that we need to think about where China will be then, and how effectively it is preparing for these developments. In this regard, our research shows that China is now very well positioned for these future global leadership battles.

3. Simon Wardley, *Of Wonders and Disruption*, LEF, November 2014

## Supplier positioning

**Market cap of top 20 internet companies  
by country of origin, Oct 2015 (\$Bn)**



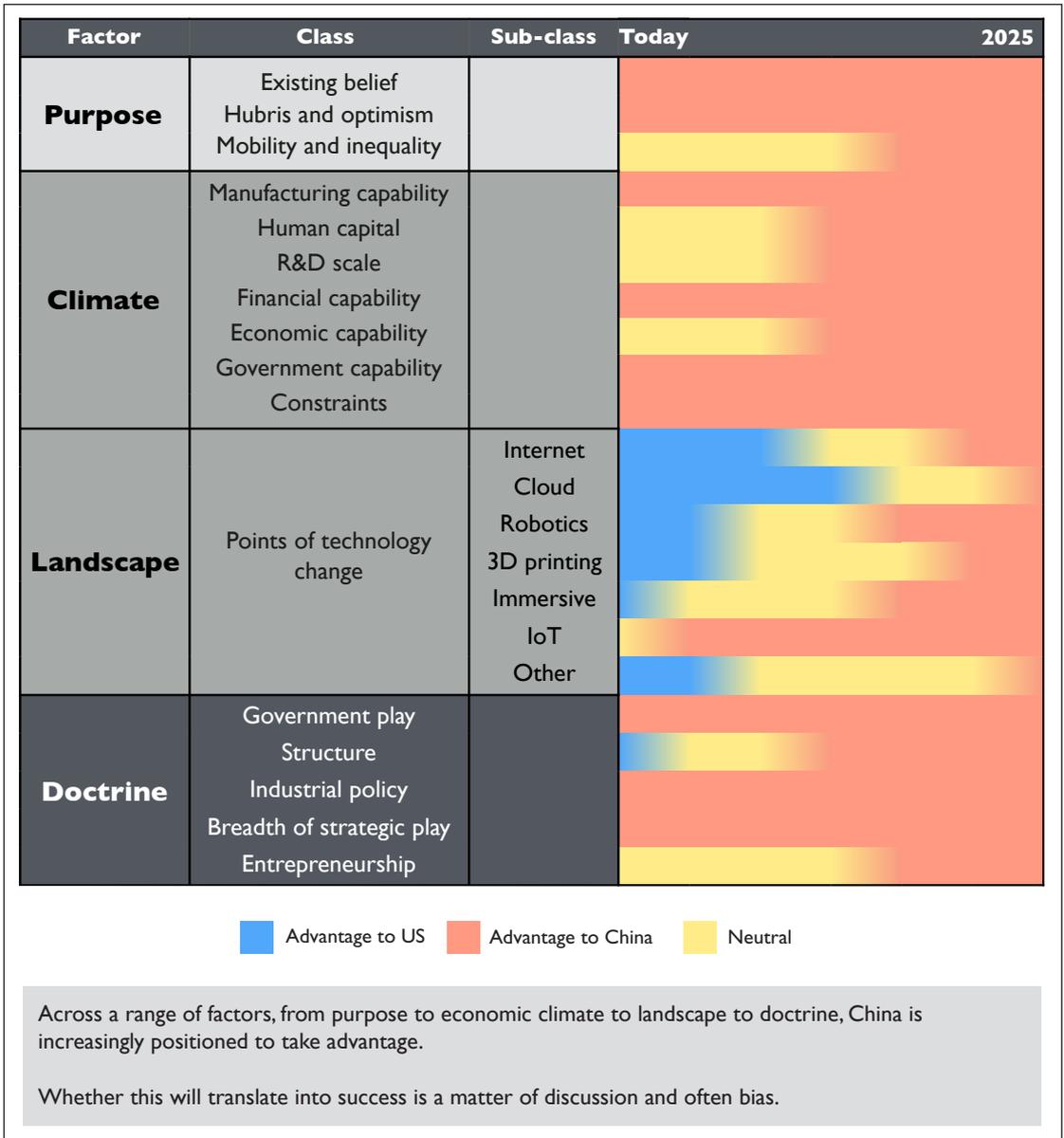
Over the last two decades, China has rapidly expanded up the value chain from its former self as a toy and luggage manufacturer to some of the leading companies on the internet, a vast array of high-tech exports and the world's largest domestic internet market.

As suggested by the figure, China has already made dramatic progress, at least from a market capitalization perspective. While most of the market's attention has understandably been given to the major Chinese technology brand leaders such as Alibaba, Xiaomi, Baidu, Tencent, Huawei, Lenovo and Aliyun (Alibaba's cloud), in our research we were equally impressed by the breadth and depth of activity across just about all of the areas in which we anticipate change.

It is important to understand that China's business structure is not like the *keiretsu* model of Japan or the *chaebol* structure of Korea. Both of these approaches feature giant, highly visible multi-national firms, with a relative lack of start-up activity, especially compared to the US. In contrast, China – like Taiwan and Hong Kong – has an enormous web of small technology firms and emerging digital ecosystems not easily visible to outsiders, making Chinese competition both potentially more agile and definitely harder to track (and research).

In the full report, we describe China's ever-improving ecosystem capabilities in a number of representative areas including cloud computing, virtual reality, robotics, cars, aerospace, solar power, high-speed trains and 3D printing. While it is clear that these will be some of the key battlegrounds of the future, opinions vary widely on the outcome (sometimes even within the LEF). But as the strengths of the US and Silicon Valley are very well known, in our report we focus almost entirely on the scale of the potential Chinese challenge.

## China's growing structural advantages

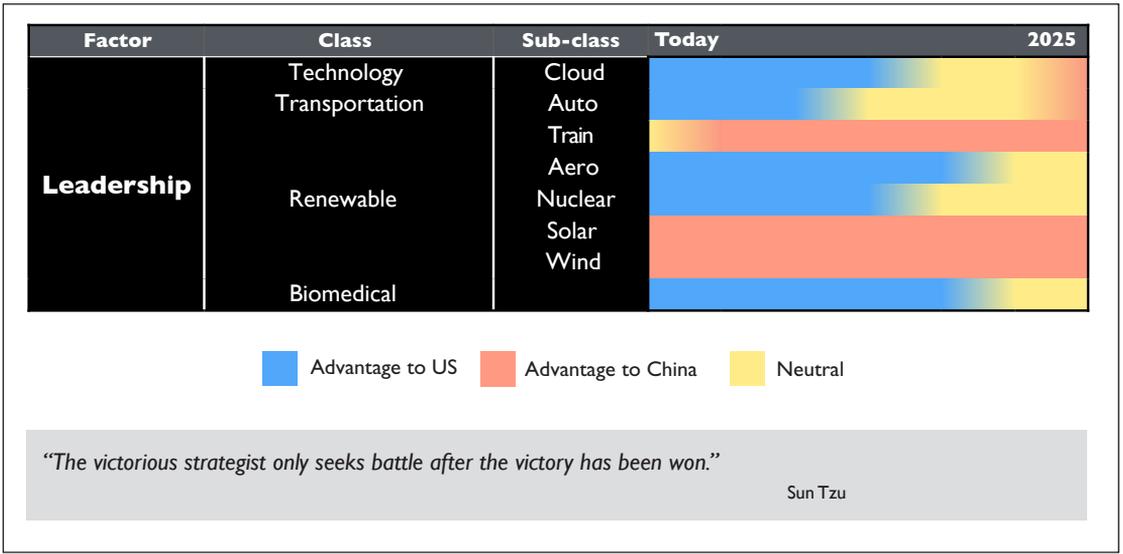


The figure above is grounded in the principles of Purpose, Climate, Landscape and Doctrine set out by Sun Tzu in *The Art of War* (published 513BC). In this view, the US is primarily viewed as a declining and indebted economic power; Silicon Valley suffers from hubris and inequality, is hollowing out, and is increasingly dependent upon foreign talent. In contrast, China is systematically investing in strategic capabilities, leveraging its vast domestic market and preparing to target emerging global opportunities. Our report amasses considerable, and often persuasive, evidence along these structural lines.

But of course, there is a flip side to this narrative, rooted in the idea that we have all seen this movie before. Whether it was the USSR (Sputnik and five-year plans), Japan (consumer electronics and the Ministry of International Trade and Industry), or an integrated European super-state (GSM phones, the Euro and the world's largest common market), various experts have repeatedly warned the US that far-sighted government initiatives, combined with often-controversial forms of strategic protectionism, would inevitably gain the advantage over the more *laissez-faire* American approach.

Additionally, we cannot assume that just because China is developing many structural advantages it will inevitably lead any particular industry. There are still many unknowns. But the key question is: given the structural differences we observe, and being mindful of past experiences, can we anticipate who is likely to prevail over the long term?

## The battle for leadership



As we know, America thus far has always had the last laugh, and it is all too easy to list the things that might block China’s progress – corruption, censorship, environmental degradation, an aging work force, bloated state enterprises, financial and legal opaqueness, language barriers, tense neighbouring country relationships, and more. Rattling off the US strengths – great universities, powerful companies, access to global talent, a unique VC community, the free flow of ideas, the California lifestyle, the English language – is equally easy.

But our bottom line is that China is different from the USSR, the EU, Japan and the other Asian tigers, not just because of its colossal market size and its strategic state engagement; nor even its growing sense of confidence, purpose and ambition. The largely under-appreciated additional reasons are that China is aligning itself with where the global market is headed, and that it is taking much more of an entrepreneurial and ecosystem-based approach. This is unlike, for example, Japan in the 1980s, whose vertically integrated conglomerates put too much of their energy into where the market already was – mainframes, supercomputers, consumer electronics and DRAMs.

By examining the value chains of specific industries and taking into account how technology is evolving as well as the structural differences between nations, we have sought to forecast which country we expect to lead, as shown in the figure above. Whilst America currently enjoys considerable advantages, by 2025 we expect the picture to be much more balanced, with many of the scales tipping towards China.

## Societal models and evolution

China's economic model is not new. Japan, Singapore, Taiwan and South Korea also rapidly modernized and became globally competitive by adopting an authoritarian, state-supported, pro-business, export-led economic model grounded in investment, education, engineering and social control. This strategy was articulated many years ago by the late Lee Kuan Yew, the founding father of an independent Singapore, and more than anyone else 'the man who remade Asia', as the *Wall Street Journal* rightly put it. LKY's advocacy of a modern one-party state and *Asian values* was an enormous influence on Deng Xiaoping.

However, while all four of these *tigers* quickly moved into the upper echelons of the developed world, they have never managed to rise to the top in terms of disruptive innovations and the resulting industry leadership (although Japan came close). Globally, all four have focused mostly on advanced commodity hardware while barely participating in the software and services industry outside of their home markets. Importantly, all of these countries liberalized their societies slowly but fundamentally over time.

China faces challenges on all of these fronts, with three main differences. In addition to its immense size, China plans to nurture its own set of global internet services players such as Alibaba and Didi Kuaidi. Perhaps most importantly, hardware – 3D printers, goggles, robots, drones, IoT, etc. – is entering a less commodity-like phase. As device innovation and manufacturing prowess become more strategic, China's position will strengthen.

Meanwhile, the whole world is watching to see if China will significantly loosen its often-repressive societal control. Here, China's challenges are greater than those faced by the other major Asian economies, who were largely under the western/American umbrella, and thus had a smoother path toward reform. We tend to agree with those who argue that global leadership requires both hard and soft power, and that the latter is generally incompatible with many of China's current policies. On the other hand, there are quite a few countries – think Russia, much of the Middle East, and elsewhere – that may find China's approach to domestic control of the internet appealing, possibly resulting in a multi-polar technology world.

Of course, no one really knows how these issues will ultimately play out. What we do know is that if China can manage its internal challenges, it has a much greater chance of dethroning Silicon Valley than anyone in decades. For the last 50 years, the great majority of high-tech winners have been US firms. Over the next 50, this looks likely to change considerably. Right now, the clash of the titans looks like a pretty equal fight, and one that will only accelerate the global pace of technology innovation. Let's hope the China/US rivalry stays contained within the marketplace, and doesn't spill over into other, more worrisome, realms.

## Some initial advice

This LEF report argues that taking China seriously may very well change the nature and purpose of your company over time. To succeed, you will need to accept that you will have to adapt to China's hyper-competitive environment, and that you will face new forms of competition, new styles of management and different rules. Perhaps most fundamentally, you should not look at China as an emerging market in which you can simply re-apply old business models because you have some weakness in existing markets. China will not save your firm from the ravages of US and European maturity and commoditization. In short, you shouldn't treat China as just another geography; you should adapt yourselves to it.

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