THE LAUDER GLOBAL BUSINESS INSIGHT REPORT 2015

EMERGING PLAYERS ON A GLOBAL STAGE

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In this special report, students from the Joseph H. Lauder Institute of Management & International Studies investigate the latest trends and developments shaping today's global marketplace. The articles span a wide range of topics, from consumer markets, technology and social impact to infrastructure, business models, emerging markets and education.

In the consumer markets section, readers can discover how the prevalence of smartphones in Latin America is revolutionizing the region's taxi industry despite some of the most notorious traffic problems on the planet. They can also find out about China's struggles to become more competitive in the world of professional football (or soccer, to Americans).

Also showcased is consumer investing, including the uncertain future of the young consumer-credit industry in Russia, and of Yu'E Bao, a unique money-market fund created by Chinese Internet giant Alibaba. On the food and beverage scene, articles address how France is rediscovering its beer heritage, while India's rising whiskey consumption level serves as a mirror of its cultural changes. Another piece highlights the daunting challenges faced by Russian grocery retailers as they try to establish markets beyond the well-trodden paths to Moscow and St. Petersburg.

Infrastructure and planning is the subject of an article about Brazil's aging airports and the effects of two major international sporting events on expansion plans. In the next section, we see that technology and innovation can power significant economic forces, as reflected in articles about e-commerce in Africa, technology startups in the Middle East and the robotics industry in Japan. "Clean" and "green" technologies are featured here as well, in articles about China's cleantech industry and China's and Morocco's forays into solar energy.

The topic of emerging markets is one that touches nearly every article in the report, but particularly fuels an analysis of the role of French companies in emerging African businesses. Plus, private investment as a fledgling growth area is tackled in coverage of private equity in Russia and in Latin America.

Social impact is examined in the context of Peru and Colombia, countries in which poverty remains an overwhelming economic impediment. Another article looks at education trends, tracking how China's student "brain-drain" appears to be reversing itself. And finally, two interesting economic business models are investigated to see how their success might be replicated elsewhere: South Carolina's creative public-private partnerships and business-led organizations, and Germany's "Mittelstand," the relatively small firms quietly fueling that country's export powerhouse.

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Calling All Cars: How Cab-hailing Apps Are Disrupting Latin America's Taxi Industry

Between 2011 and 2014, the number of smartphone users in Latin America more than doubled, according to the market research firm eMarketer in New York. This increased access to mobile connectivity is dramatically changing Latin America's taxi industry.

Taxi-hailing mobile apps have been operating successfully in parts of Latin America since 2012, driven by the region's challenging local transportation system exemplified by such cities as Lima, Peru, and Bogotá, Colombia. By leveraging new technology while addressing concerns about passenger safety, these apps have made taxi rides easier to find, as well as more secure and efficient.

The opportunity to disrupt the local transportation system in Latin America is significant. In Lima, the transportation system is so dysfunctional that it was featured on an episode of "Don't Drive Here," a Discovery Channel Canada TV series about the worst cities in the world for driving. While Bogotá has a more developed transportation sector, it too has problems with major congestion and inadequate security.

Lima: Overrun by Taxis and Would-be Cabs

Lima's local transportation scene can be charitably described as disorderly and confusing. Without an efficient public transit system, residents instead rely on a dizzying panoply of transportation options including private cars, buses, "combis" — a type of microbus — bicycles, taxis and would-be cabs. The city has a metro line with limited reach that was put in service in 2011, but an expansion of its subway system is probably many years away.

Currently, the city touts its Bus Rapid Transit System, the Metropolitano, as a good option. This line connects 16 city districts and runs along Lima's longest expressways. Nevertheless, the metro line and the Bus Rapid Transit system are insufficient to meet the demands of the population. As a result, the city is overrun with taxis. Indeed, there is one taxi for every 18 people in Lima. To put this in perspective, a 2013 article in La República said there were about 250,000 taxis in Lima. In contrast, 13,000 taxis ply the streets of New York City, which has a similar-sized population, according to the New York City Taxi & Limousine Commission.

Out of the 250,000 taxis in Lima, 120,000 are unofficial, according to the La República article. This large number of unregulated cabs causes additional problems. "The informal sector exists outside of labor regulation, and in addition to not paying taxes or registering with the municipality, many do not meet adequate standards of safety or service," noted a Lima-based specialist in employment policy.

The process of becoming a taxi driver is all too easy — one just has to put a sign on the windshield that says "taxi." Even though Peru imposed rules in 2014 requiring that all official taxi drivers display special license plates and place a chip on their windshields, it is difficult to differentiate official from pirate cabs on the street with such small distinguishing marks. Although now the Municipality of Lima requires taxis to have long, checkered stickers on the sides of their cars, the city estimates that still up to 30% of cabs do not carry these stickers, or register in another municipality to avoid the regulation

The pirate cabs are neither standardized nor metered. The vehicles can be any model, color and age, and the prices for trips are inconsistent: The rider must negotiate with the driver upon entering the vehicle. This informality makes for an extremely inefficient industry, with an annual productivity rate of less than US$5,000 per driver, according to Peru's Instituto Nacional de Estadistica e Informatica (INEI) or National Statistics Institute. The lack of control over the taxis that circulate throughout the city has also created an environment of insecurity.

Bogotá: Taking a Cab Remains Risky Business

In contrast to Lima's taxi industry, Bogotá's cabs are closely regulated by the city government. All drivers must register with the municipality and charge fares at a standardized rate. Nevertheless, the transportation sector in Bogotá has its own problems.

In Bogotá, a concern for theft, assault and *paseos millionarios* — a crime in which the driver and his associates rob the passenger, then force the victim to withdraw large amounts of money from an ATM — has spurred the demand for a better way to contract secure taxis. In 2011, the mayor's office published new figures on cases of *paseos millionarios* in the city, concluding that the total number had increased to 103 cases, up by 15 over the previous year. Fear and insecurity remain high in the taxi sector. Another major issue is the established system known as *pico y placa*, which limits the number of hours that a driver can work. It is common for a driver to be prevented from working about one or two days a week.

Entrepreneurs Take the Wheel

The market demand for safe and reliable transportation services in Lima and Bogotá makes both cities prime destinations for disruption in the taxi industry. While innovation in the mobile app market has mostly originated outside Latin America, the current influx of mobile devices to the region has facilitated innovation through locally developed apps for Latin American consumers. Currently, the most popular apps in this industry are those that enable consumers to connect with and solicit services from taxi drivers in real time through mobile platforms. In the case of Lima and Bogotá, two Latin American firms currently stand out as the dominant service providers in this industry: Easy Taxi and Tappsi.

Becoming a taxi driver is all too easy — one just has to put a sign on the windshield that says "taxi."

Created in Rio de Janeiro in 2011 by Tallis Gomes, a young Brazilian entrepreneur, Easy Taxi currently operates in 30 countries around the world and has over 17 million users. In Bogotá and Lima, the company continues to grow at an impressive rate, with tens of thousands of new users joining each month. In Colombia, the Easy Taxi app has been downloaded 2 million times. Similarly, Tappsi, launched by Andrés Gutiérrez and Juan Salcedo in Bogotá in 2012, has experienced great success throughout Colombia with more than 1.5 million users and considerable growth in Lima since entering the Peruvian market in July 2014.

Both applications provide a communications platform between taxi riders and drivers, eliminating the need to hail taxis on the street or painstakingly reserve cabs by phone. The apps use location data collected from users' mobile devices to arrange and reserve rides based on taxi proximity and availability, resulting in shorter wait times for riders and less down time for drivers. Both products provide advantages for consumers while giving taxi drivers access to a potentially lucrative market.

What distinguishes these apps from other services in this industry is the fact that they serve and benefit both riders and drivers. However, these benefits differ from market to market depending on the specific needs and preferences of the respective constituencies. The success of both Easy Taxi and Tappsi in Lima and Bogotá is in large part a product of the companies' ability to customize these services and articulate their benefits to local markets.

Secret of Their Success

While the taxi industries in Lima and Bogotá present different challenges, they nevertheless have served as the foundation for the success of entrepreneurial businesses utilizing smartphone applications. In just two years, mobile apps such as Easy Taxi and Tappsi have been downloaded millions of times, as they engage thousands of participating drivers in these cities, and they anticipate attracting even more. Principal reasons for their success are advanced technology solutions that reduce inefficiencies and improve security in the industry. Drivers gain a system of finding riders that optimizes their time on the road and gives them predictable business. Riders gain improved security measures and reliable, consistent service in both quality and price. These businesses have captured the support of both constituents and have made great strides in consolidating their position in the market.

> In just two years, mobile apps such as Easy Taxi and Tappsi have been downloaded millions of times.

Both applications, which take advantage of weaknesses in the taxi system, have emerged at a time of solid economic growth and increased smartphone sales in Lima and Bogotá. Colombia experienced a 200% growth in 2014 sales of smartphones, which made up 30% of total phone sales. In addition, International Monetary Fund data show healthy economic growth for Peru and Colombia in recent years, including projections of 5.0% and 3.7% growth, respectively, for 2016. This growth has helped spur the development of an emerging class of consumers who buy smartphones and use them for a variety of purposes. Modern societies rely increasingly on mobile technology, and Latin America is no exception.

Optimizing Time and Money: Economic Benefits

These smartphone applications make taxi drivers' businesses more efficient and profitable. They open up new channels of business to thousands of users. They also optimize the drivers' working time by guiding them directly to the closest riders. Drivers no longer need to circle or park somewhere to try to find customers. This is crucial in cities such as Lima and Bogotá, where time is especially critical because of congestion and other limitations such as *pico y placa*.

Riders, too, save time and money. These applications offer immediate interaction with the driver and share the arrival time, the taxi's license plate number, and the driver's name. "One huge advantage [of smartphone taxi applications] is that you receive immediate confirmation that your taxi is on its way. With companies that operate only through the phone, customers can wait up to 10 minutes on hold," said Andrés Gutiérrez, founder and CEO of Tappsi. In addition, both Easy Taxi and Tappsi require their drivers to use a standardized fare system, ensuring a fair and predictable rate. This is in contrast to many unregulated cabs. The municipality of Lima, for instance, does not mandate taxi meters. The apps also provide price calculators so riders can determine the rate for each trip in case there is any doubt.

For corporate users, options like Easy Taxi Corporate and Easy Taxi Pro offer secure systems for employees and partners to request a taxi from a corporate account — with tools that provide a reliable record of the expense. The Easy Taxi Corporate service collects data on expenses so companies can perform analyses to optimize their spending. Easy Taxi Pro enables hotels, bars, restaurants and shopping centers to call up to four taxis at no cost to the businesses themselves. "In this way, business users do not spend resources on telephone services to request insurance on behalf of their customers, which is a huge savings to them and a courtesy to their customers," said Jimena Vallejo Amaya, the general manager of Easy Taxi Colombia.

Improving Security, Supporting Communities

Taxi applications provide users with unique ways to protect passengers by providing information about the drivers and their vehicles. The applications also help safeguard drivers — who have been victims of robbery and violence — by storing riders' information and providing a reservation code that passengers share with the driver upon entering the taxi. Also, Tappsi offers a built-in tool that shares information about the taxis with social networks — serving as a “panic-button” of sorts in cases of emergency.

These taxi app companies also provide social support for drivers and their families. For example, Tappsi is committed to supporting the non-profit organization Viudas de los Taxistas in Colombia, which helps the widows of taxi drivers find work. “Viudas de los Taxistas is a priority of ours because as a company, we commit to the well-being of our drivers and their families, and support them when they need it the most,” said Gutiérrez. In addition, Tappsi has begun a program to educate its drivers, offering them lessons in hospitality and English as a second language. “We want our drivers to be good ambassadors for Colombia, and to give them tools for career advancement at the same time,” Gutiérrez added.

Easy Taxi has also launched a new program, BiblioTaxi, aimed at transforming its drivers into cultural ambassadors. Through this program, riders have access to more than 35,000 physical books and 100,000 e-books in the back seats of Easy Taxi vehicles, and are invited to take physical books with them between rides. Easy Taxi also encourages riders to donate books to the system, turning the drivers into cultural entrepreneurs who manage “micro-libraries” out of their vehicles.

The Mobile Future Is Bright

As the Latin American smartphone market expands, the role of mobile technology in the taxi and transportation industries will most likely continue to develop. There is enormous potential for innovators to adapt and create new business models for these industries. Moreover, these new businesses will benefit Latin American economies and positively impact society. However, they will have to align with the available regulatory framework and infrastructure to avoid temporary pitfalls and succeed long-term.

For example, when Uber — a car-hailing mobile app based in the U.S. — expanded its services in Bogotá during 2014, regulatory disputes sparked by the taxi industry threatened to force the company out of the Colombian market until policymakers intervened. As other tech-enabled trends and foreign business models, such as ridesharing, become more common in the Latin American market, entrepreneurs and regulators will need to work diligently to promote innovation and public benefit while preserving the region’s core social and economic values.

Tappsi ... shares information about the taxis with social networks — serving as a “panic-button” of sorts.

The success of companies such as Easy Taxi and Tappsi serves as a model for other businesses seeking to enter the Peruvian and Colombian markets with mobile technology in the next few years. To be successful, they all must continue to articulate the benefits of their services in various categories, and maintain good relations with the government so the industry can grow at a sustainable rate and meet the demands of the public. If this goal is achieved, these businesses will have a major impact that stretches beyond Lima and Bogotá into many other Latin American cities.

This article was written by Robert Hamill, Tony Keffler and Caitlin Ryan, members of the Lauder Class of 2016.

Grocers in Russia: The Challenges of Venturing Beyond Moscow

Russia is a land of extremes, and nowhere is this more evident than in the striking differences between Moscow and St. Petersburg, versus the rest of Russia, also known as "the regions." While Moscow installs WiFi in its Metro cars, builds luxurious shopping malls, and sustains Tverskaya Street, ranked among the most expensive commercial streets in Europe, the regions are more apt to feature decaying Soviet-era transportation, dilapidated buildings, and relatively limited choices in consumer products. But are business opportunities — such as grocery retail —now shifting from Moscow to the regions?

The inequality between Moscow and the regions is reflected in the country's economic figures. According to the Russian Federal State Statistics Service (Rosstat), the city of Moscow accounts for more than 21% of the Russian GDP, despite being home to only 8% of the country's population. Rosstat calculates that the average Muscovite spends 2.3 times more than the average Russian on consumer goods.

> In practical terms, this means the difference between a display box of unwashed potatoes that are available only during certain seasons, and the year-round availability of prepackaged potatoes.

Because of Moscow's privileged economic position, businesses seeking a foothold in Russia traditionally established themselves first in this city, which they viewed as the source of Russian growth. In recent years, however, this approach has come into question. Moscow was adversely affected by the 2009 financial crisis, to a much greater degree than the rest of Russia. Since then, according to Rosstat, its segment of GDP has grown more slowly than the country's overall rate: only 6% growth in 2012 compared to 10% nationwide. Because the regions had developed more slowly, they now have to close a greater gap to catch up to the capital, meaning they present more opportunities for companies seeking growth. For many businesses, Moscow's potential has been tapped out, while capturing regional growth is the key to the future.

Beyond the moves being made by private industry, the Russian government is prioritizing regional development. President Vladimir Putin has routinely emphasized the importance of developing Siberia and the Russian Far East in particular, and in 2012 created the Ministry of Far East Development. The government is exploring a variety of policies, such as tax breaks, to make the regions more attractive to investors.

The Grocery Model

The grocery segment is one of the industries looking to the regions for growth. Large grocery retailers that focused historically on key population centers such as Moscow and St. Petersburg are now seeking expansion to the south and the east. This entails challenges, but if the hurdles can be overcome, the grocery segment could become a viable expansion model for retailers in other sectors to follow.

Grocery retailing in Russia is currently undergoing a structural transition, evolving from what had been a highly fragmented industry dominated by mom-and-pop stores to one in which a handful of large chains command a majority of the market share. Whereas the major cities are far along in the transition, retail grocery stores in the regions are still limited in terms of the numbers of products they offer. Consumers, without significant access to international products, purchase mostly what is grown in the neighboring regions.

In practical terms, this means the difference between a display box of unwashed potatoes that are available only during certain seasons, and the year-round availability of prepackaged potatoes in several varieties, sizes, price points and stages of preparation. Local stores lack the logistics, warehouses and shipping centers to support such assortments and product quality. They are small and often crammed into the first floors of residential buildings or open-air bazaars.

The regions are a ripe market for expansion, and present an attractive opportunity for large international grocery retailers. These vendors can offer customers a wider variety of products, with greater consistency year-round. Their large-scale store formats — with an average net selling space of as much as 43,000 square feet — attract customers looking for a modern shopping experience. As a result of their scale and established supply-chain management, they can offer higher-quality products at lower prices, and open the regions to new product categories, thus creating new consumer demand.

In major cities such as Moscow and St. Petersburg, food retail chains, including X5, DIXY and Auchan, offer brands across the full range of the budget-to-premium spectrum, and range in size from smaller convenience stores to hypermarkets. They can carry as many as 25,000 units of international, domestic, and private-label products. But this type of large, modern grocery retailer represented only 58% of the retail food market in Russia in 2013. As the grocery market continues to consolidate, it faces both opportunities and challenges.

Going the Distance

Retail businesses in Russia grapple with some unique conditions. Russia is the largest country in the world by total area, spanning nine time zones and four topographic regions. Its climate in the taiga — the largest region in the country — is characterized by long, cold winters and permafrost, which complicate both construction and transportation. Delivering goods to store shelves across great distances through difficult terrain requires extra planning and resources. For example, conveying goods from Russia's most populous city, Moscow, to its third-most, Novosibirsk, requires travelling over 2,100 miles by road — nearly two days nonstop. The government's insufficient investment in highway infrastructure causes additional complications: There are only a limited number of access routes to cities in the remote regions. Delays due to traffic congestion are a perpetual problem.

Grocery retailers face additional difficulties because of the nature of their goods. Perishable products such as fruits and vegetables have narrow delivery windows before spoilage, while frozen products need to be properly chilled during transport to ensure their integrity. These problems worsen as products are increasingly sourced internationally. Supply-chain management in terms of transportation, storage, and distribution systems becomes critical.

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Aging Infrastructure

Russia's vast geography adds to the challenge of economic development across most of the country. The government has only recently undertaken a concerted effort to rebuild aging infrastructure. Underdeveloped road and rail systems make transit between regions very slow and inefficient. Roads are poorly maintained and incapable of handling the country's economic needs. The current rail system is inadequate for shipping goods quickly across vast distances. These factors have hindered major companies' expansion plans, as logistical issues make it virtually impossible to transport goods to the more remote regions in a timely manner. In turn, inefficiencies lead to product shortages and higher prices. And reliable utilities in the regional areas are not always readily available, so industries with perishable goods suffer the greatest consequences. An unstable power supply poses serious risks to the inventories of stores and warehouses, in which proper temperature control is vital.

At a 2013 economic forum, President Putin pledged a $13 billion investment in Russian infrastructure development. Unfortunately, this effort may be "too little, too late."

Russia's economic growth has slowed nearly to a halt, and the new infrastructure projects could take decades to complete. According to the Russian Transportation Ministry, the country's roads are restricting economic output by 7% to 9%. The regional areas suffer even more, as the majority of Russia's business is conducted in or between Moscow and St. Petersburg. Even more serious are the cronyism and corruption that critics say the current regime has exhibited. As evidenced by the Sochi Winter Olympics, projects are costlier and slower to develop because of the widespread misappropriation of funds. According to anticorruption crusader and opposition politician Alexei Navalny, up to half of the Sochi Olympics' $51 billion budget may have been embezzled.

A 2010 report by the European Commission estimated Russia's agro-food trade deficit to be as high as $27 billion.

Corruption and Property-rights Protection

Corruption in Russia extends beyond infrastructure development. Companies encounter difficulties in opening businesses in the regions because of property-rights concerns. Following the collapse of the Soviet Union, violence and racketeering were commonplace when ownership of properties or businesses was in dispute. Criminals extorted companies, often with physical violence, by making them pay a portion of their profits in exchange for "protection." A Ministry of Internal Affairs report from 1994 stated that the majority of Russian businesses were victims of racketeering, in particular the banking sector. The Russian Academy of Sciences reported in 1995 that criminal groups held 55% of the capital and 80% of the voting shares in private enterprises.

While the days of significant criminal violence in Russia have passed, there are still issues around acquiring and protecting property. Foreign and domestic investors struggle to protect their properties under the rule of law, fearful that someone with significant political influence or connections may seize their assets illegally. New threats to companies include attacks by government officials, ranging from law-enforcement agents to high-level regulators. Firms no longer rely on organized crime to protect their assets. Today, disputes are resolved in arbitration by professionals such as lawyers and accountants.

Unfortunately, new threats have emerged, such as corporate espionage, hacking and inspections by corrupt government officials. While the nature of these problems has led to a decrease in organized crime, companies nevertheless must proceed cautiously with regard to expansion and investment in the distant regions. The situation poses an even greater concern for foreign investors, who may be deterred by, and unwilling to deal with, an economy in which they trust neither the legal system nor the state itself.

Another Wrinkle

When a grocery chain enters a new region, one of its first tasks is to find regional suppliers for the milk, bread, and other perishables that are best sourced locally. The ideal purveyor will have high quality standards and a sufficient quantity of products available, all at reasonable prices. Such a combination, while difficult to find in any market, is particularly rare in Russia. Furthermore, local suppliers can be closely linked to the local government, resulting in higher prices for retailers who wish to maintain friendly relations with the authorities. Companies have adjusted to these challenges by hiring teams of "local buyers" who know the regional landscape and already have relationships with local suppliers and governments.

Another supplier challenge is related to Russia's recent import ban on all food products originating in the E.U. or U.S. Since the Soviet Union's demise, Russia has relied heavily on foreign imports, particularly in the areas of meat and processed food. A 2010 report by the European Commission estimated Russia's agro-food trade deficit to be as high as $27 billion. This means grocery retailers' traditional suppliers in Europe and the U.S. need to be replaced, and the large trade deficit suggests the domestic supply is not enough to make up the shortfall.

Expanding With Caution

The regions are potentially lucrative sources of growth, especially in light of limited growth potential in Moscow and St. Petersburg, coupled with a stagnant Russian GDP overall. However, to take advantage of this opportunity requires overcoming obstacles unique to Russia, involving geographic, political and socioeconomic factors. Grocery retailers' safest path to growth is most likely through slow, measured expansion of their geographic footprints, which would allow them to maintain control of their product quality and costs by carefully broadening their supply chains. In this way, retailers could expand their presence, create new markets for products that have enjoyed popularity in major cities, and capitalize on high growth in the structural shift of the industry, mutually benefitting both the shareholders and the population in the regions.

This article was written by Kseniya Demchenko, Alan Gordin and Andrew Mitchell, members of the Lauder Class of 2016.

How France Lost — and Is Rediscovering — Its Beer Culture

France's wines are world-renowned, whether they are the reds of Burgundy, whites of Alsace or glamorous champagnes of Reims. So when it comes to a beer tour, France is certainly not a country that leaps to mind. One might first think of Germany or Belgium. A commonly heard refrain is "France is not a beer country, we prefer wine." But is it true that there has never been a culture of beer in France and could there be an untapped market to be explored?

It may not seem like it, but beer has been around for thousands of years. Ancient civilizations made beer before they made bread, and archeologists have found traces of beer in jars that date back 10,000 years. The first records explaining the brewing process originated in ancient Sumeria and Babylonia, and date to around 4300 BC. Furthermore, extensive documentation has shown that ancient Egyptians used beer as a medicine, as a religious offering, and even as part of the salary paid to workers at the time — three glasses of beer each were part of their daily rations.

> France has the second-lowest consumption of beer per capita in Europe.

On the other hand, in the days of the Roman Empire, the elite class in particular preferred wine, leaving beer for the poor, uneducated masses and the barbarians living beyond the empire's wine-producing — and unsurprisingly, political — boundaries. Among the latter groups were the Gauls, who initially fought against Rome but were eventually conquered. One area, inhabited by a mixed population of Romans and Gauls, came to be known as Roman Gaul. In this region, beer, preferred by the Gauls, and wine, preferred by the Romans, were both enjoyed. The region would become present-day France. Several centuries later, the Franks, who had contributed to the collapse of the Roman Empire, occupied Roman Gaul and spurred fresh variations on French beer by introducing new grains and brewing techniques such as the wheat-style beers.

Beer Falls on Hard Times

By the 8th century, the Emperor Charlemagne had begun to regulate the production of beer. The term *brasserie*, meaning a commercial brewery, was born. In 1489, the term *bière* came into vogue and became the common name for the drink in most European languages.

Beer production was interrupted at the end of the 18th century, when a combination of dry weather and bad harvests led to one of the first famines in modern France. In 1789, hunger pushed farmers to stop cultivating barley and to expand the acreage devoted to wheat in order to increase bread production. Beer became a luxury, and did not hold a measurable share of the alcohol market in France for the duration of the 19th century. Nevertheless, by 1910 there were still 2,827 beer breweries in France. However, this number was doomed to decrease and beer became less popular during the 20th century due to the two World Wars, the destruction of many rural cities, and the introduction of the large beer conglomerates that purchased the vast majority of France's breweries during the second half of the century.

Current State of Beer Consumption in France

According to 2013 data, the average French consumer drinks about 29.4 liters of beer a year, in contrast with 38.2 liters of wine and 6 liters of cider. That compares with traditional beer cultures such as Germany or Belgium, where the averages are 109.9 liters and 82.9 liters, respectively. Indeed, after Italy at 26.5 liters per person per year, France has the second-lowest level of beer consumption per capita in Europe.

These statistics show that relative to other European countries, France does not represent a significant market for the beer industry. However, while beer consumption there has not grown in the last five years, it has remained remarkably stable, according to recent Euromonitor data. Moreover, this rate of consumption is predicted to decrease only slightly by 2018, to about 28 liters per capita.

It is important to note that the decline in beer drinking in France is much less severe than the predicted decline in countries such as Belgium and Germany, where consumption is expected to drop by 23.5% and 12.7%, respectively, compared to only a 10% decrease in France. As a percentage of total alcohol consumption, beer will continue to represent about 40% of French consumption.

Why Is France an Exception in Europe?

There are several striking differences among the alcoholic beverages consumed by Europeans, even among neighboring countries that should, in theory, share more than just borders when it comes to culture. Naturally, there are geographical, historical, and cultural reasons for these differences.

When the Romans arrived in the lands that would become present-day France, they discovered that the soil was well-suited to grape production, particularly in the southern regions. Furthermore, the regions that could be dedicated to growing wheat had to serve the ever-growing demand for bread and other cereal products. Thus, beer production was not given high priority.

Historically, both beer and wine cultures inhabited the region that became France, ranging from the beer-drinking Gauls — the modern French comic Asterix being a prime example of a cultural reference to these people — to the wine-loving Romans. Consequently, both beer and wine were produced and consumed in the region. So France's beer production and consumption traditionally had been local, with a small brewery typically providing the beer for households, bars and restaurants within a 20-mile radius.

These local breweries were concentrated in the eastern part of the country, regions that had suffered the most destruction during both World Wars. Those that remained standing in 1945 then had to fight a new enemy: the beer multinationals. These giants began to buy breweries in order to incorporate them into their production systems, transforming the small local breweries into large, impersonal parts of corporations. The new beers were aimed at the mass market, and in many cases, quality and local flavor were sacrificed in order to achieve a standardized taste.

This new, uniform-tasting beer lacked the personality and local flavor traditionally demanded by the French. There was no concept of terroir — special characteristics given to an agricultural product by the unique properties of the soil in a region — attached to these brews. Consequently, many French people began to lose interest in beer, as it seemed to have little taste or identity. Further, the breweries that did survive in the regions close to the Belgian and German borders faced a lack of demand due to the French culture of centralization. Paris is the center of art, politics, economics and culture. Thus, what is not consumed in Paris is generally not popular in France. With no local breweries left in Paris, the popularity of beer in the rest of the country suffered.

> Beer and wine cultures inhabited the region that is France today.

This combination of geographical, historical, and cultural factors has led to the relatively recent extinction of the "beer culture" in France. Notes Simon Thillou, owner of La Cave à Bulles and one of the few beer experts in Paris: "French people, and especially people from Paris, still do not consider beer as a drink with personality." Beer is believed to lack the variety, local flavor, personality, and sophistication that wine is considered to offer.

The analytical and historical data would point toward a fairly negative 21st century for beer in France. Nevertheless, while beer's popularity there has remained comparatively flat, the preference for and consumption of artisanal brews have been growing significantly of late. Evidence of this phenomenon can be seen in changes in beer production. Between 2008 and 2012, France saw a growth of 281.1% in the number of breweries, more than 80% of which were microbreweries. This growth is even more remarkable when compared to that of Germany, which exhibited a 0.8% increase over the same period, with about 50% of this growth in microbreweries.

Why has France seen such a dramatic growth in this particular sector of the beer market? Thillou offers several possible reasons for the increase in microbreweries and the appetite for artisanal beer. One is the arrival of artisanal beer from the U.S. In February 2013, Brooklyn Brewery, a New York-based company famous for its styles of craft beer, expanded into France. Its beers are now available all over the country, including unexpected places like Avignon, a small city in the south.

> Between 2008 and 2012, France saw a growth of 281.1% in the number of breweries.

Another reason may stem from France's culture as it relates to food and drink. Many local French products are regulated by law with the *Appellation d'Origine Controleé* (controlled designation of origin or AoC), which identifies the regional origin of a product, such as cheese or wine, and ensures that it complies with certain criteria. In addition to these sophisticated regulatory standards, France is also home to one of the most renowned cuisines in the world.

Indeed, UNESCO in 2010 declared French gastronomy as a "world intangible heritage." The French care deeply about their gastronomy and food culture, which is based on regionality. This may explain the uptick in artisanal beer consumption — a desire to drink something regional, local and handmade. "The consumer does not look to drink more, but to drink better," Thillou observed.

If artisanal and craft beers are now being valued in a manner similar to other products produced in France, then it is no surprise that this trend has led to the opening of several beer-centric venues, including the first restaurant in Paris to pair craft beers with food. La Fine Mousse and its sister bar of the same name opened in 2013, and the restaurant has a trained beer sommelier who pairs according to a frequently changing menu. The beers accompany the food and are also incorporated into the dishes themselves. While La Fine Mousse's co-owner admits that France currently "may not have a culture for beer," he believes that will likely change. He pointed to the first-ever Paris Beer Week, a festival dedicated to craft beers held in 2014, as an example of how these changes are already occurring.

This new craft beer culture is also making inroads into mass-market retailing. Artisanal beer can already be found in 60% of France's supermarkets and in 90% of its megastores such as Leclerc. Consumers who were accustomed to buying wine in supermarkets can now also find a variety of new beers, mostly from small breweries, that show individual traits of flavor, taste, and texture. The wide selection makes the experience of choosing beer more exciting and more similar to purchasing wine. And companies are seeing an impact on the bottom line: While the giant beer producers registered a decline of 2.4% in total revenue between 2007 and 2011, the smaller breweries saw an increase of about 13.9%.

Implications for the Market

Unfortunately, the French government has not really grasped the advantages of opening a new market for beer. It has increased taxes, in particular the excise duty rate, which will affect future beer production. There are also signs that these taxes will continue to increase. But because the economic effects of a tax are normally divided between the supplier and the customer, resulting in a higher price (less production and a higher price with a deadweight loss), the tax will be more of a burden for the traditional and already decreasing market for the standard beers. The new microbreweries, on the other hand, can more easily handle increased taxes because they are courting a demographic willing to pay a higher price for premium beer. So interest in premium beer is likely to grow, boosting its market share.

Given the growing popularity of artisanal beers and the potential of this segment of the market to expand, businesses that serve the French market need to consider several issues. It will become increasingly important for purveyors of beer, such as restaurants and supermarkets, to provide craft-beer offerings. As noted earlier, many supermarkets have already begun to employ this strategy. However, numerous restaurants still tend to serve only mass-market products. With the emergence of so many new local breweries, it will become more advantageous for restaurants to offer an artisanal selection, and to train their serving staffs to guide diners to the products that best suit their tastes, much as they do now for wine.

In addition, mass producers of beer will have to pay greater attention to French consumers and their particular desires in the coming years, and find ways to fulfill those desires for products with unique flavor and personality.

Will France Ever Become a Beer Country?

The 21st century has shown some promising opportunities for beer in France. The large companies that historically have supplied beer to the bars and restaurants are losing the battle against the small breweries, which are producing unique products and integrating beer into the upscale dining experience.

This scenario probably does not indicate that France will become as important a beer country as Germany, Belgium or the Czech Republic any time soon, but it shows there is a bright future. More microbreweries are opening. Paris, the heart of the country's culture, has begun to pay attention to beer. It seems only a matter of time before beer festivals and beer-focused bars are exported to the rest of the country, giving wine a new and strong competitor in the market.

The most fascinating aspect of the emergence of beer in France is the individuals making it happen. They are not multinationals or large corporations. Rather, they are enthusiastic people with a passion for beer, who are putting all their efforts into creating a culture for a beverage that had long been disregarded in their country. In the years to come, they may restore a culture that had been largely forgotten, but has clearly survived in the deep roots of France and its Gallic heritage.

This article was written by Eduardo Escribano, Tania Steyn and Hannah Yudkin, members of the Lauder Class of 2016.

Taming Irrational Exuberance: Deflating the Russian Consumer-credit Bubble

Russia's consumer-credit market was entering dangerous territory before the Central Bank of Russia's timely intervention. But further concentration of the financial sector, coupled with the instability arising from Western sanctions, leaves questions about the future of the consumer credit industry in Russia.

It is impossible not to notice the slew of consumer-credit advertisements pasted crudely on the sides of bus stops and telephone poles all over Moscow. In some neighborhoods, offers of fast and easy credit seem to take up every open space, with messages such as "CREDIT: in 30 minutes from 7,000 rubles: without down payment, without employment, without registration." Even in neighborhoods populated mostly by professors, high-ranking civil servants and upwardly mobile young professionals, offers of credit abound. If even these neighborhoods — which are hardly the target demographic for what, at first glance, appear to be obvious scams — are being plastered with such flyers, perhaps the credit market has gotten a bit out of hand.

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The Birth of Consumer Credit in Russia

Against the backdrop of the post-Soviet Russian economy, the consumer-credit industry is still very young. Under communism, credit as it is used in the West did not really exist. Nearly all goods, even large consumer durables like refrigerators and cars, were paid for in cash at the time of purchase. Pervasive shortages and relatively high official wages meant the Soviet consumer's main concern was actually finding a good to purchase, rather than being able to afford it. These practical considerations, along with the Communist Party's general discomfort with the finance industry, meant there was no need for long-term financing options like the ones that have long existed in developed Western markets.

After the collapse of communism, during the period of free-market "shock therapy" (the sudden release of price and currency controls), the economic situation was so unstable and unpredictable that credit continued to be used by only a very small segment of the population. Inflation was high, wages were paid infrequently and the banking sector was characterized by rapid turnover and pervasive instability. Most Russians, if they were in a position to buy anything at all, continued to pay cash at the time of purchase. A survey by the Levada Center, Russia's leading independent polling organization, showed that as recently as 2003, when the economy had already been enjoying 7% annual growth for more than four years, 84% of Russians still had not purchased anything on credit.

However, over the next decade consumer credit developed rapidly. One of the first major entrants into the field was Roustam Tariko's Russian Standard Bank. The similarity of the name to the well-known vodka brand is not accidental: Tariko's holding company also owns and operates the Russian Standard distillery in St. Petersburg.

According to Ben Aris, a British journalist with over 20 years' experience covering Russian finance, Tariko's innovation was not in business processes. In fact, the structuring and origination of Russian Standard's consumer loans were essentially identical to Western best practices. Rather, it was in his bank's aggressive integration with popular electronics stores like El Dorado and MVideo. By setting up mini-branches within these stores, Russian Standard was able to get ahead of the curve and function as a "market maker." Aris noted that the dominant banks were initially slow to react, since they considered the Russian consumer-credit market too risky, too small and too difficult to enter. "The big banks all thought Russian Standard was a minor flash in the pan. They were wrong."

Growth in the consumer-credit industry, however, did not come without difficulty. As noted by Andre Gorianov, editor-in-chief of the popular political and economic news portal Slon.ru, people generally had a low level of financial literacy. "Most Russians didn't understand how the terms and conditions of the loans actually worked," he said. Stories abound of Russians who, in the early years of credit growth, took on a number of ill-advised loans and quickly ended up in massive debt. Because consumer credit was new to Russia, the laws in this sphere were either poorly written or nonexistent, and there were few legal limits on what creditors could and could not do. Russia's main business daily, *Kommsersant*, ran an in-depth article about an extreme example: several debtors who, judging by the circumstances, appeared to have been murdered by collection agents working on behalf of small local banks. Many Russians refer to this period as the "Wild West." Credit was in the process of becoming a truly mass phenomenon, but the companies that operated in the consumer-lending space were under few constraints.

The Boom Years

Seeing the success – and profitability — attained by Russian Standard, other Russian banks began to move into the consumer-credit sector during the mid-2000s, just as Russia's oil-fueled economic boom was reaching its apex.

The global financial crisis, however, changed everything. Since 2008, the Russian economy's growth has slowed considerably. According to an economist at Deutsche Bank Russia, the Russian banking sector has been plagued by a decline in profitability in many of its core business offerings since money has become much tighter and the banks have become more risk-averse. Corporate loans, previously a major profit center, were hit particularly hard by an economy-wide decrease in corporate investment. Merchant and investment banking were similarly affected by the crisis and have yet to regain the levels of profitability they saw during the peak of the boom.

In this environment of slower economic growth and reduced profitability, consumer lending, with its high interest rates and potential for rapid expansion, presented an attractive target for Russian banks. Alexey Kovalev, a journalist working for the primary state-run news agency RIA-Novosti, put it simply: "After the financial crisis, consumer lending was the only game in town. The banks didn't see any other way that they could remain profitable."

> A survey by the Levada Center, Russia's leading independent polling organization, showed that as recently as 2003, when the economy had already been enjoying 7% annual growth for more than four years, 84% of Russians still had not purchased anything on credit.

Central Bank of Russia (CBR) data show that consumer lending in Russia grew at an average of roughly 45% a year between 2010 and 2013. During the same period, the economy grew at an average rate of just 2.3%, while the annual growth in disposable income was about 4%. At the same time, interest rates on consumer loans escalated rapidly. Professor Alexander Prokhorov, an economist based in Yaroslavl, explained that, in addition to increased demand for consumer loans, interest rates rose as a result of the high level of overall inflation. There was also a lack of information about creditors, as the Russian credit-rating agencies were still in their infancy. Exuberance over the idea of instant money and a lack of financial literacy among the population, coupled with the banks' need to make up for lost profits from shrinking corporate lending, sent the number of consumer loans soaring.

During this lending boom, the value of bad debts started to grow swiftly, roughly tripling from 2010 to 2014. The percentage of loans that were overdue or in default inched upward year after year, reaching 5.3% by early 2014. It was widely expected that this slow deterioration in the quality of banks' loan profiles would continue. The rating agencies, and the CBR itself, forecast a protracted increase in defaults over both the short and medium terms.

Seeing all of these worrying indicators, the Russian business press began to issue more and more urgent warnings throughout 2013 about the growth of a bubble. A number of exceedingly dire predictions were made about the potential impact of a banking crisis on the wider economy, and many journalists openly speculated that the resulting damage would be even more severe than that of the 2008-2009 crisis.

Time for an Intervention

When consumer lending was growing most rapidly, the CBR was under the stewardship of Sergei Ignatyev, an unwavering market liberal who served three consecutive four-year terms beginning in March 2002. While he was instrumental in the liberalization of the exchange rate, the full removal of capital controls and a gradual transition toward inflation targeting, he preferred a hands-off approach to most other regulatory matters. Under his supervision, the CBR did nothing to limit the increasingly rapid expansion of consumer credit.

Nabiulina was quoted in *The Financial Times* on November 20, 2013, as stating, "Consumer loans may not be so much the engine of growth as a threat to financial stability."

The CBR's hands-off policy changed when Elvira Nabiulina replaced Ignatyev in June 2013. She started tackling consumer credit right away, pressing the Russian Duma on the need to set a maximum interest rate for consumer loans. She was quoted in *The Financial Times* on November 20, 2013, as stating, "Consumer loans may not be so much the engine of growth as a threat to financial stability." A former economic adviser to Vladimir Putin and the first woman to head a G8 central bank, she implemented several significant departures from previous policy. Two of the most dramatic were related to consumer credit, one indirectly and the other directly.

The indirect change was an active effort on the CBR's part to revoke banking licenses, primarily those of Russia's many small, poorly capitalized and poorly managed banks. Aris notes that "the Central Bank has started to shut down a lot of the small-time operators. Over the past year they've already revoked dozens of licenses and seem poised to revoke dozens more. No one knows exactly how far they'll go, but it's a huge and noteworthy departure from previous policy."

While Nabiulina's campaign to "clean up" the banking sector did not magically cause every Russian bank to become well-run, it did have a general salutary impact on the industry's lending practices. Many of those we interviewed used almost identical wording to describe the more "civilized" practices adopted during 2014. There is a widespread popular impression that some of the harshest anti-consumer practices of the past have been abandoned, and that Russian banks are acting more and more like their Western counterparts.

The other change in the CBR's policy was a direct effort to reduce the rate of growth in consumer lending. The CBR announced it was targeting a level of 25% annual growth. To attain this goal, it both accelerated the introduction of the Basel III rules (which require banks to set aside larger provisions for bad loans) and introduced new limitations on the interest rates banks could charge.

The impact of the new policy has been dramatic. In 2013, the first year it was introduced, consumer lending grew by 28.7%. While still significant, 2013's growth appears more modest when compared to the 39.4% growth registered in 2012 and the more than 50% growth achieved in both 2011 and 2010. In 2014, however, the slowdown in lending was even more dramatic. During the first half of the year, outstanding loans to consumers grew by only 6.3%. Currently, the consumer-credit industry is on pace to grow at a substantially slower rate than the CBR's target of 25%.

In an interesting reversal of past behavior, 2013 was actually the first year in which the growth rate in mortgage lending exceeded the rate in consumer lending. This further demonstrates that the CBR's campaign to boost mortgage lending at the expense of consumer lending was having a significant impact on the behavior of Russia's banks.

Consumer Credit: Still a Delicate Balancing Act?

It appears that the CBR's intervention has dramatically curtailed growth in consumer lending and (at least temporarily) prevented the catastrophic bursting of a bubble. Banks have set aside more money to cover bad loans, have tightened their lending requirements and face strict new limits on the interest rates and fees they can charge consumers. The most recent CBR projections estimate that the consumer-credit sector will stay broadly stable for the next several years, with a continuation of the current levels of default and nonpayment. Annual reports from Sberbank and VTB24, the two largest consumer lenders, show they are already starting to reduce their exposure to consumer lending and are spending more time and money building their mortgage-lending lines of business.

The recent downturn in economic growth and a dramatic escalation in geopolitical uncertainty resulting from the situation in Ukraine have contributed to an even greater decrease in consumer lending. U.S. and E.U. sanctions introduced after the Russian annexation of Crimea have targeted all of the largest state-owned banks, including Sberbank and VTB24. It is still too soon to judge the actual impact of the sanctions. They were designed to prevent Russian banks from accessing Western capital markets, and most analysts predict that they will increase these banks' borrowing costs. While consumer lending needs to be "civilized," a healthy amount of it fosters economic development. The sharp decrease in consumer lending in the first part of 2014 leads one to wonder if consumer lending was tamed somewhat excessively.

At the same time, recent political events in Russia threaten to heighten the risk of consumer-credit defaults. While the country's economic growth has slowed, the rate of inflation has increased. As a result, the CBR raised interest rates three times during the first six months of 2014, which could put pressure on the labor market. While this market has not yet been affected by these negative tendencies, any increase in unemployment or reduction in wages will have a strong impact on Russian consumers' already somewhat tenuous ability to repay their loans. Although the financial sector's attention is focused increasingly on mortgage lending, many Russian banks are extremely vulnerable to consumer-credit issues. In mid-2014, 10 of the top 50 consumer lenders, with a cumulative loan balance of about $180 billion, held consumer loans worth more than 70% of their assets. Should the worsening performance of the Russian economy hit consumers' incomes, these banks would be at extreme risk.

The Risks of Consolidation

Experts like Aris generally agree that the CBR implemented the right policies at the right time. The once-constant media warnings about a consumer-credit bubble have ended and attention has turned to other, even more pressing economic problems like increasing inflation and capital flight. The CBR's policies appear to be having the intended impact of slowing growth in consumer lending while simultaneously making banks more civilized in their business practices.

However, the CBR's policy of bank consolidation may have other negative effects on the economy. The approach taken to alleviating the bubble issue was to place control of consumer lending into the hands of the financial institutions that already control the majority of the country's other financial instruments. This in a sense contributed to the worsening of another significant issue for the Russian economy. The sheer speed with which the CBR was able to singlehandedly course-correct the consumer-lending industry speaks to the high degree of power the government and a few key players exert over Russia's financial system.

Furthermore, the stark decrease in economic growth and the increase in Western sanctions have made Russia's economy more vulnerable to a downturn than at any time since the 2008-2009 financial crisis. Courtney Weaver, deputy Moscow bureau chief at *The Financial Times*, notes, "The country's economic slowdown combined with sanctions has exposed weakness at a number of consumer credit lenders. The difficult economic environment means we are likely to see continued risk in the sector, even despite the positive steps taken by the central bank." If the slowdown in GDP finally hits Russia's labor market, the current stability in the consumer-lending sector may turn out to be a fleeting respite rather than a sustainable long-term solution.

The "civilization" of the consumer-lending market has been coupled with an even greater concentration of financial power within the hands of a few institutions. This raises additional risks, the impact of which is yet to be seen.

This article was written by Mark Adomanis and Liya Eijvertinya, members of the Lauder Class of 2016.

Yu'E Bao and China's Emerging Retail Investor

When Roy Liao first heard about Yu'E Bao — a new app-based financial product from Chinese Internet behemoth Alibaba — in November 2013, he knew next to nothing about it. Terms like "money-market fund" and "7-day annualized return" were completely foreign to him. All he knew was that dozens of his friends had invested money in the product and were using the returns to buy the latest clothes and gadgets. Despite his instinctive distrust of overhyped Internet products, Roy, a young professional with middle-class aspirations, was intrigued by the opportunity that Yu'E Bao offered. He started with small amounts, investing only the change left over from small purchases on Alibaba's Taobao (sometimes referred to as the eBay of China). The visible returns in his account quickly won him over. After several months, he began to deposit most of his monthly paycheck into Yu'E Bao, where it earned many times more than the miserly 0.35% interest rate offered by demand deposit accounts in China's banks.

Six months later, Roy had become a more sophisticated investor. Now, empowered by what he learned through Yu'E Bao about personal finance, he has diversified his investments, buying into other available instruments such as Weixin's Licaitong and Shanghai Pudong Development Bank's Tiantianying. He watches for products with the best interest rates and the most promising returns.

> "The high growth phase of Yu'E Bao is over.... The Q1 [2014] prediction that Yu'E Bao would grow to account for 10% of individual deposits was ludicrous."
>
> —Alex Dai

Roy's story is typical of the 116 million Chinese citizens who invest in Yu'E Bao, many of whom were first-time investors when they started putting money into it. The fund's accessibility (the minimum investment threshold is only 1 RMB) and its attention to real, daily returns have attracted millions of young, aspirational Chinese and educated them about investing in financial products. However, while it may have been China's first mover in mass-market personal finance products, many of its investors are now considering newly available alternatives that offer higher interest rates.

"Yu'E Bao might have opened the market of mass personal finance, but that doesn't mean that it will always be the leader," said Hongyi Chen, Accenture's managing director of public service in Shanghai. Indeed, declining interest rates and regulations limiting its convenience have affected Yu'E Bao's competitiveness, leading many pundits to question its long-term prospects.

Yu'E Bao Skyrockets, Then Declines

An Internet search of Yu'E Bao in the first quarter of 2014 would have returned impassioned descriptions of the product's revolutionary effect on China's traditional banking sector. Recently, however, these strong sentiments have all but evaporated. Falling interest rates, the rise of competing products and slowing user growth have led observers to reassess the fund's prospects.

"The high growth phase of Yu'E Bao is over," said Alex Dai, a manager at competitor Shanghai Pudong Development Bank (SPD). "People in the financial industry didn't worry much about [Yu'E Bao] in the second quarter [of 2014]. The Q1 prediction that Yu'E Bao would grow to account for 10% of individual deposits was ludicrous."

Recent data seem to support Dai's position. Inflows fell to 33 billion RMB in the second quarter of 2014, down 91% from 356 billion RMB in the previous quarter. User base growth also declined, by 75% to 10 million RMB. Anecdotal evidence suggests that users are withdrawing their funds and seeking other investments. These trends reflect both the decreasing convenience and waning competitiveness of Yu'E Bao as an investment product, two key drivers of its early growth.

Banks have set daily and monthly caps on the amount of money that can be transferred to Yu'E Bao from customer bank accounts (50,000 RMB and 200,000 RMB, respectively), and in August 2014 the fund's interest rate fell to an all-time low of 4.16% from its high of 6.8% in March of that year. None of these trends is fatal, but they have increased pressure on Yu'E Bao's management to deliver more value to consumers.

Generating More Than Just Interest

Focusing on interest rates as a predictor of Yu'E Bao's future, however, may be missing the forest for the trees. "Alibaba never intended to use Yu'E Bao to leverage interest rates or to make money," noted Accenture's Chen. "The purpose of Yu'E Bao is to attract as many users as possible to Alibaba's financial platform, and they don't care whether they make or lose money in the process. Accumulating users through Yu'E Bao is the opening gambit of Alibaba's strategy to enter the retail banking space."

Yu'E Bao launched at a time when the interbank market was experiencing a liquidity crunch. This enabled the fund to offer interest rates above 6%, more than 20 times the rate earned on demand deposit accounts. It appears that Alibaba opportunistically used these favorable conditions to market Yu'E Bao to its Taobao users. By offering a convenient and risk-free product — with a minimum investment of just 1 RMB, rather than the 5,000 RMB required by similar products — the fund was able to build a customer base of more than 116 million users in just one year.

That growth reversed the fortunes of Tianhong Asset Management, an underperforming fund acquired by Alibaba to manage Yu'E Bao's assets. But why would Alibaba have chosen to partner with an organization that had such a poor track record in the first place? "Because making money was not as important to them as was having a partner whom they could control," commented Chen. He added that Jack Ma, the executive chairman of Alibaba Group, had approached four other funds to discuss the Yu'E Bao concept before reaching out to Tianhong, but none was willing to offer him the level of control he required.

The "Never-ending Lottery"

"In the long run," notes Chen, "Alibaba will use Yu'E Bao to compete in two spaces: e-payments and financial products." And in fact, having gathered a critical mass of users, Alibaba is now rolling out an array of initiatives designed to strengthen user loyalty and help promote Yu'E Bao as a payment platform. Through the "never-ending lottery" function, users can designate a certain amount of money to be spent on prize competitions over a given period of time. Other initiatives focus on facilitating saving for the purchase of big-ticket items such as electronics, cars and even houses.

> "Accumulating users through Yu'E Bao is the opening gambit of Alibaba's strategy to enter the retail banking space."
>
> —Hongyi Chen

When making big-ticket purchases — cars, for example — users can "freeze" the purchase amount in their Yu'E Bao account for a period of three months. After the transaction is verified and completed, the amount is unfrozen and transferred to the vendor. Subsequently, Yu'E Bao users receive interest on this amount for the period in which the money was "frozen." This feature stands in sharp contrast to the normal practice of an upfront payment, in which no interest accrues. A win for consumers, Yu'E Bao's method also benefits itself: Capital is locked in for longer durations, giving Tianhong a better handle on its liquidity challenges.

Initiatives such as the "never-ending lottery" and "buy-a-car" are among a number of ways in which Yu'E Bao is promoting itself as an e-wallet. In the long run, the product could complement Alipay as the vehicle through which people conduct their everyday transactions. At the same time, Alibaba says it plans to develop Yu'E Bao as a platform for selling a broad range of financial products: for example, investment-linked insurance, P2P loans and crowdfunding.

The Regulators Step In

Yu'E Bao's rapid growth in the second half of 2013 took everyone by surprise. Regulators were surprised, too, and in fact, they took actions in the first quarter of 2014 that contributed to the fund's decline. While Alibaba has powerful supporters in the government, traditional banks make up a bloc that is at least as powerful, and they have a vested interest in keeping Internet companies out of finance.

Officially, the People's Bank of China (PBOC) supports Internet-based financial tools as a driver of economic growth. Zhou Xiaochuan, the governor of the PBOC, has stated publicly that Yu'E Bao would not be "proscribed." The government's position is that it hopes that the fund can drive competition in the financial industry, but regulators are unnerved that it is developing outside of a clear supervisory framework. "If the fund were to collapse," explained SPD's Dai, "there is no way Alibaba could repay Yu'E Bao's investors. It would be an unmitigated disaster, which is why the PBOC wants to regulate it."

> "Once the [deposit insurance policy] system is set up, the government will begin to allow investment products to fail. This will be a seminal moment in introducing people to the concept of risk."
>
> —Xiaorong Zhang

While regulators continue to develop a framework for supervising the Internet finance space, the PBOC has employed a series of indirect tactics to curtail Yu'E Bao's risk. In the first quarter of 2014, it gave tacit approval to the banks to take action against the fund. In March, the country's top four institutions (Bank of China, Industrial and Commercial Bank of China, China Construction Bank and Agricultural Bank of China) announced they would no longer accept funds from Yu'E Bao, and also imposed daily and monthly caps of 50,000 RMB and 200,000 RMB, respectively, on transfers from user bank accounts to individual Yu'E Bao accounts. Concurrently, the PBOC gave the banks the green light to engineer their own money-market funds to compete with Yu'E Bao. On the macroeconomic level, it also started increasing the RMB money supply as part of its stimulus activities, leading to a decline in interbank rates.

These factors have made life difficult for Tianhong's fund managers, who find themselves operating in an increasingly competitive environment. The government regulations, however, do not appear to be meant to choke Yu'E Bao out of existence, but rather to decrease its risk factor to the broader society. The December 2014 enactment of a deposit insurance policy may be a watershed moment for the fund's development.

"Once the system is set up," says Xiaorong Zhang, a professor of finance at the Fudan University School of Management in Shanghai, "the government will begin to allow investment products to fail. This will be a seminal moment in introducing people to the concept of risk." Yu'E Bao's status under this system, as an insured or uninsured product, may very well determine its future development. Insured status would most certainly help investors overlook declining interest rates, an effect that would be amplified if the fund is able to change its image from that of a pure investment platform to an e-wallet.

Yu'E Bao's second major challenge is to stay atop the retail investment boom that it set in motion. As an investment platform, the fund now faces stiff pressure from competing products. Several banks, telecoms and other Internet companies launched their own money-market funds in the first quarter of 2014, and most are now delivering higher interest rates. Yet, subpar interest rates alone are unlikely to cause Yu'E Bao's downfall. According to market research, most investors will continue to use the fund to take advantage of other products on the platform, but they may start investing smaller proportions of their total assets.

Managing Yu'E Bao's liquidity as an investment platform is also challenging. Its future expansion into other investment products — such as crowdfunding, P2P loans and investment-linked insurance — will likely increase the risk of maturity mismatch. Alibaba touts its big data capabilities, pointing to 10 years of consumer data as a competitive advantage in managing liquidity, but not everyone is sold on this claim.

"Yu'E Bao uses retail consumer data to manage liquidity, but this can only tell you so much," said Dai. "Banks' risk management systems have been developed through practical experience over many years. [Banks] also have access to sources of information that Internet companies do not, such as the PBOC's credit rating database. Internet companies claim to have large databases, but they are really not the same thing."

Nevertheless, it is reasonable to assume that Yu'E Bao's risk-management capabilities will improve over time as the fund gains more experience. Alibaba's data set, however, does not include information on consumer behavior during periods of economic softening. Thus Yu'E Bao may find it more difficult to manage liquidity should the Chinese economy experience a major slowdown.

Can Yu'E Bao Achieve E-wallet Status?

In its original form as a simple money-market fund, Yu'E Bao has already reached its full potential. Poor interbank market conditions and tightening regulations imposed by the PBOC have made it difficult for the fund's managers to deliver the high interest rates seen earlier. Unfavorable bank actions limiting transfers to the fund have also reduced its convenience. There is already evidence of user outflows to competing products, and Yu'E Bao will most likely lose its status as the market leader for individual investment if it does not evolve beyond its current business model.

Yu'E Bao's success in establishing itself as a larger financial platform will depend on whether Alibaba can create innovative products that deliver attractive returns to investors at acceptable levels of risk. The fund's proposed "next step" into the emerging world of small and medium-size enterprise financing — with products such as P2P loans, crowdfunding and investment-linked insurance — contains many unknowns. Fortunately for Yu'E Bao, traditional banks have minimal interest in SME financing, so its expansion into this space will probably draw little ire from the state-owned banking sector. From a liability perspective, the 574.16 billion RMB invested in Yu'E Bao as of August 2014 represents less than 1% of the total deposits in the banking system (more than 104.4 trillion RMB). The banks seem content to allow the fund to compete for individual demand deposits, which account for just 17% of deposits in China's banking system.

At the same time, Yu'E Bao's growth as an e-wallet will depend on a variety of factors. Its adoption as a platform for purchasing big-ticket items — which carries the greatest benefit for the fund from a liquidity management standpoint — will be impractical as long as the banks maintain their transfer caps.

When all is said and done, users will gravitate toward the platform that offers the most convenience. Once the hype dissipates, if Yu'E Bao is not that platform, they will simply transfer their funds elsewhere. Such is the curse of a product with perfect liquidity.

This article was written by Robert Fried, Ming Khor and Michael Pareles, members of the Lauder Class of 2016.

India’s Whiskey Rebellion: Riding the Wave of Cultural Change

On a typically hot summer day in New Delhi, a group of five college students — three men and two women — are sitting in the bar district of the village of Hauz Khas ordering drinks. Set this scenario in any other city in the world and the drink of choice would likely be anything but Scotch whisky on the rocks. This, however, is India and everyone has ordered a “large peg” of Johnny Walker Black. According to the 2014 Euromonitor International report, Alcoholic Drinks in India, India singlehandedly consumes 50% of all the whiskey in the world, a figure that is expected to rise to 70% by 2017.

The country’s love of alcohol is such that the best-selling whiskey in the world is a local brand that boasts its top position in its name: McDowell’s No. 1. In addition, one of Bollywood’s most famous comedians took “Johnny Walker” as his stage name in homage to the iconic whiskey brand. This is the country with the second-largest population in the world — and one of the youngest populations as well — so such dominance in alcohol consumption should not really be surprising. However, a deeper exploration reveals a complex — and, in some ways, contradictory — picture.

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Under the Seventh Schedule of the Constitution of India, the regulation of alcohol use is up to the states, and the legal drinking age varies among them, ranging from 18 to 25. According to 2011 census data released by the Ministry of Home Affairs, nearly half of India’s population is under the average legal drinking age. There is a countrywide ban on advertising alcoholic beverages in any format, and several states and union territories are legally “dry” locales where the sale and consumption of alcohol are banned.

Unlike in most of the East, in India alcohol has not played a significant role in culture or history. India has no major traditional liquors similar to China’s baijiu or Japan’s sake. Moreover, both Hinduism and Islam, the two religions that cover 95% of India’s population, take strong stances against drinking. In addition, among women, who account for 48% of the population, the abstinence rate is more than 90%. Socioeconomic factors also fail to explain the country’s high whiskey consumption level: Of the three-fourths of its populace who live in rural areas, more than a third live below the poverty line, barely able to afford food for survival, let alone whiskey.

Nevertheless, Indians drink a lot, apparently. According to the 2012 Credit Suisse research report The Indian Spirits Market, India is the third-largest global spirits market by volume — after China and Russia — and the largest whiskey market in the world.

India’s Burgeoning Whiskey Industry

Euromonitor International’s 2014 report, Spirits in India, estimates that sales of whiskey in India totaled approximately 1.5 billion liters in 2013, growing a modest 4% over the previous year. About 99% of the whiskey sold there is produced locally. Thus it is no wonder that among the 10 best-selling whiskeys in the world, seven are Indian. The other 1% of the market is dominated by blended and single malt Scotches. Bourbon and Canadian whiskeys have little appeal to Indian tastes.

The Spirits in India market analysis also states that India’s whiskey market is expected to grow at an annual rate of 3.5%, to approximately 1.7 billion liters by 2018. The report attributes this to changing social norms, a greater acceptance of alcohol consumption and an increase in disposable income. Foreign investors are also gambling on India's growing whiskey market. For instance, in July 2014, Diageo, a multinational alcoholic beverage company, substantially upped its investment in United Spirits, India's largest alcoholic beverage company.

In addition, the market for single malt Scotch whisky has been advancing, with a growth rate of 24% from 2012 to 2013. It is expected to be the drink that benefits the most from ongoing positive market factors, with an anticipated growth rate of 18% from 2013 to 2018. Single malt Scotch whisky is considered an aspirational drink among young consumers, and as their disposable income increases, they are upgrading to this particular liquor.

In 2013, a number of companies introduced new premium whiskeys in the Indian market in anticipation of the expected trend toward more expensive products. To target consumers who might want to move up to a mature and finer taste in whiskey, United Spirits launched two upscale products: Black Dog Black Reserve and Black Dog Triple Gold Reserve. Meanwhile, the company Modi Illva India introduced Rockford Reserve. Other premium whiskeys were launched by international companies with the same market in mind, including Radiant Manufacturer's Castle Hill, Som Distilleries' Milestone100, and Jagatjit Industries' King Henry VIII.

At the same time, India's state governments are expected to impose higher taxes during the forecast period, which could deter more price-conscious consumers from purchasing alcohol.

Whiskey Drinking and Culture

Why the largest middle class in the world has acquired a particular taste for whiskey is unclear, but one can see how the sales of various types of whiskey reflect the growth in disposable income and increasing demand in the country. The expansion of the mid-priced and economy lines of whiskeys, which account for the largest share of the local market, parallels the rise of the Indian middle class. Members of the country's lowest economic class migrate from cheap, locally made *desi daru* (or country liquor, as it is known colloquially) to the economy whiskey brands as they move up the income ladder. Further up the chain are the premium and super-premium Scotch whiskys that remain aspirational drinks for many Indians.

India is a vast subcontinent, however, and drinking habits vary greatly between states. It is impossible to ascribe a single drinking culture to the entire country. For example, those who live in the southern state of Kerala are the heaviest drinkers. According to the Alcoholic Drinks in India report, Kerala residents on average consume eight liters per capita per year — four times more than the rest of India. Other areas where people tend to drink heavily include Haryana and Punjab.

India is the third-largest global spirits market by volume — after China and Russia — and the largest whiskey market in the world.

Most Indians living outside of major cities do not drink to socialize, as is common in the Western world. Liquor consumption is frowned upon and considered morally questionable. Liquor stores in most small cities and villages are usually placed far from the main markets and other stores. Even the local word for liquor store, *theka*, has a negative connotation. Most Indian men who drink do so to become intoxicated, and prefer the economy and standard brands because of their low prices. The country liquor market remains largely unorganized and, in the absence of any quality controls and checks, contaminated. Consumption of counterfeit alcohol leads to hundreds of deaths and serious health issues in semi-rural and rural areas each year. In addition, the marketing and packaging costs for country liquor in these regions are very low, and most of the alcohol is sold in plastic bottles. There is also less market competition.

In tier 2 cities (which have populations of about 50,000 to 100,000) and tier 3 cities (with populations of about 20,000 to 50,000), the whiskey brands that enjoy huge popularity are Officer's Choice and McDowell's No. 1. While not falling into the category of country liquor, they tend to be among the more affordable brands.

The upturn in volume sales of whiskey has been offset slightly by increases in taxes, prices and the 2008-2009 global economic crisis, leading to slower value growth within India. In 2013, a number of states boosted taxes and excise duties on alcohol. In addition, the cost of both molasses (much of the whiskey produced in India is molasses-based) and glass bottles increased. Both factors led to a rise in prices within India's spirits sector. The economic slowdown has also led to lower consumer spending and higher price consciousness, especially regarding alcoholic drinks. These compounding factors have pushed consumers to shift to the inexpensive country liquor manufactured by small, local companies. This shift can also be seen in the breakdown of the market since 2008. Euromonitor International stated in Alcoholic Drinks in India that consumption of premium and super premium brands declined from 43% to 39% of total whiskey consumption between 2008 and 2013, while mid-priced and economy whiskeys gained a 4% share of the market.

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An Aspirational Drink

The upper-middle class in India, especially in major tier 1 cities such as New Delhi and Mumbai, presents a very different consumption pattern. In these cities, people have shifted to more premium whiskey as their drink of choice, especially among the younger demographic. A growing number of college students and working professionals aged 20 to 30 are beginning to drink, as it is becoming more acceptable in society. This can be seen especially during sporting events, where a lack of parental supervision and the intense popularity of cricket among youth have fostered a dramatic increase in liquor sales. In addition, the disposable income of this younger demographic is increasing, allowing them to purchase more alcohol and to pay more per bottle. As noted by a 25-year-old living in Delhi, premium whiskey is an aspirational drink for his peer group — a status symbol of class and money.

Along with those changes in social norms, the growing influence of Western culture has contributed to the increase in whiskey consumption. This is apparent as more women have begun to cross cultural barriers and enjoy a glass of whiskey with their meals or as an after-meal drink. This trend is expected to continue as cultural and social norms are relaxed even more within cities. Another big change is that pub culture has caught on in all the major cities. Mumbai, for instance, hosts several international brands such as Hard Rock Café and Manchester United Café, along with a number of themed bars such as the sports bars Smaaash and Restobar in the central business district of Lower Parel. These places are positioned as after-hours recreation spaces where social drinking is the norm.

Pankaj Sharma, executive chef of Dramz Whiskey Bar, an upscale restaurant in New Delhi, says that the demand for premium whiskeys will increase once people "associate themselves and their lifestyles with good and selected whiskeys." Once people start knowing fine whiskeys, he says, "price won't be a criterium."

Moreover, the recent introduction of liquor into supermarkets and hypermarkets is providing broader access to these products than ever before, making it easier for women and young drinkers to buy alcohol. Hypermarkets such as Spar now have separate sections for alcohol and have started to stock a wider variety of liquor. Urban consumers are becoming increasingly aware of the various brands available in domestic and international markets and are becoming more likely to experiment with imported brands and niche international products.

The story of whiskey in India parallels the country's growth trajectory in recent years. Consumption patterns reveal not only changing trends in the market, but various socioeconomic and cultural aspects. The sale of upscale Scotch whiskys at high-end bars in urban centers highlights the income divide that continues to pose a major social challenge for the growing country. The fact that local and premium economy whiskeys dominate the market demonstrates that India remains a land of the lower and middle classes. Despite the huge high-end market, one simply cannot ignore the sheer size and buying power of the lower economic sectors of the Indian populace. The Westernization of Indian cities, the shift toward the bar and clubbing culture, and the related increase in the social acceptance of alcohol, especially among women, are all clear indicators of changes in Indian culture. These changes seem likely to continue.

This article was written by Sabina Khanna, Vijay Kukreja and Akshay Mandan, members of the Lauder Class of 2016.

Football in the 21st Century: A Chinese Dream

With over 250 million players across virtually every country, football — or soccer, as Americans call it — is the world's most popular sport. But China, despite having a population of 1.3 billion, has fared poorly in football on the international stage, routinely losing matches to countries with far weaker sports infrastructures. Chinese President Xi Jinping, an ardent football fan, has promised to develop the sport in China. Will it work?

Youth in China begin at a significant disadvantage in terms of choosing to play football and being able to excel in the sport. Everything around them, from the educational environment and cultural norms, to the talent selection and development process, skews them away from football and presents a significant barrier to entry.

> "[China will] win the World Cup championship."
>
> —Xi Jinping

First, Chinese society focuses on educational success: The country's overarching emphasis on performing well in academics dates back to Confucian times. The day that high school students take the *gaokao*, the Chinese college entrance exam, is considered one of the most important events of the year and is widely publicized in the media. High scorers become local stars.

To succeed in this ultra-competitive environment requires not only putting in serious effort in school, but also vast amounts of time studying alone and with personal tutors. Morning-to-late-night study sessions seven days a week are the norm — not the exception — leading up to this exam, leaving young people little time to train for football. "Very few parents would send their children to play football. Football is not going to feed you," remarked an undergraduate football student in Beijing.

Other cultural norms also play significant roles. For example, China's one-child policy has produced generations of young people focused on individual pursuits. The desire to stand out and excel singularly dominates over the urge to take part in team-based sports or activities. The Chinese sports system also advocates for this in how it chooses to support athletes who could compete for Olympic medals. A small team of competitors in an individual sport such as table tennis can produce several gold medals, contrasted with a single gold medal victory that must be shared among an entire football team.

The Chinese state-run sporting system is also poor at identifying football talent, in contrast to its success at this task in individual sports such as archery or table tennis, where repetition and training are key. Athletes in China are identified at an early age based on physical and genetic traits, and then groomed for individual achievement. Unfortunately, this approach means that anyone not deemed a "perfect" candidate is eliminated from consideration. If world-famous Argentine footballer Lionel Messi had been born in China, he would have been passed over because of his growth-hormone deficiency.

"We do not have the best coaches," noted a graduate student specializing in football research in Beijing. "Most of our coaches are retired footballers who do not necessarily keep up with the latest trends. We could only identify the best talent for the future with well-qualified mentors."

The lack of a grassroots football culture is another significant barrier. Community involvement is low in China, and the idea of spending weekends traveling with children for football tournaments is unheard-of. But it is just this type of culture that serves as an important feeder system in successful sporting nations such as the U.S., the U.K., Spain and Italy. For example, there are only 700,000 registered football players in all of China, compared to 1.5 million in England, a much smaller nation. Even more telling, there are just 10,000 registered under-12 football players in China, compared to 300,000 in Japan, a country with a population one-tenth the size of China's.

In addition to these limitations, the behaviors of the professional league in China are not conducive to developing local talent. The Chinese Super League (CSL), which comprises 16 teams, is top-heavy, preferring to spend on foreign talent rather than invest in local development. Moreover, because of the sport's tarnished reputation, the number of private football academies in China has dropped from approximately 1,000 in the 1990s to just 20 today. "The chaos in youth football management has resulted in the poor operation of youth leagues and problems with resource allocation," said Xu Jiayin, owner of the Guangzhou Evergrande Football Club in the Chinese Super League and a member of the Standing Committee of the Chinese People's Political Consultative Conference, in a 2014 memo.

The Challenges of Commercialization

The commercialization and professionalization of Chinese football began in 1993 following a series of disappointing losses, including the national team's failure to qualify for the 1992 Barcelona Olympics. The General Administration of Sport of China (GASC) and the Chinese Football Association (CFA) then decided that reform could be accomplished only by totally overhauling the state-guided football system, moving it from a planned economy to one based on market principles. The CFA borrowed prominently from the model of the European league, giving rise to the Chinese Football Division One/Two League (the Jia A and Jia B League). The teams' ownership structure would be a hybrid of state-owned enterprise sponsorships and investments from private enterprises. International sponsors were also introduced as the CFA signed its inaugural five-year contract with IMG for $8.93 million, making it the exclusive marketing agency for the Jia A League.

By the end of 1994, all 12 teams in the Jia A League were profitable, and by 1999, 26 clubs across both divisions had attained a combined annual income of $86.4 million. For the most part, this initial commercial success did not change much of the governing structure of Chinese football. The CFA still functioned as an organization under the GASC, and thus was subject to government policies that often conflicted with market practices. Amid high hopes, a series of defeats at international competitions revealed the limited effects of commercialization on Chinese football. China's first-ever World Cup team in 2002 failed to score a single goal. The Jia A League was disbanded in 2004 and replaced by the CSL, but similarly disappointing results persisted.

The private enterprises that acquired Chinese football clubs early on prioritized publicity and economic gain over talent development. A significant portion of the clubs' budgets was used to recruit foreign stars at the expense of developing domestic talent. Top international stars such as Didier Drogba and Nicolas Anelka were brought in, only to leave shortly thereafter amid salary and political disputes.

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Real Estate Developers and the Media

Amid the rampant corruption and match-fixing prevalent within Chinese football, property developers have entered the market and acquired club ownerships. In a reflection of the current state of the Chinese economy, 13 of the 16 club owners in the CSL have significant business interests in real estate. There are high hopes that these deep-pocketed owners can revamp the football system by building more grassroots training centers and paying generous salaries that reduce players' incentives to fix matches. The Evergrande Real Estate Group has been the model to emulate since it acquired a second-tier club and turned it into a title contender within years, winning the prestigious 2013 AFC Champions League. The Dalian Wanda Group's Wang Jianlin, one of China's wealthiest businessmen, assumed a three-year, RMB 195 million ($31 million) sponsorship of the CSL.

That a majority of the clubs are owned by real estate companies nevertheless engenders a number of concerns. A former executive at IMG China said that "while they have the ability to spend heavily, typically they lack a long-term plan for the clubs." In addition, economic conditions in the real estate industry affect the league. Ever since Zhejiang's Greentown China Holdings Limited — a real estate company and the main investor of Hangzhou Greentown FC — encountered challenges selling residential properties, it has been seeking new owners for its club. As the former executive at IMG noted, "diversification of ownership is key to the long-term development of the Super League."

The media has played only a moderate role in promoting Chinese football. While domestic league games were initially broadcast with great fanfare, their consistent stream of disappointing results on the international stage led the media to shift its focus to European league broadcasts. Because China has never produced a football sensation who can compete successfully on the international stage, football gets less attention from the Chinese media than other sports such as basketball, table tennis, and badminton. The sport's media profile reached one of its lowest points when state-owned broadcaster CCTV banned Chinese professional league matches from its networks from 2008 to 2012 due to scandals and episodes of player misconduct.

> Complaints about CFA officials who know next to nothing about football are pervasive.

The lack of free media and market competition in China also impacts clubs' revenues and their ability to further invest in football. As the former executive at IMG China noted, "the fact that there is only one national sports channel in China, CCTV 5, means there is no competition for broadcasting rights. Thus, the channel can pay very little to the league, greatly reducing the clubs' revenues." Elsewhere in the world, the broadcasting fees that TV networks pay to their country's leagues, such as the English Premier League (EPL), are a major source of revenue for clubs. The EPL generates more than £1 billion ($1.6 billion) a year in domestic broadcasting rights alone compared to the meager RMB 50 million ($8 million) that the CSL receives from CCTV and other media channels. Broadcasting revenues represent more than 40% of the club income in the EPL, compared to about 5% for teams in the CSL.

More Hand-holding or More Freedom?

The CFA's dual role as regulator and manager is the main reason for China's lack of success in football. Its monopolistic control has hindered the league's ability to reach true commercialization.

Since the beginning of China's professional league, the CFA has been the de facto watchdog for club activities. Its mindset still reflects many of the legacies of a planned economy, and was anything but market-driven. For many years, the organization was effectively a government entity responsible for both regulating all aspects of national football development and micro-managing club-level issues. For example, the CFA could levy fines on clubs that failed to meet certain game-attendance figures, involve itself in club matters such as payroll disputes with players, and take a cut of player transfer fees.

But for the domestic leagues to thrive, the clubs need considerable freedom to manage and operate their own affairs. The EPL, for example, allows considerable leeway for clubs to manage themselves. On one hand, it is understandable that the CFA wants to retain control, as substantiated by its 36% equity stake in the Super League. In addition, China's professional league is only 20 years old, and the clubs require high-level hand-holding so as not to deviate from the right development path, particularly amid rampant scandals and corrupt practices. In any case, the CFA has begun to implement meaningful initiatives to reduce its influence at the league level. Nevertheless, given that key league decisions still require a two-thirds majority for ratification, the clubs cannot yet control their own destinies.

The CFA also lacks professional expertise and democratic practices. Complaints about CFA officials who know next to nothing about football are pervasive. The election system is by appointment from the government rather than by recommendation or voting from clubs. "We are behind in all fronts … and we are undeniably responsible for this backwardness," a CFA official said after the Chinese national team lost 1-5 to Thailand in 2013.

The CFA's role in the sport is complicated, particularly under one-party rule and within a still-developing market economy. But at the end of the day, professional clubs need a market-oriented approach to attain long-term, sustainable success.

World Cup Aspirations

While numerous challenges lie ahead for those seeking to develop and popularize professional football in China, there are positive signs. Xi Jinping, China's president and the general secretary of the Communist Party since November 2012, is a well-known football fan who has publicly announced his intentions to further develop the sport. In March 2013, while visiting Chinese children on exchange in a German football training program, he asserted that China should focus more on promoting the sport among youth.

Whereas some critics are skeptical of the objectives behind such "football diplomacy," Xi has also voiced ambitious hopes for China's national football team. In 2011, shortly before he rose to his current position, he stated three goals regarding the sport: "The Chinese national team will enter the World Cup finals. China will host the World Cup. And [China will] win the World Cup championship." Like his predecessors, who have promoted sports as a force for nationalism — in particular as represented during the 2008 Beijing Olympics — he has put forward his goals for the rise of a Chinese national sports team on the international stage as part of his "Chinese dream." According to an article from *Xinhua*, China's official press agency, his enthusiasm for football "has given a major boost to football fans' confidence and the expectations of Chinese players."

Such public statements of enthusiasm and aspiration from China's leader may well foretell increased government investment in football. Indeed, in November 2014, China announced that football would become a compulsory part of the national school curriculum. By 2017, some 20,000 schools are to receive new football pitches and training facilities, with the aim of enlisting 100,000 new players. In 2016, football will become an option in the national university-entrance exam, encouraging more parents to support their children's sports development. Wang Jun, head of the sports, health and arts department at the Beijing Commission of Education, unveiled 20 specific measures to enhance football education on Beijing school campuses, noting that the country must "start with children to improve the football standard in China."

Furthermore, joint training camps and training exchanges for youth, while building good relations between China and countries like Germany, provide opportunities to engage more Chinese children in football at an earlier age. For example, the Chinese People's Association for Friendship with Foreign Countries has organized programs such as the Rainbow Bridge, which brought Volkswagen Group China on board as a sponsor and held a friendship match between the Zhidan Junior Football Team and German youth.

In addition to government support, grassroots efforts to encourage more children to play in informal and formal leagues at an earlier age may yield long-term rewards. For example, Beijing's Huilongguan Super League, one of the oldest grassroots leagues in the country, began in 2004 with just a few individuals kicking around a ball occasionally, but has since burgeoned to over 50 amateur teams. Rowan Simons, who oversees China's only legally registered amateur football club in China, observed that the "Huilongguan Super League is still building the first stage of grassroots football, while in England, grassroots football is the base of the whole football pyramid."

In February 2014, the CFA hired Frenchman Alain Perrin as the new coach of the national football team. Perrin has a proven track record, having steered the French team Troyes from fourth division to Ligue 1 and having coached top-tier teams Olympique de Marseilles and Olympique Lyonnais. While coaching the latter team, he led it to its first-ever league and cup double in 2008. It remains to be seen whether he can successfully recruit more young talent, improve technical skills, and engender greater team spirit in China.

Keeping the sport free of corruption will be crucial. Since the crackdown in 2010, nearly 60 high-level football figures, including two former national league chiefs and four former national team players, have been imprisoned. While many people expressed criticism that the investigation did not go far enough, these efforts point to China's sweeping attempt to clean up the sport's image. Given Xi's broader anti-corruption campaign, combined with his high hopes for football's development, we may very well see small steps toward improving the sport overall. As Lin Xiaohua, vice president of the CFA, said, "the football dream is a part of the China dream." Only time will tell whether this dream materializes.

This article was written by Shuyang Bai, Charley Chen, Kathleen Sun and Josh Zhou, members of the Lauder Class of 2016.

Brazilian Airports: Investing to Catch Up with Growth

While Brazil experienced healthy economic growth from 2001 to 2011, it nevertheless allowed its aging airport infrastructure to stagnate. However, more recently, in light of two major international sporting events in that country — the 2014 World Cup and the upcoming 2016 Summer Olympics in Rio — the air travel segment of Brazil's infrastructure has seen accelerated investments and expansion plans that have fueled an even greater volume of air traffic. High-level executives on the planning committee for the Rio Games are now emphasizing that the key to such successful mega-events lies in advancing the country's infrastructure. The government and companies, both public and private, are now trying to better align themselves with what should be a second boom in air traffic for Brazil in the years to come — even if the economic growth levels of the previous decade do not recur.

"Over the next 10 years, the weight of the BRICs [Brazil, Russia, India and China] and especially China in world GDP will grow, raising important issues about the global economic impact of fiscal and monetary policy in the BRICs," wrote economist Jim O'Neill in his well-known 2001 report "Building Better Global Economic BRICs." The acronym he coined, "BRIC" has come to symbolize the shift in global economic power away from the developed G7 countries and toward those four developing nations. Brazil's economic performance in the decade after O'Neill's report originally appeared to confirm his predictions. However, during 2012 and 2013, the Brazilian economy lost much of its luster, as growth rates hovered anemically at around 2% and the inflation rate crept toward the upper limit of the tolerance range established by Brazil's central bank.

Brazil's economy had grown at a brisk pace from 2001 through 2011, achieving a 3.6% average annual GDP. This was due mainly to the continued growth of its largest economic partner (China), increased global demand for Brazilian commodities (agricultural products and oil), and a stable macroeconomic environment that prevailed beginning in the mid-1990s, after the government reined in the hyperinflation that had previously plagued the country.

Nevertheless, it is becoming increasingly apparent that if Brazil wants to add a new chapter to its economic success story, it must first confront the barriers it puts up restricting the flow of goods and services, and second, deal with a severely underinvested infrastructure. In particular, as BCG noted in a widely circulated 2013 report, the major challenges for Brazil will be driven by its historical lack of infrastructure spending.

Rebuilding a Crumbling Transportation Infrastructure

According to the Brazilian Institute of Geography and Statistics, Brazil's investment rate between 2008 and 2013 hovered at around 18% or 19% of the country's GDP. Beyond the endemic problems associated with government investment in developing nations — such as embezzlement — the country's main challenge is that the growth of investment dollars, while higher in absolute terms, has failed to match the growth of the country's economic activity in many spheres, such as raw materials production. In other words, holding infrastructure spending constant, as a percentage of GDP, has failed to improve the quality of and access to transportation in Brazil.

Furthermore, the increased mobility of Brazil's burgeoning middle class and a corresponding rise in car ownership have intensified the stresses on the already overtaxed transportation infrastructure. The issues that arise from this are ever-present in Brazil: Consider the drives from one city to another through bumper-to-bumper traffic, the line of tankers extending miles into the horizon just outside the port of Santos, the inaccessibility of the Barra de Tijuca neighborhood in Rio de Janeiro (requiring travel of anywhere from 35 minutes to two and a half hours), or the deficient railroad system that renders any mass production of agricultural products in certain regions of the country impossible.

Given the glaring infrastructure deficiencies elsewhere in South America's largest economy, it is no surprise that the Brazilian airline industry suffers from similar problems. In 2013, Brazil ranked last relative to other countries in an analysis of air-transportation quality.

While some of the difficulties were expected to improve following the World Cup-related investments, the jury is still out with regard to the long-term trajectory of Brazil's airport infrastructure renovation. The head of the PE practice at a major international consulting firm in São Paulo noted that while the government's recent actions and forward-looking strategy seem to offer hope, it is unclear whether the growing needs of most sectors will be met sufficiently to boost Brazil's future growth.

While those in business and policy circles have frequently discussed recent investments in public services and other infrastructure projects (such as railways), investors and the larger business community need to become cognizant of a well-kept secret that actually lies in plain sight: Air space in Brazil is getting a face-lift, and more change is on the horizon.

The State of Brazil's Airline Industry: Sky-high Demand

Historically, Brazil's airport infrastructure was operated exclusively by Infraero (Brazilian Airport Infrastructure Enterprise), a pseudo-governmental operator created in 1972. In 2009, this entity controlled 67 of the airports, representing roughly 97% of the total air-transport capacity. The company was plagued by constant budget overruns, notoriously bad service, and ratings below international quality standards, all of which precluded the development of a more robust air system. State governments managed the remaining 131 secondary airports in smaller cities, which serve mainly as connection points for small urban centers.

In 2013, Brazil ranked last relative to other countries in an analysis of air-transportation quality.

The World Bank reported in 2013 that spending on the country's airport infrastructure totaled $8.5 billion in the nearly 20 years between 1990 and 2009. To understand what a dramatically low level of investment this is, consider that it costs an estimated $11 billion to develop a single major hub and $2.2 billion for a medium hub, according to Airport Councils International's 2009-2013 report.

Meanwhile, the domestic consumer base evolved dramatically during the first decade of the new century. Fueled by the expansion of the Brazilian middle class, the demand for air travel skyrocketed, almost doubling Brazil's air traffic over the past decade. In fact, the number of domestic air travelers grew by 205% and the number of international air travelers grew by 128% between 2002 and 2012. This growth in international travel in Brazil is consistent with trends across the region. As observed in reports from other major Latin American airline operators, the number of international leisure and business travelers in the region has continued to increase as higher levels of security and stability are achieved.

In addition, the socioeconomic profile of air travelers has changed in recent years. Air travel in Brazil, in line with what was experienced in developed nations not too long ago, is no longer a privilege of the rich. This shift was publicly highlighted in 2014, when professor Rosa Marina Meyer of Pontifical Catholic University of Rio de Janeiro posted a picture on Facebook of an overweight man in a tank top slouching at a table at the Santos-Dumont Airport. The caption "airport or bus terminal?" implied that someone at the low end of the socioeconomic continuum would not (or should not) be at an airport. The ensuing public outrage on social media and in mainstream media coverage ultimately resulted in the professor's termination, as well as a closer analysis of the growing importance of the middle-class consumer.

The growth of the Brazilian air travel market and the increased access for previously excluded segments of the population have created numerous opportunities for airline companies.

The growth of the Brazilian air travel market and the increased access for previously excluded segments of the population have created numerous opportunities for airline companies. During the first decade of this century, the country's air-transportation industry experienced an important expansion in demand to which supply was somewhat able to adapt — largely through the establishment of new, low-cost services. These industry dynamics were developing on top of an infrastructure that lacked world-class best practices and had suffered a lack of significant investment during the previous 20 years.

Despite possible infrastructure bottlenecks, some companies recognized the industry's potential and entered the market. In 2001, Gol was founded as Brazil's first low-cost airline. Over the next six years it gained significant market share from the historical incumbent TAM and the other airlines operating in Brazil. By 2007, its market share had grown to 45.2% of the domestic market.

In 2008, there was yet another market disruption as Brazilian-American David Neeleman, the former CEO of Jet Blue, founded Azul. Like Gol in its early years, Azul was an instant success. The company served over 2.2 million customers in its first year of operation, won the "Best Low Cost Carrier in South America" prize by 2011, and captured 14% of the Brazilian market by 2012. Neeleman created a business model focused on offering flight routes across the country on fuel-efficient Embraer jets. These planes were a home-grown success on an international scale, held in high regard as representative of Brazilian ingenuity.

In describing his company's success, Neeleman stated, "We're in the best position simply because we have the right aircraft type, [and] we know how to operate them." In addition, he noted that Azul knew "how to operate in small cities" — a crucial element for growing airlines in a country where major hubs had long since reached capacity. While airline companies had managed to navigate adroitly and thrive in a market with suboptimal infrastructure, the outlook became increasingly worrisome for Brazil as 2014 approached. In particular, it had to be prepared to receive an estimated 3.7 million visitors during the World Cup and had to start planning for the tourism influx expected for the 2016 Olympic Games. Clearly, something had to be done.

Is Privatization the Answer?

To address the innate challenges of its shoddy infrastructure, Brazil invested more than $5 billion between 2011 and 2014 in the areas around the 12 host cities of the World Cup, with the largest fraction going to the Brasilia, Guarulhos and Campinas Airports. However, Brazilian policymakers went beyond simply increasing the amount of public resources directed toward improving their nation's airports. Clearly the winds of change had begun to blow.

In June 2012, 20-year-long management contracts for two airports in São Paulo (Guarulhos and Viracopos) and one in Brasilia were auctioned on the Brazilian stock exchange, even though a 49% stake in each airport remained with Infraero. This type of long-term contracting had previously proven successful in Brazil when applied to its highway system.

In December 2012, Brazil implemented a second privatization program, which sought to increase investments dedicated to improving the quality of the country's airport system. As part of this program, it privatized two large airports: one in Rio de Janeiro (Galeão International, now jointly managed by Singapore's Changi Airport Group and Brazil's Odebrecht) and another in Belo Horizonte (Confins International, now run by Swiss and German operators in partnership with CCR). Under the terms of the deal, the newly controlling entities must make initial investments of R$5.7 billion (approximately $2.8 billion) and R$3.5 billion (approximately $1.75 billion), respectively, by April 2016.

The value of these investments gained some positive recognition in almost perfect sync with the organizational success of the 2014 World Cup. During the competition, according to data published in the *Istoé Dinheiro* article, "A Copa Que O Brasil Ganhou" ("The World Cup That Brazil Won"), the median delay index for flights during the soccer championship was 8.36% — well below the 15% goal widely recognized by airports around the world. Regional carriers like TAM, Gol, Azul, and Avianca were key beneficiaries. Even international carriers such as American Airlines saw a meaningful uptick in business. American Airlines executives noted that the infrastructure modernization allowed the company to better delineate its investment plans in the region.

In addition to improving the performance of major Brazilian airports, the most recent wave of investments has transformed Campinas and Natal into necessary nodes for South American air travel. The president of TAM airlines noted, "The World Cup was a great catalyzer … the more airports [Brazil has] and the better they are, the higher the demand will be." His comment underscores the fact that the air-transportation industry in Brazil, unlike its peers in the developed world, continues to exist in more of a supply-side realm: If you build it, they will come, and will continue to do so.

Despite the achievements attained just in time for the World Cup, the future of the Brazilian skies is still not completely clear. According to the International Air Transport Association, Brazil is headed toward becoming the third-largest airline market in terms of domestic passengers, and PricewaterhouseCoopers has projected that by 2030, Brazil will see more than 312 million travelers a year. To meet the demand from domestic and international travelers going forward, the government will need to find ways to redirect major investments toward the sector's infrastructure.

McKinsey goes deeper into analyzing this problem, noting that Brazil will need to double its airport capacity by 2030 to begin to meet demand. The same report stresses the urgency of making these infrastructure investments if Brazil is to reap the potential economic returns, particularly from tourism, generated by the recent World Cup. (Interestingly, despite dire predictions about the country's preparedness for the World Cup, Brazil's National Agency of Civil Aviation found the country's airport system performed exceptionally well despite the increased number of air travelers.)

> The possibility of ramped-up competition, resulting from the entry of another player focused on domestic flights, remains high.

The Central Bank's most recently available projection calls for R$10 billion ($3.47 billion) in investments between 2014 and 2017. While still relatively modest, this sum represents about a 44% increase from the previous three-year period.

Nevertheless, many analysts believe that private investment will need to play a critical role in improving and maintaining Brazil's airports. While the country has made gains in increasing investment in airport infrastructure, it must continue to pursue public-private partnerships in order to increase the private inflow of investments and at the same time import know-how to maintain the overall level of quality achieved in 2014. In addition, a continuing move away from state-driven airport management toward internationalized, privatized arrangements should help pave the way for further growth.

Jockeying for Position in a Burgeoning Market

How might the competitive landscape evolve going forward? Growing competition combined with increasing demand for flights led to a period of intense market consolidation in advance of the World Cup. In 2011, Gol acquired Webjet — the country's second-rated low-cost airline — to gain its market share, then dismantled it within the year, firing most of the company's employees. In 2012, TAM was purchased by LAN and became part of the LATAM network. Shortly after, Azul bought TRIP, the Brazilian airline with the largest domestic network, a move that, according to Neeleman, accelerated the former's growth by four years.

These major market shifts have presented many challenges to the industry, which is facing mature market problems in what is still essentially a growth market. LATAM has struggled to integrate TAM. At the same time, Gol has struggled to remain a low-cost carrier as its margins have been threatened by increasing fuel costs (at least until the recent trough in oil prices).

In order to stabilize itself and solidify relationships with international partners, in 2011 Gol sold a 3% stake in its company to Delta Airlines for $100 million, and in 2014, sold a 1.5% stake to Air France/KLM for another $100 million.

The problems that some of the airlines have encountered, in combination with infrastructure challenges that remain to be resolved, make it difficult to predict the path of the industry going forward. It is widely accepted that there will be strong market demand, and at least two players, Gol and Azul, are shaping their strategies to serve a new middle class that will travel predominantly within Brazil or to key international destinations such as Argentina, Chile, and the U.S.

The possibility of ramped-up competition, resulting from the entry of another player focused on domestic flights, remains high. But increasing competition in this industry will depend ultimately on how effectively Brazil can confront the current bottlenecks resulting from inadequate infrastructure.

Another question remains: Will the Brazilian government continue to pursue a higher level of private participation within the air-transportation sector, or were the two 20-year public-private partnerships just desperate attempts to provide transportation for tourists flocking to the World Cup and Olympic Games? Will the infrastructure suffer the same fate as the Brazilian oil company Petrobras, which — after being considered a crown jewel of the oil sector — has experienced a threefold decline in its stock price since 2006 due mainly to government intervention?

While overall economic development in Brazil has been below expectations in recent years, its airline industry has continued to be a source of positive growth. The expansion of the airline market and the goodwill the Brazilian government generated during the 2014 World Cup could ultimately become key drivers of investable expectations going forward. Much work will be needed, but it appears that the rewards will be worth the effort.

This article was written by Marcelo Cattani, Diego Hernandez Diaz, Kevin Keefe and David Sardi, members of the Lauder Class of 2016.

E-commerce: Africa's Next Big Leap

The widespread adoption of mobile phones in Africa is arguably one of the most striking examples of "technology leapfrogging"— the direct implementation of later-generation technologies without the existence of the traditional underlying infrastructure. The prevalence of cell phones has also sparked a new wave of technological adoption in the form of mobile payments and banking. Phone-based banking services such as M-Pesa have helped to bridge development gaps in Africa, enabling millions to transact business by smartphone without the use of conventional depository accounts. Now, with the African middle class on the rise — and with it, the demand for consumer goods — will e-commerce become the next major instance of leapfrogging on the continent?

As was the case with smartphones and payments, the stage is set for e-commerce to be successful throughout Africa. Consumers are eager for an expanding array of discretionary consumer goods and branded merchandise across a variety of categories, such as electronics, apparel and housewares. And in the same vein, the absence of a well-developed, traditional brick-and-mortar retail industry may serve as a catalyst, rather than an inhibitor, for the growth of e-retail there. Burgeoning middle classes and young populations are fueling positive underlying demographics for the sector, while growing Internet penetration and continued innovations in logistics are providing promising solutions to existing constraints.

Granted, compared to the situations in Asia's developing economies, for example, e-commerce in most African countries still has a long way to go, due in large part to unique inhibitors not found in Asia. Nevertheless, many comparisons can be drawn between the two continents, revealing that Africa has significant potential. While cultural differences may also play a part in the sector's development, all indications point toward continuing sustained growth of African e-commerce in the near to mid-term, bringing consumers an unprecedented array of choices and values.

A High-risk Market with Long-term Potential

Despite its high levels of poverty, the continent's rate of economic growth is second only to East Asia's. In 2013, Africa's GDP exceeded that of India's. And while Africa is still a high-risk market, investors have identified significant long-term potential across the continent. Early movers have realized strong returns on selected investments in a variety of sectors, primarily those driven by consumer spending, which has accounted for two-thirds of Africa's GDP growth in recent years. Indeed, the core of Africa's attractiveness is the potential size of its middle class, currently 123 million people or 13% of the population. The World Bank predicts that by 2060 this number will swell to nearly 1.1 billion individuals, or 42% of the population. Undoubtedly, this will generate substantial discretionary spending potential.

> E-commerce represents less than 1% of overall retailing in Africa, but is expected to eventually rise to 10%.

Moreover, a major driver of growth in consumption and technology adoption is the fact that Africa has one of the youngest demographic profiles in the world. Two-thirds of Africans are under the age of 25 and 40% of the population resides in urban centers, a number that is predicted to increase to 60% by 2030. A rise in consumer spending has accompanied the staggering population growth, increasing by $275 billion from 2000 to 2008, on par with Brazil. Unsurprisingly, much of the consumption growth has been in lower-margin products, as Africans have gradually raised their standard of living. But the next wave of consumer-spending growth — expected to increase to $1.4 trillion by 2020 and $2.2 trillion by 2030 — will represent a shift to higher-quality and higher-margin products, particularly in the food and beverage categories. Key players — including Nestlé, SAB Miller, Unilever and Heineken — have taken note, investing billions in developing their African franchises and generating substantial returns.

Internet and Mobile: Connecting Africa

Today, 16% of Africa's more than 1 billion people are online, a number that is rising rapidly as mobile networks continue to expand and the cost of access plummets. At 1.1%, the Internet's contribution to African GDP is low compared to other emerging markets, and still significantly below the 3.7% average for developed markets. But the figure varies widely across the continent, from 0.6% in Ethiopia to 3.3% in Senegal. Already, one-quarter of urban Africans access the Internet at least once daily (as high as 47% in Kenya). If expansion continues with the same fervor as seen in mobile telecom, the Internet will quickly become a significant growth factor in Africa, particularly given its unique ability to generate value for consumers through transparency, which is notably lacking in Africa's consumer marketplace.

Mobile telephony serves as a key route to Internet access for millions of Africans who might otherwise not be able to get online using personal computers. Across the continent, mobile telephone penetration is at 80%, even exceeding 100% in a number of markets where many individuals own multiple devices. This is forecast to grow at 4.2% a year, driven by the dramatic cost reductions in mobile devices over the past decade. Over half the devices currently in use are Internet-capable. And while latest-generation smartphone penetration is currently at only 2% to 3% continent-wide, in the coming years this number is also expected to grow rapidly, to nearly 50% in leading markets, as the average retail price of a smartphone has already dropped below the critical $100 tipping point.

Concurrent with the expansion of mobile phone use, the rise of mobile payment systems in Africa has played a key role in supporting economic growth. M-Pesa is the emblematic story. Launched in 2007 in Kenya by Safaricom, the service has penetrated two-thirds of the country's population and today accounts for a massive 25% of GDP flow, aided by a network of nearly 40,000 agencies for depositing and withdrawing funds. This astounding success stems from M-Pesa's ability to meet pressing needs among African consumers: It provides a safe, quick and inexpensive way to transfer money and to pay for goods and services. It also overcomes structural limitations such as low bank penetration, and takes advantage of widespread mobile device use and progressive regulatory regimes. E-commerce, it seems, will likely follow a similar course in the coming years.

Some Innovative E-retailers

Taking commerce from the street market to the smartphone, bypassing malls and storefronts altogether, seems poised to be the next major consumption and technology development in Africa. Currently, retail on the continent is dominated by informal channels that strongly limit selection, quality and value. E-commerce has the potential not only to overcome these obstacles, but also to unlock incremental demand along the way. In addition, traditional commerce in Africa faces barriers including security, transport and difficulty in securing titles to property — constraints identical to those faced by the telecom and financial sectors in the past, which suggests that the retail sector will largely bypass the bricks-and-mortar store stage.

Recent studies show that African consumers are most likely to increase their spending for clothing, footwear, accessories, personal automobiles and products for toddlers. Brands are highly relevant to these consumers despite their low incomes: 99% of surveyed individuals indicated a preferred brand of mobile phone, and 89% had a preference for certain clothing brands. E-commerce has enormous potential to unlock access to branded goods, combining value and selection in a way that is otherwise impossible in the contemporary African retail environment.

Today, e-commerce represents less than 1% of overall retailing in Africa, driven primarily by South Africa's $400 million market. Nevertheless, the sector is forecast to expand eventually to represent 10% of retail, or $75 billion annually. This evolution will come with its own challenges, including merchandise payment and delivery logistics. Some early-stage e-retailers have already begun to tackle these problems in innovative ways, giving birth to a business- and consumer-driven learning process that will lead over time to optimized solutions.

One example is Jumia.com, an online retailer that began operating in Nigeria in 2012 and has since expanded into Côte d'Ivoire, Egypt, Kenya and Morocco. The site offers more than 100,000 products, including books, electronics, apparel and home appliances. Orders are taken online or via SMS or phone, and customers can pay using any method: credit or debit, bank transfer, or cash on delivery (COD). Delivery is free in major urban areas, where the company has developed its own fleet of couriers on scooters to overcome traffic jams. Couriers deliver only until sundown to reduce the incidence of robberies. Jumia.com has also partnered with DHL and FedEx to deliver in areas it cannot reach on its own. The company was the first African winner of the World Retail Award for Best Retail Launch of the Year in 2013, an award presented previously to e-commerce giants such as ASOS, Nike and Zappos.

Enabling customers to pay COD has helped e-retailers in Africa overcome trust barriers, allowing consumers to inspect merchandise upon delivery, and to pay only when they're satisfied. Partnerships with local kiosks have also enabled individuals to arrange for pick-ups when an address cannot be specified. While COD is not ideal from an operational standpoint, as it presents cash-management and security challenges, the hope is that its use will diminish over time as consumer-retailer trust is established and other forms of payment (e.g., credit or mobile) gain greater acceptance.

Enabling customers to pay cash on delivery has helped e-retailers in Africa overcome trust barriers.

Another example of an innovative e-retailer is Konga.com, which aspires to be the "Amazon.com of Africa" and is billed as "Nigeria's largest online mall." The site offers a wide selection of items, with free nationwide delivery and a COD payment system. It has built an extensive technological and logistical foundation, including a fulfillment warehouse, and hopes its website will function as a marketplace platform in the near future. Others, such as Nigeria's WebMall, give customers access to a large number of online stores, with the individual retailers responsible for managing their own inventory and promotions. Delivery is outsourced to FedEx. Afromania and OrderBay also combine numerous suppliers into one platform.

In South Africa, online fashion retailer Zando.com sells a variety of international and locally produced men's and women's clothing brands, as well as its own branded merchandise. Offering free delivery within one to five business days through a combination of its own fleet and outsourced couriers, the site enables customers to order multiple items, pick what they want to keep and return the rest for free within 14 days, a model that has worked extremely well in developed markets.

Lessons from the Far East

Many of the paths Asia followed in its e-commerce development can be seen as predictors of the segment's bright future in Africa. At this point, e-commerce is commonplace in Asia. Indeed, China's online retail sector will soon eclipse that of the U.S. The Chinese e-commerce giant Alibaba alone generates in excess of $170 billion in annual sales, more than eBay and Amazon combined. The growth of Chinese e-commerce, which today represents 8% of all retail in that country, has been supported by broad Internet penetration and favorable demographics (a large middle class and robust disposable income growth). However, as Madhur Jha, a senior global economist at Standard Chartered Bank pointed out, “there’s a little bit of difference in terms of what’s a priority in Asian and African markets.” For example, in Indonesia, consumers entering the middle class prefer to save more and spend their excess income on education, whereas in other markets, material goods are in greater demand. Despite these differences, the region’s sheer scale has facilitated growth, as will likely be the case in Africa.

> Many of the paths Asia followed in its e-commerce development can be seen as predictors of the segment’s bright future in Africa.

Vietnam serves as an excellent contrast to China. While significantly less developed than its neighbor to the north, the Vietnamese e-retail market is highly fragmented and ripe for development, lacking a large, dominant player like Alibaba or Amazon. Today, only 0.1% of sales in Vietnam occur online. But that number is growing steadily as businesses and consumers learn to overcome challenges similar to those found in Africa, including payment systems and delivery methods. Among the younger segment of the population, e-commerce is becoming the preferred shopping method in a country where Internet penetration is high and access is affordable. Popular categories include fashion and beauty products, electronics, housewares and airline tickets. COD is used in 75% of transactions. As in Africa, trust is a top concern.

Cultural differences have played an active role in the development of e-commerce in Asia as well. Consumer decisions are made very differently than they are in the West. For example, Vietnamese shoppers are likely to recommend their preferred shops, products and restaurants to one another. Social relevance is almost an inescapable part of the retailing equation in these markets. In Asia, as in Africa, social media platforms like Facebook have been highly successful in attracting Internet users, and e-retailers are taking note, integrating their advertising and marketing strategies accordingly.

E-commerce appears destined to become a major growth engine in Africa over the next 10 to 20 years as an increasing number of Africans gain Internet access, use mobile payment systems, graduate into the middle class, and seek out branded goods in a variety of categories. Despite the challenges posed by infrastructure, innovative businesses are already overcoming obstacles in order to uncover value. The future of retail in Africa seems ready to leap directly from the street market into the Internet age.

This article was written by João Baena Saenz, George Birman, Maria Löhner and Bobby Virdi, members of the Lauder Class of 2016.

Technology Startups in the Arab World: The Wild West of the Middle East

Often, when we think about the Middle East and North Africa (MENA), we think of dictators, deserts and perhaps tasty delicacies like hummus. Few in the West seem to know that an entrepreneurial tech scene is flourishing in the region, and that it continues to grow in the wake of sweeping political changes related to the Arab uprisings.

The Middle East has had a long history of government-driven employment, in which state jobs have been the most stable and sought-after by college graduates and young professionals. Long after Nasserite models for economic growth had been shelved for more Washington-consensus, pro-business policies, the public sector continued to employ a large segment of the MENA workforce. However, growing subsidy systems and rising public-debt burdens have undermined the ability of the Arab state to sustain the outsized role it once held in the labor markets. The situation has been exacerbated by the global financial crisis of 2007-2008 and the Arab uprisings of 2010-2011, which have placed further pressure on fiscal deficits across the region.

The MENA region is the second youngest in the world demographically, after Sub-Saharan Africa. Because it lacks a mature private sector to absorb the millions of new entrants into the labor force each year, there is rising unemployment among youth. But this phenomenon has energized a new sector of the economy: A large number of young adults have taken to carving out their own career opportunities, resulting in an unprecedented surge in entrepreneurship.

Unsurprisingly, many of these entrepreneurial efforts fall within the technology and Internet sectors. The naturally low capital requirements for Internet businesses, soaring increases in Internet penetration across North Africa and some of the highest per-capita social media usage in the Gulf have combined to make the online realm a logical destination for disaffected college-educated youth who are willing to take business risks. Idea generation within MENA's entrepreneurship culture has typically taken two forms: innovation and emulation.

The Innovators

Innovating companies offer new solutions to fill needs in their local markets, some eventually scaling outward regionally, a few even internationally. One well-known example is WeatherHD, the top-selling weather app for the iPad, started by Amr Ramadan during the Egyptian uprising in 2011. Another is the widely used app Bey2ollak, which crowdsources individualized reports from drivers in Egypt about traffic on specific roads. Saphon Energy, a Tunisian cleantech company, is finalizing its R&D phase for a bladeless wind turbine that the company believes can disrupt existing wind-energy technology. These companies have successfully overcome the many challenges facing businesses in MENA. They have invested in long R&D or programming phases and produced a new value proposition that is potentially attractive on a global scale. Unfortunately, these firms account for only a handful of successful startups in the region.

The Emulators

Many entrepreneurs are opting to use a different start-up model, emulation, in which companies look to successful businesses abroad for idea generation. The concept is simple: Entrepreneurs use successful proof of concept from a developed company as a starting point to launch a brand targeting similar needs at home.

It is not hard to find examples of emulated businesses driving much of the tech and Internet entrepreneurship in the Middle East. From Ticketmaster to Yelp to eHarmony, a Middle Eastern iteration can often be found serving at least one country in the region. Within this category, e-commerce is one of the most crowded niches.

According to Omar Tazi, formerly a Silicon Valley executive and now a serial entrepreneur based in Morocco, e-commerce accounts for a large percentage of entrepreneurial endeavors in the region. Souq.com, for example, has managed to brand itself as the Amazon of the Middle East, with other startups like Namshi, a high-end e-commerce venture started by the German company Rocket, not far behind. Tazi believes that people will usually tend to work toward filling voids using proven methods before reinventing the wheel. Given the general perception that emulated businesses are lower-risk and that return on investment will come sooner rather than later, e-commerce initiatives are attractive to investors and entrepreneurs.

Many credit the region's recent boom in e-commerce largely to the significant rise in Internet penetration in many Arab countries, along with rapidly maturing consumer and credit cultures. Hisham Zarka, one of Namshi's founders and managing directors, agrees and adds that the recent growth in mobile phone penetration has dovetailed with increased Internet penetration to drive rising demand for online shopping.

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Challenges: From Financing, to Bureaucracy, to Simply Getting Paid

Of course, tech and Internet entrepreneurship in MENA faces its fair share of challenges. Topping the list is a dearth of investment financing, since the venture capital industry is itself a new phenomenon in the region. Moreover, investment cultures in these cash economies are still primarily geared toward lower-risk asset classes such as real estate and certificates of deposit. Bank loans for small businesses are prohibitively expensive for a variety of reasons, including the difficulty for young professionals in building credit and the lack of a robust legal recourse framework for the banks.

Diaspora investors who are plugged into the Western investment culture have often been cited as the solution to this funding gap. However, incoming investments have not been sufficient to move the needle. Even emerging market-facing venture capital firms have a negligible presence in MENA, given the higher perceived political and geopolitical risks associated with investing there and the strict geographical or life-cycle-stage mandates for portfolio companies. Access to financing remains one of the major obstacles keeping many good tech ideas unfunded and unscaled.

A second major obstacle for MENA tech startups is the lack of human capital. Economies in the region still struggle to produce college graduates with the skills needed for private-sector employment. Even among graduates who would be the most suitable for tech startups, there is a low-risk approach to career decisions. Part of the reason for this, says Tazi, is the strong cultural stigma attached to failing in a new venture. The opportunity to build equity in a new business still cannot lure many qualified graduates away from stable jobs in private or government banks. What often happens, then, is that young professionals who do join startups may demand higher fixed salaries to offset their preference for a résumé-building career with visible earning streams and societal status.

Finally, Middle Eastern small businesses are subject to the region's notoriously impenetrable bureaucracies. Often, an unwieldy administrative cost is imposed on entrepreneurs, and the region's tax codes are not typically characterized as pro-small-business. Tazi notes that in Morocco the administrative burden is not as heavy a burden as the lack of tax incentives. He believes that taxes should be scrapped for entrepreneurs during the first years of their startups' operation.

Tazi adds that many MENA governments are quick to use pro-small-business rhetoric, but remain unfriendly, or at best neutral, toward entrepreneurial activity. He says that labor laws and regulations in MENA countries like Morocco often make it difficult not only for entrepreneurs to start fast, but also to fail fast — to shutter their business and move on to new ideas. Furthermore, links to members of the economic or political elite are often required for an entrepreneur to achieve long-term success. This deeply anti-competitive tradition decreases the attractiveness or even feasibility of market entry for some startups.

Industry-specific challenges exist as well. One major issue for the e-commerce industry, for example, is simply getting paid. Despite a steady growth in credit-card use, credit-card users still represent a minority of the population in most Arab countries, creating significant obstacles to businesses that rely on the ability to collect payments electronically for goods or services. Strategies for dealing with this dilemma in the realm of e-commerce have revolved around cash-on-delivery (COD) methods, but COD can become quite a headache and cost a company a considerable amount of money. In Morocco, for example, three out of 10 items are generally not accepted on delivery and are sent back to inventory, costing growing startups crucial capital in shipping costs.

Having to spend too much time chasing payments instead of innovating can be disastrous for a tech startup. These challenges have paved the way for new methods of collecting e-commerce payments, such as Binga, a cash prepayment system taking off in Morocco, recently implemented by Royal Air Maroc. Zarka, the aforementioned Namshi co-founder, notes that logistics presents an additional challenge: "In most markets, there is a lack of sophisticated courier companies, so many e-commerce companies run their own logistics and last mile. The sometimes-poor quality of both these and third-party logistics companies makes the overall experience oftentimes underwhelming. Most markets also lack reliable street addresses, which only adds to the complexity." Despite these challenges, an increasing number of e-commerce startups are popping up in numerous countries in MENA, underscoring the persistent attractiveness of the market.

Creating a True Startup Ecosystem

There is much debate in the Middle East about what needs to be done to build an ecosystem that will truly accelerate innovation in the region. Some favor bringing in already-successful technology companies to drive knowledge transfer. To some extent, this is already underway. The region is increasingly becoming a base to some of the largest and most well-known technology companies in the world. Arab cities from Cairo to Tunis to Casablanca typically host representative offices for global blue-chip tech companies. One example is Microsoft's operation in Morocco, which works to encourage companies to transition from outdated infrastructure to cloud computing.

At present, many of the larger knowledge-transfer initiatives are happening in the oil- and capital-rich Gulf states. The UAE has invested a great deal to attract leading technology companies. Dubai, for example, has created an economic free zone called Dubai Internet City, a technology park dedicated to international technology companies such as LinkedIn, Google and Facebook. Nevertheless, despite the likely long-term positive effects of having a global tech presence, these foreign offices tend to be focused on sales rather than R&D.

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One exception can be found in Abu Dhabi, where a government-owned investment company, Mubadala Technology (*mubadala* is Arabic for "exchange") is mandated to purchase foreign technology companies and leverage their know-how to train a new generation of Emiratis. The company's major holding is Global Foundries, a leader in the semiconductor industry. Ahmed Al-Baloushi, a spokesman for Mubadala Technology, explains that the parent company regularly takes groups of young Emiratis to tour Global Foundries' facilities, exposing them to the latest and most salient aspects of chip-fabrication technology. But despite his excitement about the potential opportunities for growth, he acknowledges that the journey toward realizing a robust ecosystem of innovation in his country is only just beginning.

According to Tazi, a perfect storm of sorts will be needed for the MENA region to emerge as a leader in technology and innovation. He thinks it will take a combination of strong universities to educate youth; domestic success stories to inspire them; and interested, savvy investors to fund them, as is the case in renowned technology hubs such as Silicon Valley. The geographic centrality of all the institutions in Silicon Valley creates an atmosphere constantly abuzz with technology and innovation. New ideas spread rapidly, networking events occur regularly, and the diverse entrepreneurs who work there share a commitment to innovation.

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Tazi adds that it is not just the mere existence of these different institutions in one place (many of the world's top universities, for example, now have branches in the Arab world), but the synergistic interactions. Investors regularly seek out newly graduated young entrepreneurs with novel ideas and are willing to take big risks to fund a plethora of different initiatives. The universities themselves are on the cutting edge of new research propositions and ideas that fuel technology startups seeking innovative applications of new initiatives. The success stories of iconic entrepreneurs like Steve Jobs and Bill Gates in the U.S. play a large role in motivating aspiring youth and creating a culture of innovation at both universities and tech companies. Tazi believes the interplay among these various institutions facilitates a significant value-added scenario in which "one plus one now equals 10, 10 plus 10 equals 100, and so on."

Advice to Aspiring Entrepreneurs in the Middle East

Is emulation a natural first step for entrepreneurs in an emerging market? At what point will the region climb to the more innovative rungs of the entrepreneurial ladder? Many observers are optimistic for the long run, citing underlying fundamentals like the region's demographics. Local entrepreneurs believe there is a bright future for innovation in the MENA region, but with the many obvious challenges, they balance their optimism with pragmatism. A common message these innovators have for potential Middle East entrepreneurs is to set appropriate expectations. Those coming out of strong technical and business programs should have no problem finding many legitimate opportunities to emulate successful models in the region, and even to innovate. However, they should not expect fireworks right away and should be ready to forgo what might have been a more comfortable lifestyle working at an established corporation.

The MENA region is a Wild West of sorts: one of the last remaining economic frontiers. With the right experience and approach, a Middle Eastern entrepreneur can capture a large upside to their investment. Small Arab businesses, despite the odds, can be part of the vanguard of an era of digital and economic change in the Middle East.

This article was written by Mohammed Abdelgany and David Mikhail, members of the Lauder Class of 2016.

Can Chinese Cleantech Boost Green Businesses in the U.S.?

In 2007, John Doerr, a partner at the venture capital firm Kleiner Perkins Caufield & Byers, declared that "green technologies — going green — is bigger than the Internet. It could be the biggest economic opportunity of the 21st century." Six years later, Fisker Automotive, a green-car startup that had grown to become one of Kleiner Perkins' largest investments, filed for bankruptcy. At the auction for Fisker's assets, Wanxiang Group, the largest supplier of automobile parts in China, won with a $149 million bid.

Previously, Wanxiang had purchased the assets of the manufacturer that supplied the batteries for Fisker's electric vehicles, and in September 2014 the Chinese firm announced plans to relaunch the Karma, Fisker's hybrid luxury car. Wanxiang's acquisition and strategy reflect China's growing importance as a facilitator for innovative cleantech companies seeking to make the difficult leap to commercialization and long-term profitability.

Cleantech firms provide products and services that encourage sustainability, from improving energy efficiency to reducing pollution. However, they have frequently struggled to achieve the financial and political support they need in order to be able to offer truly competitive alternatives to existing technologies. China's support may ultimately prove to be the final piece of the puzzle that leads to the commercialization of cleantech on a global scale.

China's competitive advantage here is more than just low input costs. The government in Beijing has extended its support for cleantech beyond domestic firms, offering low-interest loans and subsidies to foreign cleantech players in an effort to help their technology reach economic viability. According to Allan Kwan, a partner at the VC firm Oak Investment Partners, "[moving to China] is not a case of low-cost manufacturing. It's how you scale to reach that low-cost point."

China's attempt to shift from heavy polluter to proponent of the world's cleantech industry reflects the government's recognition that 30 years of unabated economic growth have poisoned the country's water and choked its air with smog. Anti-pollution protests by China's populace have begun to pose a legitimate threat to social stability. The country's national and local leaders, pressed to find solutions to this unprecedented environmental challenge, are now clamoring for cleantech solutions to slow or reverse the consequences of decades of environmental degradation.

Going East

While the U.S. Department of Energy invested more than $31 billion in Recovery Act funds to support clean-energy projects, recent events have stirred up strong financial headwinds against cleantech. These include the U.S. shale-gas boom and the 2011 Solyndra scandal (in which the solar power manufacturer declared bankruptcy after receiving a $535 million federally guaranteed loan).

> "[China will] advocate green and low-carbon development and step up efforts to conserve energy and reduce emissions."
>
> – Chinese Premier Li Keqiang

But the environment in China could not be more different. The Chinese government has conspicuously increased its spending on environmental protection and pollution prevention. The U.S. National Science Foundation has estimated that China's 2012 investment of $61 billion in clean energy exceeded the amounts invested by the U.S. and the E.U. combined.

Yet commentators in China's official media view these efforts as insufficient. In China's upcoming 13th Five-year

Plan for 2016 through 2020, several explicitly stated government directives address environmental concerns. Increasing energy efficiency, strengthening environmental protection policies, and promoting alternative energy development all rank as major priorities for China's leadership.

The Chinese government has repeatedly established its commitment to large investments in the commercialization of cleantech, with the 12th Five-year Plan allocating $473 billion to clean-energy investments through 2015. This funding has arrived in tandem with increasingly stringent regulations, such as the 2014 announcement by the Chinese National Development and Reform Commission that all state-owned enterprises with large carbon dioxide emissions must regularly report details of their greenhouse-gas outputs to the central planning body.

> Boston-Power … migrated its manufacturing to China in 2011 after it failed to win a loan guarantee from the U.S. Department of Energy.

Small- and medium-sized foreign cleantech firms are increasingly coming to view the move to China as a strategic decision when their home market disappoints. They recognize that China's favorable financial incentives, including low taxes and interest rates, can help them avoid many of the financial pressures that might otherwise hinder them from broader commercialization.

In a typical example of a company finding a second chance in China, the U.S. firm Boston-Power, which produces lithium-ion batteries, migrated its manufacturing to China in 2011 after it failed to win a loan guarantee from the U.S. Department of Energy. A $125 million fundraising round that included U.S. and Chinese private equity, as well as Chinese government financial support, helped guide the company's decision. Boston-Power has since initiated construction of a new manufacturing site in Liyang and an R&D facility in Beijing. The exponential surge in Chinese demand for electric vehicles, combined with a sales channel to local manufacturers made possible by a Chinese partner, has spurred the firm's new focus on EV batteries. According to Dr. Yanning Song, associate director of Battery Design at Boston-Power, "essentially, the government is paying for the majority cost of the battery, and [Chinese electric vehicle] companies can obtain batteries for close to free."

Fertile Soil for Innovation

The cleantech gold rush in China has incentivized companies to develop new products and invest in capital-intensive ventures that would be considered too risky elsewhere. EcoMotors, maker of a next-generation two-stroke engine, found a willing partner in its joint venture with a subsidiary of the First Auto Works Group, a Chinese automaker that produced the country's first domestically manufactured automobiles and now manufactures the omnipresent Audis driven by China's bureaucrats. The joint venture with First Auto Works led to the construction of a $200 million commercial-scale manufacturing plant in Shanxi Province, with the goal of manufacturing 100,000 engines annually by 2015.

Prudent Energy, an advanced-energy storage company, has worked with the government-owned State Grid Corporation of China to address issues regarding the scalability of wind and solar power. As part of this partnership, Prudent Energy has undertaken installation of an energy-storage system at the National Wind Power Integration Research and Test Center of China. Once completed, this system will rank among the largest of its kind in the world. "The spectrum of cleantech projects being funded has expanded significantly," said Xiao Lian, vice director of the Scientific Research Department at Yunnan Normal University, who believes that this type of partnership is becoming increasingly widespread as China's government diversifies its portfolio of cleantech projects.

Issues of Intellectual Property and Protectionism

Although the rewards of heading east may prove irresistibly tempting, cleantech firms face a unique set of risks when they enter China. While the threats of intellectual-property theft and local protectionism are well known to all foreign entrants in the Chinese market, cleantech firms face additional challenges from China's distinctive political and regulatory environments. Navigating this maze may be difficult, but the rewards at the end may still prove to be worthwhile.

The generic prescription offered to foreign companies operating in China has been to transfer only the minimal level of intellectual property necessary in order to capture the full economies of China's low-cost manufacturing and labor. But given the country's growing technical capabilities and burgeoning populace of well-educated engineers and scientists, it is now possible to transfer application research and development to China to leverage low-cost human capital. Nevertheless, cleantech firms must continue to innovate in both China and their home markets to maintain their technological advantage, as China has little tolerance for slow movers.

The ongoing $1 billion lawsuit between the American Superconductor Corporation and the Chinese firm Sinovel, its former partner, over alleged corporate espionage is one of many prominent cautionary tales of intellectual-property theft in China. If it becomes necessary to reveal key IP as a condition of doing business in China, the U.S. Patent and Trademark Office recommends that firms pursue local patent registration under the Chinese legal system in order to have any hope of legal recourse in the event of infringement.

Protectionism is another serious threat facing foreign cleantech companies in China on both the national and local levels. Chinese small- and medium-sized enterprises do not enjoy the nationwide protections and benefits extended by the national government to state-owned champions such as Sinopec or State Grid. Nevertheless, provincial and county governments can still be expected to favor local firms over the interests of international competitors and firms based in other provinces. Thus, Oak's Kwan notes that choosing the right entry strategy is of paramount importance, and small firms without monopoly advantages must determine the best way to become niche players.

This local protectionism, on the other hand, can work to a foreign entrant's advantage. Partnering with major manufacturers in urban centers of power such as Shanghai or Beijing can provide a useful foothold for expansion across China. But due to interprovincial regulatory differences, conquering one province's market cannot be equated with conquering the entire country.

For example, China's electric-vehicle infrastructure still lacks a national standard for public charging stations. Without any national protocols between these stations and EVs — or even an alignment between those protocols and Western standards — foreign EV firms face an uphill battle to keep their cars charged and on the road. This dilemma has led to some innovative partnerships. In August 2014, U.S.-based electric-car company Tesla Motors reached an agreement with China Unicom to install Tesla-compatible charging stations at 400 of the mobile telephone operator's retail stores.

> China's 2012 investment of $61 billion in clean energy exceeded the amounts invested by the U.S. and the E.U. combined.

Importance of Building Relationships

One of the key selling points for companies seeking to commercialize their technologies in China is the relatively stable policy environment that stems from a lack of rapid regime change at China's highest levels. Premier Li Keqiang has emphasized "green" development as a part of the country's national development strategy, and he stated in June 2014 that China will "advocate green and low-carbon development and step up efforts to conserve energy and reduce emissions…. China will achieve internally driven growth through innovation."

While this kind of high-level support is clearly attractive to cleantech firms, working with local political champions can still present a certain level of risk. Increasingly hard green GDP targets mean that the successful promotion of cleantech projects can actually increase the likelihood that a local mayor may move on to bigger things. The downfall of former Chongqing Mayor Bo Xilai in 2012 also indicates that today's fast riser can become tomorrow's front-page scandal. However, Kwan does not view these risks as a discouragement to cultivating government relationships. "Dealing with governments in any part of the world — in the U.S. or China — you face the same thing," he said.

Clearly, foreign firms in China must continuously develop their network of relationships. With so many provinces seeking to achieve ambitious economic and environmental goals, firms with multiple manufacturing needs may find it best to diversify across provinces. It is also important to seek out up-and-coming officials who may ultimately rise to positions from which they can help your company achieve its goals. Finally, Kwan emphasizes that even a package of government tax breaks and incentives does not necessarily guarantee buy-in from local banks. It is therefore crucial to develop ties with all possible stakeholders when considering investing in China.

Eyes on the Prize

Companies that head to China in order to commercialize must envision their ideal strategic outcomes and consider all possible scenarios when making their projections. They must assume that a Chinese copycat competitor will appear, in which case they will have to examine their competitive advantage and whether their local Chinese partners will be willing to stand up to protect them.

China still relies on coal for up to 75% of its energy needs. However, the country's government and state-owned enterprises are working aggressively to develop their reserves of recoverable shale-gas deposits, which are estimated to rival those of the U.S. The next 10 years will provide a window of opportunity for firms seeking to either commercialize pioneering cleantech or repurpose older technologies — such as coal gasification — that have seen their advantages superseded by the U.S. shale-gas revolution. Nevertheless, firms thinking about entering China should evaluate their own timelines and determine whether the gains will accrue prior to the arrival of China's own impending shale-gas boom.

For the time being, China's local and national incentives are all aligned to provide an unequaled set of opportunities for cleantech commercialization. According to Phil Partin, director of product development at Boston-Power, "lots of companies are afraid that, over time, government incentives will go away, but there will be a well-developed market by then, and the market will sustain itself without government help." If companies can use Chinese core competencies to commercialize their technologies and expand into other markets, then China will serve as a bridge market to global success.

This article was written by Xi Lian, Shani Scharfstein and William Wachter, members of the Lauder Class of 2016.

Solar Energy Promises a Bright Future for Moroccan Energy Independence

Morocco's economy is witnessing a period of rapid growth, but this growth is limited by the country's importation of 96% of its energy from abroad. For this reason, the country has invested heavily in a project called the Moroccan Agency for Solar Energy (MASEN), which aims to more than quadruple domestic energy production by 2020. This undertaking relies on cutting-edge technology, diverse sources of funding coupled with heavy state support, and the hope that key risks will not develop into overarching problems. While the goal appears ambitious, it also seems feasible, and offers a unique opportunity for Morocco to strengthen its economy and its world position.

Morocco's GDP growth rate increased by 80% in 2013 due to the booming tourism, telecommunications and textiles sectors. Despite this accelerated growth, its current account balance as a percentage of GDP has decreased by an average of 0.9% annually over the past decade, now equaling a deficit of 7.2%. The country's economic strength is hampered by its need to import nearly all its energy, principally in the form of oil from neighboring Algeria. Moreover, its demand for energy is increasing at an annual rate of 7%, according to the Organization for Economic Cooperation and Development. The resulting need for domestic sources of energy explains the country's heavy investment in MASEN, which currently produces 7% of the nation's energy and aims to produce nearly 20% by 2020. While it may seem a highly ambitious goal to achieve in the next five years, MASEN is well-positioned to meet this target. And the endeavor is uniquely suited for enabling Morocco's energy infrastructure to meet its ever-growing demand for energy.

In comparison to other energy sources, solar is a clear choice for Morocco. This form of energy is 29% less expensive per unit than nuclear and 57% less expensive than scrubbed coal (taking into account the costs of externalities). Moreover, solar offers a uniquely large scope of power supply. In fact, the solar energy potential in global deserts could deliver in 274 days an amount of energy exceeding that available from all fossil-fuel reserves globally, and the solar potential available in Morocco is more than adequate to service the country's energy needs. Furthermore, there is value in solar energy as a counterpoint to more traditional energy sources in a diversified energy portfolio. Countries need a variety of energy sources in order to leverage technological advances, maintain flexibility and hedge against central shocks such as climate change.

There are two main types of solar-power generating systems: photovoltaic (PV) panels and concentrated solar power (CSP). The second presents a better opportunity for MASEN and Morocco. PV panels have long been used on a small scale to generate electric power, functioning by using semiconductor materials to convert solar energy directly into electricity. CSP on the other hand, uses mirrored surfaces to focus solar radiation. This produces heat that is used to generate electricity, typically with a traditional steam turbine. The panels use concentric mirrors that focus solar radiation on a central tower, or parabolic mirrors that concentrate solar radiation on a heat-transfer fluid such as molten salt.

The CSP method is particularly appropriate given the circumstances at play in Morocco. First, local demand for energy peaks around sunset, when PV solar panels would not be able to support a high demand for electricity. Plus, electricity storage with PV sources requires the use of batteries, which are economically unfeasible given the sheer size of Morocco's energy-supply gap. But CSP's heat-transfer fluid permits energy to be stored easily and cost-effectively in insulation plants in order to power steam turbines during the evening peak-demand period. As such, whereas the capacity factor, or efficiency, of PV-based installations currently cannot exceed 30%, that of CSP power plants can be as great as 90%.

The Economic Potential

MASEN is also actively pursuing policies that could make Morocco a regional and possibly global center of excellence in solar technology. The potential benefits can be seen from the example of the successful diffusion of wind-power technology from Denmark to India. In that instance, India pursued a policy of interactive learning with Denmark, and actively engaged in the innovation process to address India's energy needs, instead of pursuing a traditional model of merely passive involvement. As a result, Indian manufacturers were able to produce wind turbines that met international standards, and although India was a latecomer to wind power, it now has the fifth-largest installed wind capacity in the world. In Morocco, one can imagine that MASEN will need to take similar steps to work with its mostly European technology partners to ensure the development of local expertise. In fact, MASEN's plan includes several research and development facilities at planned solar sites, which will support the generation of valuable intellectual property and perhaps even increase efficiency in the agency's operations.

> The country's economic strength is hampered by its need to import nearly all its energy from overseas, principally from Algeria and in the form of oil.

Moreover, while MASEN primarily intends to provide energy within Morocco, in the future it may export energy to Europe. Electrical connectivity between Morocco and Spain is already in place at an infrastructure level. Abderrahim El Hafidi, the Moroccan Energy Ministry's Director-General for Renewable Energy, noted in an interview that MASEN is "working on projects with Spanish, French, German and Italian friends, and we hope that the first export transaction can be carried out as soon as possible.... Our aim is to give the E.U. part of the energy produced in Ouarzazate." Ouarzazate is a principal site for MASEN that is projected to be operational in 2015.

The boldness of MASEN's goals also illustrates Morocco's potential for economic investment, as investing in rural sites has direct, indirect and induced economic effects on local economies, helping them become more industrialized. Advanced power-generation capabilities generally attract energy-intensive industries — such as chemical production, refining and mining operations — to associated regions. Furthermore, the high-maintenance demands of CSP plants allow for widespread involvement. Finally and of crucial importance, CSP provides opportunities for numerous aspects of the CSP value chain to be provided by Morocco itself. A recent survey of 40 senior managers, CEOs and other leaders in the solar industry indicated that 15 out of 25 stages in the CSP value chain could likely be localized within Morocco. However, it is worth noting that a critical level of capacity is needed for a CSP market to emerge. Although CSP materials are available for this purpose, the country may need actively to address the biased perception of risk and opportunity among investors and the solar industry in general.

Parallels with China and Spain

Solar energy — and concentrated solar power in particular — is a proven technology that is gaining traction worldwide. For example, the Chinese government is considering solar to reconcile a high demand for energy in eastern China with a greater potential supply in the west. In this case, CSP could prove viable for several key reasons. Eastern China has adequate solar resources available and the appropriate topography, namely a flat terrain, to support large-scale solar farms. In addition, there is a steady water supply, which is needed to operate steam turbines and clean the solar-gathering surfaces. The proximity of solar farms to the electrical grid is another important factor.

Similarly, CSP power generation is particularly well-suited to Morocco's topography and conditions. The country has one of the highest levels of insolation (exposure to solar radiation energy) in the world, with 3,000 hours of sunlight per annum. In addition, ample land area is available in the western Sahara, where MASEN has planned five solar sites with a total power potential of two gigawatts. An aggressive rural electrification program, nearing completion, has addressed the grid-proximity requirements in these areas to facilitate the connection of these sites to urban areas such as Tangier, Casablanca, Rabat and Marrakech, where power demand is much higher. The country has also invested in water preservation and efficiency measures, which will expedite the development of these plants and address their significant water demands.

The Instituto para la Diversificacion y Ahorro de la Energía, a renewable-energy consortium in Spain, offers another obvious parallel. This organization shares several characteristics with MASEN, including a heavy reliance on public-private partnerships to attract investment. These partnerships, in addition to government-subsidized purchase rates for solar-power producers, proved to be critical drivers for the diffusion and development of renewable energy in Spain, which became Europe's largest wind-power producer. Indeed, Spain funded large segments of the first power projects under this structure, thus increasing investor confidence and interest in the renewable-energy market.

Such partnerships also motivate government officials to reduce risks and minimize potential political fallout. In turn, this commitment signals the government's long-term interest in these projects, which further strengthens investor confidence. For instance, with regard to the Spanish consortium, the first wind-power projects were heavily financed by the government due to a perception of high risk among private investors. Over time, private investment partnerships focusing on renewable-energy projects emerged as the dominant force, while the government scaled back its involvement.

Ouarzazate is an example of the first stage of this evolution. Moroccan public funding comprises the largest proportion of the initial capital expenditure, followed by project loans and equity. Ouarzazate's success is expected to have a positive effect on the attraction of foreign investment and ultimately on the growth of the solar sector in Morocco.

Such an ambitious plan requires significant financing, and the government of Morocco in particular has demonstrated marked support for MASEN. In addition, MASEN itself holds a 25% ownership stake in the Solar Power Company, a public-private partnership formed to build, manage and operate MASEN's facilities. Furthermore, a power purchase agreement brokered between these entities will guarantee a competitive market rate for energy prices, effectively eliminating the gap between the high cost of production and the low market price of energy with a $60 million annual subsidy. Unlike the fixed-subsidy structure introduced in comparable CSP projects in Spain, the tariffs introduced in Morocco are expected to attenuate eventually as the unit costs of power production at CSP facilities decline over time. Beyond this governmental support, additional financing is split between international lenders providing concessional financing and a private consortium of equity investors.

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Given that CSP projects involve a high level of early risk, it is well known that access to low-rate debt instruments is crucial for lowering their financing costs and improving the odds of their overall viability. When local capital markets do not provide attractive debt offerings, as is the case in Morocco, securing favorable debt in the international financial markets becomes increasingly important. The government of Morocco and MASEN have done well thus far in attracting notable financiers such as the African Development Bank, the European Investment Bank, and the International Bank for Reconstruction and Development. According to knowledgeable sources at the Climate Policy Initiative, the effective blended interest rate for international financing directed at Morocco's latest CSP projects is 3.1%, compared with a prevailing commercial rate of 9.0%. As demonstrated in the cases of China and Spain, the availability of such favorable early financing will help to increase CSP's viability more rapidly in Morocco.

For the Most Part, a Sunny Outlook

While MASEN offers a bright future for Morocco, numerous risks still cast shadows. As with any high-tech venture, unforeseen technical complications may arise as the project progresses, and actual financial costs may exceed projections. Environmental factors are also key. Any diminution in sunlight could cause major losses in productivity. Earthquakes also pose a major threat to the vast planned arrays of solar panels: The region's history of devastating earthquakes includes at least 629 deaths from a 2004 quake centered near Al Hoceima. In addition, political instability could endanger the undertaking. While the Arab Spring has not yet exerted a marked presence in Morocco, any such turmoil could endanger MASEN's progress. Climate change also poses risks. For instance, storms could block sunlight from reaching solar panels. Since Morocco is on the Atlantic coast, its climate is highly subject to oceanic currents.

Despite the risks, MASEN offers reasons to be optimistic about Morocco's drive toward solar energy. The project's use of leading-edge technology and diverse financial support, from both committed private investors and the state, offers a bright prognosis for success. Key risks make the future uncertain, but present signs indicate that this endeavor is a unique opportunity for the country's future.

This article was written by Steven Feis, Rizwan Naveed and Timothy Racine, members of the Lauder Class of 2016.

Can Japan Keep Its Competitive Edge as 'The Robot Capital of the World'?

The field of robotics has grown dramatically over the last decade, with scientists developing all sorts of models with different functions — humanoid, android, animal, vacuum-cleaner or even cheerleader robots. For years, Japan was at the forefront of the industry as both the biggest manufacturer and largest market for them. But other countries are catching up. China has outpaced Japan to become the biggest maker of robots, while the U.S. and other countries are challenging its technological supremacy by creating highly innovative robots.

Google's 2013 acquisition of a Japanese robotic startup Schaft is another sign of Japan's eroding status in this field. So how did Japan cede its leadership? To understand what happened, it is critical to go back to the roots of Japan's robotics industry.

First, what is a robot? *Encyclopedia Brittanica* defines it as "any automatically operated machine that replaces human effort." It may or may not have a human form, which is in keeping with major developments in the field. Currently, there are two types of robots: industrial and interactive. Industrial robots, of which the best-known example would be the welding-arm variety, are used in manufacturing plants across the globe. Interactive robots are built to perform various activities involving humans, and represent the greatest growth potential for the industry. However, most are still prototypes; few have actually been developed for practical use.

Japan's leadership in robotics began with the development of Japanese manufacturing, particularly in the automotive sector. The country's consistently low birth rate prompted a labor shortage that reinforced the need for increased automation. Given a strong cultural reluctance to use immigration to solve its manpower problems, Japanese manufacturers focused on improving automation. Robots, along with the organization of the production system, played a key role in building the automotive manufacturers' competitive advantage.

In Japanese Culture, a Robot Is a Friend

Pop culture also contributed to Japan's focus on robotics, with robots having been around since the 1950s. Many children grew up with Astro Boy, the popular manga and anime character created by Osamu Tezuka. Astro Boy embodies the characteristics of robots typically seen in Japanese fiction: He displays human emotions, has an outlook similar to that of a human, is inherently good, and works well with his human counterparts. Mark Gilson in *A Brief History of Japanese Robophilia* focused specifically on the influence of Japanese pop-culture characters in the development of real humanoid robots.

This perception of robots as friends and defenders of humans is strongly ingrained in the Japanese psyche, as Shigeaki Yanai of the Japan Robot Association pointed out to Timothy Hornyak in the book *Loving the Machine: The Art and Science of Japanese Robots*: "We have an affinity toward robots, stemming from anime and manga. Robots were our heroes, and they still are. There can be bad robots too, but other robots will always destroy them. That's how it is in Mighty Atom or Ironman No. 28 and the others. From our childhood we think robots are crime avengers."

The perception of robots as friends and defenders of humans is strongly ingrained in the Japanese psyche.

There is a spiritual factor as well, stemming from the Shinto and Buddhist traditions. In the Shinto religion, everything that exists is thought to be imbued with spirit. In Japan, it is not uncommon to see a path laid in a way that winds around a tree or rock so as not to disrupt the deity residing within. And the belief is not limited to natural objects. Spirits can also be considered to reside in manmade things such as swords, dishes, bells and, in fact, robots.

In Japanese Buddhism, too, the boundaries between living and inanimate objects are not as clearly delineated as they are in Western philosophies. Inanimate objects can even attain Buddhahood and enlightenment, and this includes robots as much as it does trees. In *The Buddha in the Robot: A Robot Engineer's Thoughts on Science and Religion*, Masahiro Mori says that "all things have Buddha nature," and expresses the view that there are no fundamental differences between humans and nonhumans.

> [Japan's] low birth rate has resulted in a labor shortage that reinforces the need for increased automation.

Demographic, cultural and spiritual factors have all contributed to a unique perception of robots in the Japanese mind. On the technical side, Japanese culture is known for *monozukuri*, the making of objects, and this is demonstrated in the way its manufacturers maintain a key strength on the hardware side. As would be expected, the Japanese have developed the many parts needed for their robots to work properly, including sensors and controls. However, as artificial intelligence and software become increasingly important, the U.S. robotics industry is gaining ground at Japan's expense.

On top of this shift in focus and the relative strengths of other countries in these areas, the Japanese robotics industry is suffering from a serious disadvantage. Innovation there is driven mostly by universities and private companies, whereas in the U.S., the military plays a critical role. This creates huge disparities in the budgets available for research and development. Recently, the U.S. has taken a global leadership role in the industry. One of its key drivers is the DARPA (Defense Advanced Research Projects Agency) Robotics Challenge, organized by the U.S. Department of Defense. Interestingly, the team currently leading the DARPA Robotics Challenge previously represented Schaft, one of seven companies Google recently acquired as part of its foray into robotics.

Beyond Factories and into Homes

As other countries become major players in robotics, which strengths can Japan leverage to assure its continued leading role in the industry? Even though industrial robots still account for the vast majority of the industry's output, the greatest growth potential lies in the interactive robot segment. Interactive robots could someday be embedded in the daily lives of consumers around the world, such as butler-type and entertainment robots in homes, hospitals, and retail stores. The question is how well the Japanese robotics industry is positioned to seize a share of this market.

Two factors are key. First, on the demand side, are Japanese consumers relatively better prepared than consumers elsewhere to adopt robots into their daily lives? Second, on the supply side, do Japanese manufacturers have the technology and know-how to build breakthrough products?

As mentioned above, robots have been an integral part of Japan's popular culture for a very long time. Furthermore, and in contrast with how they have been popularized in the West, robots in Japan have typically been depicted as friendly and helpful. Several studies have investigated whether consumers, and in particular health-care patients, would react positively or negatively to the presence of robots in their environments. Some products, such as the Paro seal robot, which was built to have a calming effect on patients, have demonstrated a quantifiable improvement in the health of people who interacted regularly with it.

For others, there is still a long way to go. Tmsuk, one of the largest robot makers in Japan, had to cancel production of a humanoid robot that was being tested in hospitals because it was "failing to meet demands of consumers" and had "put patients off." However open Japanese consumers are to interacting with robots, specific robots still need to be appealing — a challenge few of them have met thus far. One of the reasons for Paro's success, for example, is its empathic response to touch and voice. As its inventor, Prof. Takanori Shibata of Waseda University, explains, "when we engage physically with a pet robot, it stimulates our affection."

Human interaction has been one of the areas in which Japan's robotics researchers have focused their attention. Masahiro Mori of the Mukta Research Institute put forward the concept of the Uncanny Valley: the idea that the closer a robot comes to looking like a human being, the more the subtle differences that reveal it to be a robot will disconcert and repulse those interacting with it.

Prof. Hiroshi Ishiguro of Osaka University, creator of one of the most human-like androids, puts it this way: "If a robot is very robot-like, we never apply our human model to recognize it. But if the robot looks like a human, we apply a human model to recognize that robot. Therefore, we notice small differences between an android and a human." A study conducted at Waseda University's robotics center focused specifically on a robot that can express up to seven facial expressions, such as surprise or dislike. This robot, called WABIAN-2, is not only able to move its arms, mouth and head but also its eyelids and lips, enabling it to express subtle emotions that evoke recognition and response in humans.

Much of the work performed by leading consumer companies has focused on making robots that are "cute enough" to be adopted in a human environment. One of the most striking successes was Sony's Aibo, a little robot dog that sold over 150,000 units worldwide. While Sony had to discontinue its entertainment-robot business due to economic challenges in some of its other divisions, other companies have begun to invest heavily in this promising field. Softbank, one of Japan's leading telecom operators and a one-third owner of Alibaba — China's largest e-commerce company — recently received much media attention in Japan for introducing Pepper, a robot for the home. (It is worth noting that Pepper was actually developed by a French firm.)

Cheerleading and Ping-pong-playing Robots

While many robots have been developed as companions for the elderly, major progress has also been made in the field of entertainment and information services. The robot known as Repliee Q1 could easily be mistaken for its model, Japanese newscaster Ayako Fujii. Its creator, Hiroshi, used shape-memory silicon molds to create an android that looks strikingly similar to a person. Says Hiroshi: "Appearance is very important to have better interpersonal relationships with a robot. Robots are information media, especially humanoid robots. Their main role in our future is to interact naturally with people." Humanoids are currently being tested in information-provision roles such as guiding attendees at a large industry conference or giving advice to customers in a shopping mall.

On the entertainment side, there is the Robot Restaurant, which TripAdvisor says is one of the most popular tourist attractions in Tokyo. Featuring a cabaret of live dancers interacting with robots, it is ranked almost as high as historical sites such as Asakusa and the Meiji Shrine. And some fascinating advances were displayed recently at CEATEC Japan 2014, the country's largest consumer-electronics trade show. In one corner, an Omron employee played a game of table tennis with one of the company's latest developments, a ping-pong-playing robot. In another corner, a squad of 10 peppy robotic cheerleaders moved in perfect unison on stage, with Murata's corporate logo displayed in the background.

Repliee Q1 could easily be mistaken for its model, Japanese newscaster Ayako Fujii.

The companies presenting these advances — Omron and Murata — are not officially in the entertainment business. Rather, they provide industrial robots and parts to Japan's manufacturing powerhouses and are critical to the country's economic prosperity. While little known outside business circles, they may be the best-positioned firms to revolutionize the entertainment industry with their world-leading sensor and control technologies. Similar to the way growth in computing power transformed the entertainment industry with electronic video games, major breakthroughs in sensors and controls are taking robots beyond factories to engage with and entertain people in their everyday lives.

Which areas of our lives will be affected the most by the robot revolution? How long will it take, both in Japan and in other countries, for robots to become mainstream products? While no one has answers to these questions yet, one thing is clear: Companies across the world and in many industries want a slice of the robotics pie, and they are investing heavily to gain or maintain a competitive edge. Whether the winners will be startups in Boston, industrial-parts makers in Japan, or university spin-offs in Europe, this race may very well define the Rockefellers and Fords of the 21st century.

This article was written by Alexandre Attia, member of the Lauder Class of 2016.

How China Came to Rule the Global Solar Industry

Over the last two decades, Chinese solar photovoltaic (PV) production has grown from almost nothing to nearly 60% of the world's total, according to the Earth Policy Institute. Some attribute this outcome to unfair trade practices, while others argue that key incremental innovations have enabled China to leapfrog ahead of its competitors. How have Chinese firms been so successful? And, can they be dethroned?

The solar PV industry has experienced massive growth in the past few decades. In 2005, just before the Kyoto Protocol — the U.N. treaty which set internationally binding emission reduction targets — took effect, the accumulated installed capacity across the world was less than 5,000 gigawatts (GW). In 2008, however, capacity had grown to about 20,000 GW and by 2012 had reached an impressive 100,000 GW, according to reports from the Earth Policy Institute.

> Technological advances are frequently an important driver of cost reduction. But in the case of China and the solar industry, such advances do not seem to have been critical to its recipe for success.

From a demand perspective, it is clear that European countries, supported by incentives, have led the way. In 2010, for example, they were responsible for 75% of the global solar PV installations. Germany alone, sustained by incentives such as feed-in tariffs (financial incentives to switch to solar energy), had 44% of the installations in the 2010s, while the U.S. and China had 6% and 2%, respectively. The huge demand drove supply. Installed capacity for solar panels has grown more than twentyfold in the past 15 years, from 1.4 GW in 2000 to 40 GW in 2010, based on the World Bank reports on solar energy. In particular, China's production share increased significantly, making it the world leader in 2007. This extreme expansion in capacity drove costs downward. From 1992 to 2008, the cost for installed solar panels decreased from $16 per kilowatt to $6, according to the World Bank's review report on solar energy.

China's Advantage?

Technological advances are frequently an important driver of cost reduction. But in the case of China and the solar industry, such advances do not seem to have been critical to its recipe for success. Chinese wafer manufacturers typically use crystalline silicon, which has not seen substantive improvement in its efficiency in quite some time. From 16% cell efficiency in 1976, the technology was enhanced to reach 24% efficiency in the mid-1990s, but has stagnated at about that value for the past 20 years. Compared to the semiconductor industry, where transistor size improved by leaps and bounds, innovative advances in the crystalline silicon-based solar industry have been slower and rarer.

Multi-junction cells and other upstream next-generation technologies do have potential for making solar cells more cost effective. For example, starting at the same 16% efficiency as their crystalline silicon counterparts in the mid-1980s, the efficiency of multi-junction cells nearly doubled to 30% in the mid-1990s and has attained an impressive 44% efficiency in the last few years. But unfortunately, this technology is still in its nascent R&D stages and is not ready for the mass market. What gives China its prominence in the market today is not improved technology, but process.

China has a distinctive manufacturing process, characterized by a highly integrated supply chain. Chinese companies dominate most phases of the global supply chain in the solar PV industry. On a worldwide basis, Chinese manufacturers account for 530 of 1,100 module manufacturers, 162 of 271 cell manufacturers, 142 of 178 wafer manufacturers and 346 of 640 inverter manufacturers. This integrated supply chain has greatly reduced raw-material and transportation costs, which account for a large proportion of product costs. In turn, benefitting from large-scale production, Chinese factory workers have gained skills and expertise. This has led to a much more efficient production process in that country.

According to the president of the China Electronics Materials Industry Association, the energy consumed to produce polycrystalline silicon is 120-150 kilowatt hours at U.S. and German companies, but only 84 kilowatt hours at Chinese companies.

This winning combination of reduced costs for production, raw material, transportation and labor has enabled China to have competitive pricing in the global market. For example, while the production cost of a solar module in Korea, produced by one of the most cost-efficient factories in the world, is 72 U.S. cents per watt, the cost of a Chinese module is 55 U.S. cents per watt.

Government Support

Policy, too, has played an important role in the competitive pricing of Chinese solar products. Fifteen years ago, China was far from being the world's leader in solar PV production. The development of the country's industry has been characterized by four phases, each with a different core of supporting policies.

In the 1990s, the Chinese government decided to bring electricity to remote areas of China. The plan was to drive progress through domestic demand instead of exports. Through the Brightness Program and the Township Electrification Program, the government established goals and provided capital to provinces to acquire PV cells. Some of today's large successful Chinese firms such as Trina Solar and Yingli were created at that time.

After years of development, the local market was still very small, accounting for about 2% of global capacity. In 2004, the Chinese government changed its strategy and decided to incentivize the growth of the solar PV industry by means of a much more export-oriented policy. The plan was to make China one of the global leaders in low-carbon energy by capturing booming European markets such as Germany and Spain. These countries had implemented incentive policies such as feed-in tariffs for solar energy, but still had a deficit in local production, according to an analysis of the evolution of solar PV policy by Sufang Zhang, a professor at North China Electric Power University, and others. Local administrators throughout China were directed to create funds and provide incentives such as special rates and capital to invest in capacity. Many companies chose to raise funds through IPOs in the U.S.

After the global financial crisis, the demand for solar PV declined markedly in Europe. One of the Chinese government's responses to this was to nurture the local market, creating subsidies for the acquisition and implementation of solar-panel projects. This initiative, together with the establishment of feed-in tariffs, caused a huge expansion of the local market. Installed solar PV capacity rose from 300 megawatts in 2009 to 33,000 in 2011.

The Chinese leadership decided to maintain industry incentives by opening a line of credit of more than $30 billion for manufacturers. With production capacity growing more than eightfold from 2009 to 2011 and the global demand for solar PV falling, China faced an overcapacity problem. An industry consolidation occurred around that time. China today has approximately 530 manufacturing factories, down from 1,000 in 2008.

In April 2013, European manufacturer ProSun Glass accused Chinese solar glass manufacturers of "dumping" solar panels to undercut their European rivals.

Since 2012 the Chinese government has had to deal with excess installed capacity of close to 27 gigawatts, almost 90% above global demand. This glut reached the startling figure of 190% in 2012 and culminated in a lowering of prices. It also opened the door for trade disputes.

Trade Tensions Rise

Trade disputes have become common in the solar industry. While China argues about protectionism by European nations and the U.S., those governments in turn accuse China of "dumping" its PV products in their markets. (Dumping means exporting a product for less than the cost of production.) Three notable trade disputes with the E.U. and U.S. have set the tone for the debate currently surrounding the industry.

In April 2013, European manufacturer ProSun Glass accused Chinese solar glass manufacturers of "dumping" solar panels to undercut their European rivals. The European Commission launched an investigation of solar glass products imported from China. Interestingly, the dispute was resolved following the calling-off of China's investigation of European wine exporters allegedly employing similar "dumping" activities.

The European Renewable Energy Council projects huge growth in the solar energy market by 2040, on the order of 1,330 gigawatts, or 33 times the present-day market.

The U.S. takes a stronger position in trade conflicts with China, especially because both countries treat the solar-panel industry as a key player in their development strategies and encourage domestic manufacturers to expand internationally. The first dispute began in 2011 with a trade complaint filed by a coalition of seven U.S.-based manufacturers, led by SolarWorld Industries America, a subsidiary of a German solar-panel manufacturer. Chinese companies were able to evade substantial levies by importing parts from Taiwan and assembling them in China, which is not subject to high tariffs.

This led to a second complaint in 2013, aimed at closing the loophole of previous Chinese resolution tactics. But Michael Warady, a former supply-chain consultant at Clean Energy Associates, an advisory based in China, estimates that even with the increased tariff, Chinese solar-panel products will still be marketed at significantly lower prices.

The ongoing disputes have not shaken China's dominant position in the global market. But they indicate that high market instability and political concerns will continue to play important roles in the solar industry.

Low Investment in Technology

Currently, the solar industry is driven by mass production and low prices. The greatest consumers of panels — large energy projects such as solar farms — struggle with competition from other technologies such as gas and wind. To make their investment viable and their products as attractive as other energy sources, solar companies are willing to pay only a small amount per panel.

This cost-driven strategy has caused the industry to reduce investment in technology. According to both Warady and Andrew Gao, a project manager at Clean Energy Associates, this situation is not likely to change in the next five years. Unlike the semiconductor industry, which has a short innovation cycle of one to three years, the solar industry generally needs more than 10 years of R&D to achieve a technological breakthrough. Solar companies are reluctant to invest in new technology without government support, so there is little chance of a disruptive innovation in the near term.

Will China Win the Day?

The European Renewable Energy Council projects huge growth in the solar-energy market by 2040, on the order of 1,330 gigawatts, or 33 times the present-day market. But how the industry will develop, and which players will dominate in the long term, is unclear.

There are several potential scenarios. One is that Chinese companies will wipe out their global competitors and establish a monopoly. If the current market situation continues, major U.S. and German companies that have competitive disadvantages in pricing could be forced into bankruptcy. But as the U.S. government is committed to supporting the renewable-energy industry — especially the solar industry — it is unlikely that it will simply allow all domestic companies to be squeezed out of the marketplace. While current support is focused mainly on employment retention, governments may take more radical steps, such as increasing subsidies in investments and acquisitions or lowering interest rates in debt-raising through export-import banks. The result of such moves may be an even more intense market in which issues are more political than business-oriented.

Another possibility is the commercialization of disruptive technology, such as Hyperion, a machine developed in 2012 by Twin Creeks Technologies. This innovation reportedly cuts the cost of producing solar cells in half. By reducing costs or improving quality, the introduction of advanced technology could change the current cost-driven model and pose a tough challenge to low-margin Chinese factories.

As we have seen, there are several reasons for Chinese companies' success in the solar industry. Early government policies increased production significantly within a short period. On the way to reaching economics of scale, Chinese companies were able to benefit from the integrated supply chain, industrial expertise and a cost-efficient production process. These factors further enhanced their ability to provide low-cost solar products and dominate the global market. Trade disputes that attempted to undermine China's progress have apparently failed, as the country is still much more competitive than any other economy.

The future development of the solar industry will depend on the reactions of Western governments to the Chinese production system and the possible rise of disruptive technologies. Chinese companies need to maintain a sustainable leading position, but only the future will tell us if they can achieve complete domination of the global market.

This article was written by Daniel Bouskela, Harshad Maral and Chelsie Zhang, members of the Lauder Class of 2016.

How French Companies in Africa Use Deep Roots to Grow New Business

Today, many people think that to consider France a major economic global power reflects an antiquated worldview. The French themselves are the first to disparage their country and its poor economic performance, fueled by what they see as the government's shortsighted economic policies. However, French companies have been able to harness growth in emerging markets, particularly in Africa, and play a significant role in these economies.

Only 20 years ago, French businesses represented as much as 10% of the commerce in Africa. While this number has since declined to 5%, looking at the situation percentage-wise can be misleading. "The size of the cake is simply growing larger than France's portion," noted Etienne Gros, director of the French Council of Investors in Africa, referring to Africa's substantial economic growth over the past decade.

Despite numerous competitors battling for control of the African market, French businesses have been able to distinguish themselves through a commitment to quality, innovation and cross-cultural understanding. This success stems not only from colonial ties, but from African consumers' growing connections with Western culture. Among the notable French businesses operating in Africa are Pernod Ricard, Orange and LaFarge. Each has employed some interesting strategies to win a substantial share of the African market.

Selling a Lifestyle

With a gastronomic tradition recognized by UNESCO's "world intangible heritage list," France is perhaps best known for its rich culinary traditions of food, wine and spirits, which permeate all levels of French society. However, while sales and consumption of wine and spirits in France remain strong, producers have looked increasingly to new markets in Asia and Africa. The expanding middle classes in these regions are attracted by both the high quality and the prestige of French brands.

Wine and spirits producer Pernod Ricard reflects France's gastronomic traditions of quality and conviviality, exporting both traditional French liquors and premium international brands around the world. With a history dating back to the early 1800s, what was once a small absinthe distillery in rural France has transformed itself into the No. 1 producer of premium and prestige spirits in the world, including iconic brands such as Absolut vodka and Chivas Regal Scotch whisky.

After successfully expanding into emerging markets, beginning with Asia in the 1990s and Latin America in the 2000s, Pernod Ricard has recently set its sights on sub-Saharan Africa as the next major regional market with huge growth potential. Alexandre Ricard, grandson of founder Paul Ricard and the firm's future CEO, said that from a consumer standpoint, "Africa will be in 15 years where Asia is today." After accelerating its regional presence in 2012 to include new affiliates in Namibia, Angola, Ghana, Nigeria and Kenya, the company has already seen sub-Saharan Africa's contribution to net sales reach 5%.

Despite its initial successes in entering African markets, Pernod Ricard is fighting to gain market share from entrenched companies such as the U.K.-based beverage companies SAB Miller and Diageo, which have operated on the continent in various forms since the 1890s and 1920s, respectively. But while these competitors are focused on creating new local brands of beer and spirits, Pernod Ricard has focused on introducing its entire portfolio of brands through a high-value strategy of "premiumisation." It has concentrated on developing international prestige brands concurrently with more affordable "standard" brands that serve as a gateway to prestige consumption.

For example, to compete within the already-crowded whiskey market in sub-Saharan Africa, the company has introduced both the international prestige brand Chivas Regal and the more affordable Passport Scotch. An African consumer is likely to begin drinking Passport before moving on to Ballantine's and eventually Chivas Regal. As consumers move upward through the Pernod Ricard portfolio, its brands become increasingly profitable and entrenched within a given market.

Building on its reputation for quality, Pernod Ricard is successfully gaining market share as a result of a commitment to innovation paired with cultural awareness and understanding. With an almost entirely local staff in sub-Saharan Africa, it has positioned itself as a lifestyle brand, projecting conviviality, cosmopolitanism and luxury as part of its appeal to African consumers.

To expand its footprint on the continent, the company has been making large-scale investments in pan-African media to reach the widest audience possible. It uses locally relevant content that drives community-building, from consumption to digital touch points with social media. To develop its digital marketing strategy in Africa, the company created the International Business Game, a competition for local universities. In addition to generating creative, locally sourced marketing content, the company uses the competition as a recruiting tool to identify top local talent.

> "Africa will be in 15 years where Asia is today."
>
> — Alexandre Ricard

Launching creative special events is another of Pernod Ricard's successful strategies. The events emphasize the international and cosmopolitan appeal of its prestige spirits while remaining sensitive to local needs and interests. For the introduction of the Martell Cognac brand in Nigeria, the company partnered with the Italian-based ethical fashion line Kinabuti for the launch of its Nigerian-inspired 2013 collection, and hosted an exclusive fashion show and after-party in one of the most upscale neighborhoods of Lagos. Guests included celebrities, fashionistas and ambassadors.

With a strategic blending of its traditional image with innovative, cosmopolitan and culturally relevant imagery, Pernod Ricard seems poised for continued growth and increased profitability in African markets.

Harnessing the Telecom Explosion

France occupies a strong position in the global telecommunications industry. In particular, the French multinational Orange is one of the world's leading telecommunications operators, providing consumer and business solutions in Internet, television, landline and mobile services to over 230 million customers worldwide.

Africa represents an important strategic interest for Orange, as it is the second-largest mobile telephone market in the world: It is predicted that there will be 500 million mobile phone users on the continent by 2016. Orange has already made significant inroads into this market, establishing itself in 21 countries in Africa and the Middle East, and exceeding 100 million customers in this region in 2013.

In addition to being a presence in English- and Portuguese-speaking African countries, Orange has been able to gain a particular market advantage in countries where the French language holds strong historic, cultural and political ties. These countries include Morocco, Tunisia, Lebanon, Senegal, Côte d'Ivoire, the DRC, Cameroon, Central African Republic, Mali, Guinea, Niger and Mauritius. Orange is able to use France's association with these countries to better address challenging business and political environments. For example, when the company sought to expand into the DRC in 2009, its chairman accompanied then-French president Nicolas Sarkozy on an official visit to the country. He spoke directly with DRC president Joseph Kabila to express his company's desire to enter the Congolese mobile market. Orange quickly received its mobile license and then acquired Congo Chine Telecom (CCT) in 2011.

Orange has become one of the leading mobile-money service providers in Africa, with more than nine million customers in 13 countries.

In addition, Orange has been able to leverage the ties between people who emigrated from those countries to France and their friends and family back in Africa, providing customized services to appeal to the diaspora-related market. One of the company's offerings includes international airtime transfers, which allow Africans living in other countries to send credit to their relatives at home. Orange's market shares in both France and French-speaking Africa enable it to dominate in this type of service.

Moreover, in a cellphone market crowded with providers, Orange offers innovative and specialized services as a means of tipping the scale. The company has developed two Technocenters — in Amman, Jordan, and Abidjan, Côte d'Ivoire — which focus on the development of new value-added product and service offerings for consumers in the region. According to Frost & Sullivan ICT industry analyst Ishe Zingoni, Orange has focused on developing new technologies to tap into "opportunities presented by local particularities, such as a significant lack of access to credit cards, low broadband penetration as well as the positive, unprecedented uptake of mobile services."

Orange has become one of the leading mobile-money service providers in Africa, with more than nine million customers in 13 countries. Orange Money allows customers to link an account to a mobile number, transfer money and even receive wages or pay bills. To expand the service, in 2013 the company launched partnerships with Visa and Total that provide customers with access to Visa card services and the ability to make withdrawals and deposits at Total service stations. These offerings have enormous potential in Africa, where less than 15% of the population has bank accounts but 66% of people have access to mobile phones.

StarAfrica.com is another example of Orange's innovations in reinforcing its brand and targeting its ideal population. Launched in 2010, the site offers news, sports and music from around the world and targets the 18-25 age bracket, which comprises a critical mass of mobile phone and Internet users. As noted by StarAfrica.com's head of operations and partnerships, Laurence Ramananantoandro, "Orange realized the potential of the acquisition, creation and diffusion of content as a way to attract customers in new markets, particularly as the company expanded into Internet provision." Produced in French, English and Arabic, the site already has over 1.5 million unique viewers per month. StarAfrica.com is also a key e-commerce platform for Orange in Africa to distribute services such as Orange Money and cell phone credit.

Orange couples innovation with consistently superior quality and a focus on customer service. In 2013 it was recognized by Frost & Sullivan with the African Telecommunications Company of the Year Award. According to Frost & Sullivan, "Orange is the only market player that places such a strong focus on improving customer satisfaction. It conducts regular customer surveys that are used to help develop services that best reflect its customer's needs." The company also consistently invests in its network infrastructure and in new ways to expand coverage to rural areas, including a 3G network in all African countries and connection by satellite or mobile solar-energy stations for more rural areas.

As a result of Orange's focus on innovation and quality and its savvy use of strong cultural and historical ties with Francophone countries, its operations in Africa and the Middle East are the company's strongest growth driver.

Maintaining a Competitive Advantage

Historically, France has had a competitive advantage in construction and infrastructure, stemming from its strong public sector and centralized education system of "grandes écoles" for engineers. However, the French domestic construction industry has yet to recover from the global financial crisis. The prolonged downturn has sent many French companies in search of growth overseas, and Africa is one of the primary regions these firms are targeting. The continent's rapid population growth, urbanization and emerging middle class have all converged to create an overwhelming demand for large-scale infrastructure and housing projects there.

China is another big player in African construction. But while Chinese companies tend to focus on undercutting the competition, French construction companies have been able to maintain a competitive advantage through their reputation for high-quality, innovative approaches and a cultural understanding of the region.

LaFarge, a French industrial company that specializes in cement, construction aggregates, and concrete, is a perfect example of these strategies at work. The company has had a long history of operating in Africa, first entering North Africa 30 years after its founding in 1833. In 2013, the Middle East and Africa accounted for over a quarter of LaFarge's sales, with production sites and quarries in 16 African countries including Morocco, Kenya, Nigeria, Uganda and Zimbabwe.

LaFarge's reputation for high-quality building materials has enabled the company to differentiate itself from its Chinese and local competitors. It follows a stringent quality-assurance process to help ensure consistency in all of its end products. Raw materials undergo rigorous quality checks, and its concrete is processed in high-tech plants rather than being mixed on-site, which can result in inconsistent quality.

In addition, LaFarge is focused on developing innovative products that maximize energy efficiency, reduce waste, and are environmentally friendly. These qualities are all increasingly important in rapidly urbanizing environments. For example, in Malawi, the practice of using clay bricks for construction had contributed to deforestation. To address this problem, LaFarge created a new, low-cost product that uses a small quantity of cement mixed with local soil.

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Finally, a critical part of doing business in Africa involves integrating with local cultures. Alan Kreisberg, senior vice president for sustainable development at LaFarge, has significant experience working with corporate partnerships, corporate social responsibility policies and sustainable development programs. "LaFarge's operations in Africa take a more holistic approach to doing business than in other regions where the company operates, placing a greater emphasis on engagement and development of local communities," he said. In contrast to Chinese enterprises that typically bring in their own labor and tend not to integrate into the societies in which they are living, LaFarge makes an effort to hire locally.

The company also invests in community betterment. Some of its key project areas include education for girls, job creation, IT training and road safety. These local programs not only contribute to community development, they also build trust and increase local support for the company's projects. This business style comes relatively naturally to French enterprises that have a long history of corporate social responsibility.

LaFarge's high-quality, innovative products and culturally integrated business model will likely help the company continue to differentiate itself in African markets going forward.

Although they represent very different industries, Pernod Ricard, Orange, and LaFarge offer three examples of how French companies are distinguishing themselves from their competitors in Africa through quality, innovation and cross-cultural understanding. As Africa becomes an increasingly important global market due to its high economic and demographic growth rates, it remains to be seen if French companies will be able to continue to sustain their competitive advantages.

This article was written by Katharine Bigott, Katie Fackler and Erica Hall, members of the Lauder Class of 2016.

Private Equity in Peru and Colombia: At a Crossroads

Private equity (PE) is a fledgling industry in Latin America, but has great potential. According to ColCapital, an association that has become the main representative of the industry in Colombia, PE funds in Latin America invested $8.9 billion in 233 projects and companies in 2013. However, the industry is now at a critical juncture. Recently, economic growth in emerging countries has begun to slow. And while some analysts say the slowdown is a cyclical bump in a longer-term growth story, investors often focus on more immediate prospects for returns.

PE investors still expect high returns — about 20% annually. But they have largely been unable to exit their investments because of an illiquid market, meaning these assets cannot be sold without a substantial loss in value.

These market conditions have created a difficult environment for PE firms in some Latin American countries. The next two to three years will be key to continued PE investor interest. One strategy for combatting the challenges of decelerating growth while maintaining a high level of investments and returns is to shift focus more toward sectors supported by the emerging middle class, while at the same time accelerating the pace of successful exits. This trend is already becoming evident in Peru and Colombia.

According to the International Monetary Fund (IMF), economic growth is decelerating in emerging markets and developing economies. World GDP declined from 5.2% in 2010 to 3.0% in 2013 (though it is forecast to rise to 3.5% this year). Latin American and Caribbean countries are no exception to the slowdown. GDP fell in the region from 3.1% in 2012 to 0.9% in 2015 (though it is expected to recover to 2% in 2016). Back in 2010, Latin America grew about 6%.

And in its spring 2015 Economic Outlook, the IMF wrote that "The downturn in global commodity markets remains an important drag on South America's economies, even as lower oil prices and a solid U.S. recovery support activity elsewhere in the region."

Within the averages, some countries fared better, though still suffer from slowdowns. In Colombia, for example, economic growth declined from 6.6% in 2011 to 4.9% in 2013 and is forecast by the IMF to be 3.4% and 3.7% in 2015 and 2016, respectively. In Peru, where growth in 2012 was 6%, the latest IMF projection is for 3.8% in 2015 (recovering to 5% in 2016).

Bancoldex, a state-owned commercial bank in Colombia, began focusing on private equity in 2009. Of the $422 million it committed, only about 5% has been returned.

To overcome these macroeconomic headwinds, PE firms will have to invest in sectors that are in line to grow faster than the general economy. According to Carlos Parodi Trece, a professor of economics at the Universidad del Pacífico in Lima, the mining and construction sectors in Peru are slowing, while the food, retail, education, health and banking sectors are growing because the country's emerging middle class supports these areas. As reported by market research firm Ipsos Peru, the B, C and D classes in Peru (i.e., the middle class) grew from 48% of the total population in 2003 to 57% in 2011. So to achieve high returns, PE firms will need to consider more investments in companies that target those demograpics.

The Emerging Middle Class

This is precisely the strategy that has been implemented by the two largest PE firms in Peru: Nexus Group and Enfoca. Greg Mitchell, an associate at Nexus Group, notes that his firm looks at two factors when investing: First, the company needs to be connected to the emerging middle class. Second, Nexus must have the opportunity to take control of the management team and help the company grow. To determine whether a specific company meets those criteria, Nexus conducts an in-house analysis about the sector and then visits not just potential targets, but also their competitors. Once it is convinced there is an opportunity for growth, Nexus purchases a majority stake in the company and inserts new members on the board to help direct the management team.

Moreover, Nexus aims to invest in a mix of companies that are involved in every aspect of life for the middle class. For example, it has invested in a variety of restaurants, from those that serve breakfast, lunch and dinner, to just coffee, and in various styles from delivery to food court to stand-alone operations. It has also made investments in Peruvian supermarkets (InRetail), health-care companies (Inkafarma), home-improvement stores (Promart), credit cards (Finance One) and education (schools and Innova UTP).

> Enfoca has pursued an aggressive expansion strategy to take advantage of the emerging middle class's enthusiasm for do-it-yourself home improvement, a sector that grew 10% on average annually between 2008 and 2013.

Similarly, Enfoca has placed most of its investments in sectors supported by the middle class. According to Enfoca's director, Alberto Pasco-Font, the firm's strategy is to invest in mature companies that are leaders in their respective industries and that can be expected to grow with the middle class. For example, Enfoca has investments in home improvement (Maestro), infrastructure (Talma) and health care (ONCOSALUD). Unlike Nexus, which does most of its research in-house, Enfoca hires consulting firms such as McKinsey & Co. to conduct customer surveys and verify that middle-class demand exists for the products and services provided by the companies it's considering buying.

Gerardo Bacigalupo, an associate at Enfoca, says the firm uses comparable data from neighboring Chile's middle class in order to predict trends in Peru. He points out, however, that although the two countries are similar, the comparison is not perfect due to Peru's unique market with regard to population distribution, geography and politics. In the case of Maestro, which accounts for more than half of Enfoca's investments, Enfoca has pursued an aggressive expansion strategy to take advantage of the emerging middle class's enthusiasm for do-it-yourself home improvement, a sector that has grown 10% annually on average between 2008 and 2013.

Since Enfoca made its original investment in Maestro in 2007, the average dollar amount of each sale has tripled for the retailer and the number of stores has doubled. Following this success, Enfoca is seeking similar opportunities in sectors such as education, finance and telecommunications. Maestro offers one example of how it is possible to achieve high returns in an environment of declining economic growth.

Peru and Colombia: More Differences

It appears that many other PE firms in Peru are focusing their investments on the emerging middle class in order to maintain high returns. Even though the two major PE firms have not yet had a true exit, their investments have seen aggressive growth and are projected to continue providing the desired returns.

Parodi agrees that the middle class offers a solid source for growth and that it will continue over the long term, but predicts that the pace will be minimal over the next five years. PE firms, he notes, will continue to be interested in identifying companies in relevant sectors for the growing middle class.

The PE industry in Colombia has taken a slightly different approach. In fact, according to Isabella Mendez Muñoz, executive director of ColCapital, there are more differences than similarities between the two dominant market strategies. PE in Colombia only began in 2005, several years after Peru's, but has since grown to more than $4 billion in some 33 funds.

The Colombian market is thus more mature than Peru's when it comes to size, and its investments are far more diversified and more complex than Peru's two principal funds. For example, MAS SEAF, a PE firm in Colombia, invested in Andres Carne de Res, a restaurant geared toward the upper class. Andres Carne de Res was family-owned and wanted to expand but lacked the capital and the know-how. MAS SEAF provided the resources and successfully transformed it into a chain of 15 express restaurants and two dine-ins throughout Bogota.

However, Muñoz describes one important similarity between the two countries: They both struggle with illiquid exit markets. For example, Bancoldex, a state-owned commercial bank in Colombia, began focusing on PE and invested in several funds in 2009. Of the $422 million it committed, only $22 million, about 5%, has been returned. In addition, ColCapital notes that of the 118 PE investments in Colombia that it tracks, only 25 have made it through the re-sale stage. The industry now faces a key moment as the first funds begin to approach what would typically be the end of the cycle — at about 10 years.

Why is it so difficult to successfully exit an investment in this region? One reason is that the IPO market, which provides the majority of PE exits in the U.S., does not exist for firms in Latin America. According to EY, the multinational professional services firm, IPOs accounted for 61% of PE exits from 2006 to 2013 in the U.S., and that number approaches 70% in the Asia-Pacific region. *Forbes*, on the other hand, suggests that the IPO exit strategy will slow while "sponsor-to-sponsor transactions will broaden and deepen." But in Peru, where there are only two PE firms, this option is not viable.

In Colombia, Muñoz points out, investors in PE and venture-capital funds appear restless at the moment and are being cautious as they look for their first investments to yield results. For this reason, she says, the next two years are expected to be intense with respect to investments and exits, while local fundraising will be relatively limited. As in Peru, U.S. PE funds and European family offices seem to be gaining interest in the market, although they have yet to become active, she adds.

Jeff Thelen, formerly of Tribeca Capital in Bogota, also notes that illiquidity in the Colombian markets has affected the ability to raise funds. He agrees with Muñoz that some investors are unhappy with the dearth of successful exits and have decided to curb their investments in subsequent funds until they see some positive outcomes. In essence, the investors are giving the fund managers an ultimatum: Show results or the money stops.

A Turning Point

As a result, PE fundraising in Colombia fell from $10.3 billion in 2011 to $5.5 billion in 2013. Many investors expect a flurry of exit activity over the next two to three years. The industry may be at a turning point. ColCapital predicts that if these exits are successful, U.S. institutional investors, and other international investors such as European family offices, will increase their stakes in the Latin American PE industry. But if these exits are unsuccessful, the industry may see a steep decline.

Investors in Colombia are unhappy with the dearth of successful exits and have decided to curb their investments.... They are giving fund managers an ultimatum: Show results or the money stops.

Thus, PE firms in Latin America are fighting two simultaneous challenges. While economic growth in the region is decelerating, the firms have to find successful exits in illiquid markets to achieve the high returns they promised investors and, in turn, while continuing to raise capital for their subsequent funds. Muñoz notes, in 2015 "we expect a lot of activity in terms of acquisition and exits of PE fund portfolio investments, with very limited fundraising activity and a slow pace of new fund formations."

If the industry continues to invest in companies supported by the emerging middle class, and if these investments can achieve successful exits, the industry is primed for a phenomenal expansion. If, on the other hand, exits fall flat or the emerging middle class experiences a recession with adverse effects, such as what the U.S. experienced in 2008-2009, it is likely that the PE industry in Latin America will stumble before it is able to take the next step.

Local industry experts remain optimistic. According to Muñoz, European family offices and American investors are "increasingly more interested in coming to invest." Results over the next few years will be very telling.

This article was written by Aleksas Juskys and Andres Panza, members of the Lauder Class of 2016.

Private Equity in Russia: A Market Unlike Any Other

In 2011, Russia became the world's leading oil producer, surpassing Saudi Arabia. It is also the second-largest producer of natural gas and holds the world's largest natural gas reserves, second-largest coal reserves and eighth-largest crude oil reserves. Further, the country is a top exporter of metals such as steel and primary aluminum. Today, with the world's eighth-largest economy and sixth-largest population of Internet users — outnumbered only by China, the U.S., India, Japan and Brazil — Russia represents one of the most compelling global technology markets.

Even though only 60% of its population has Internet access, Russia's audience of over 80 million users is the largest single online population in Europe. The sheer magnitude of the Russian market supports investment to build large businesses that can not only serve the domestic market, but also expand internationally. Yet despite the seemingly enormous potential of this market, it has failed to attract a level of private equity investments comparable to what is found in some of the other leading emerging economies.

In 2013, Russia had a ratio of private equity investment to GDP of only 0.01%, much lower than that of other emerging markets such as Turkey (0.03%), China (0.08%), Brazil (0.18%), India (0.21%) and the U.S. (1.01%), according to the Emerging Markets Private Equity Association. Moreover, unlike other emerging economies, Russia has failed to attract many of the largest PE funds or the leading venture capital funds that have shaped the PE/VC industry over the past 20 years. There are only a few major names — both PE and VC — that are also investing in Russia, most notably TPG Capital and Bessemer Venture Partners. The list of active funds in the Russian market is relatively small (officially there are approximately 80 funds) and comprises predominantly local PE and VC funds.

Yet the few such firms operating in Russia appear to be doing very well. The ROI for PE ventures in Russia is estimated to be around 20%, significantly higher than the rates in the other BRIC economies. (The BRIC nations — Brazil, Russia, India and China — are all at similar stages of economic development and are viewed as having great growth potential based on their size and large populations.) What business models did these successful PE and VC funds adopt to achieve such high levels of ROI? Why is the PE/VC sector in Russia relatively underdeveloped? And what are the future outlook and specific opportunities for the PE sector in Russia?

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Factors Holding Back Private Equity

PE and VC investment in Russia present a number of peculiar challenges that have contributed to their slow growth there. One key element is the fact that the Russian investment scene remains fundamentally opaque and underdeveloped. The lack of an investment tradition or fully developed financial and regulatory institutions results in serious coordination problems: Investors and entrepreneurs can have a hard time identifying opportunities, and there is a significant lack of understanding among Russian business owners and managers about the benefits that the PE sector can provide.

The regulatory environment remains highly opaque as well. With its burdensome and continuously changing requirements, it puts considerable strain on private companies and investment funds by making them vulnerable to extortion and corruption from different regional and national government institutions and individual bureaucrats. The brusque and efficient manner with which the Russian authorities dealt with Mikhail Khodorkovsky, the Russian oligarch who was jailed for alleged tax evasion, and with Hermitage Asset Management, whose offices were raided by Russian security services, continues to produce alarmed shivers among Western investors and diminishes the attractiveness of the Russian PE market. The uncertain application of tax codes, the difficulties in protecting intellectual property, and the relatively high crime rates in Russia further limit the perceived desirability of the market.

"Whenever a country's or a company's image becomes disconnected from economic and business reality, it usually presents an opportunity for investors to profit from it."

– Michael Calvey

Another factor that has impacted the PE industry is Russia's historical inability to provide adequate infrastructure across its vast expanse. This issue has been compounded since the fall of the Soviet Union by consistent government under-investment and a focus on repairing existing infrastructure in lieu of constructing major new projects. This has, in turn, limited the ability of growing companies to expand out of the maturing markets of Moscow and St. Petersburg into secondary cities that have enormous growth potential, most notably those along the Volga River system and in southern Siberia. Simply put, Russia's deficient infrastructure has prevented its economy from reaching its full potential and has, as a result, discouraged many PE firms from investing in the Russian regions.

Finally — and probably most pertinent to the current geopolitical situation — Russian foreign policies since Vladimir Putin's ascent to power have generated a negative image of the country for Western investors. Foreign-policy actions such as the Second Chechen War, the 2008 conflict with Georgia and, most recently, the crisis in Ukraine and the annexation of Crimea have put Russia on the wrong side of public opinion in many Western countries. This, in turn, has discouraged many Western institutional investors from committing capital to Russian PE funds, thus limiting the total pool of capital earmarked for investment in Russia and the former Soviet republics (Commonwealth of Independent States, or CIS) in general.

Thinking Outside the Box

As difficult as Russia's environment may be for developing private equity firms, there are still many success stories that illustrate the tremendous potential of this market. Various funds have applied diverse strategies to manage its peculiarities. The overviews that follow exemplify some of the most effective approaches to success in the PE and VC spaces in Russia.

Baring Vostok: A Foreign PE Fund with the Right Local Team

Baring Vostok (BV) sees opportunity in what it identifies as "irrational bias about Russia," overcoming domestic challenges by employing a team of experienced local experts and reaching its fundraising goals by maintaining a reputation as an inherently Western firm.

It is best known as the company that invested in the Internet search engine Yandex — which went from generating $75,000 in profit in 1998 to raising $1.3 billion in a U.S. IPO in 2011 — resulting in a more than 600-fold ROI. Beyond that, BV is one of the largest PE funds in Russia. Since 1994 it has invested over $1.8 billion in the country, and its most recent fund (V) has over $1.6 billion in assigned investments. According to Michael Calvey, the firm's founder and senior partner, "Whenever a country's or a company's image becomes disconnected from economic and business reality, it usually presents an opportunity for investors to profit from it."

While BV was started by a foreigner and carries the international Baring brand, the BV team comprises a specially assembled crew of locals who know how to identify Russian investment opportunities, overcome Russia's unique regulatory challenges, and woo both potential partners and meddlers. When it was founded, BV brought in a group of lawyers and investors from ALFA Bank to guarantee that the team would be able to address rule-of-law, corruption and tax issues; and the firm has not been afraid to defend its property rights in Russian courts. Since then, it has brought in more analysts, former auditors and lawyers with both Russian and international experience. In a brilliant PR move, BV employs, on a part-time basis, Alexey Leyonov, a former major general in the Russian air force and the first man to walk in space. His mere presence can dazzle meddling government regulators, and help to reel in hesitant partners.

BV chooses investments that avoid Russia's pitfalls and work to the country's strengths. It invests in those sectors that are most attractive in large developing markets (e.g., fast-moving consumer goods, telecommunications and financial services) and in sectors that synergize with Russia's power as an oil, gas and tech exporter (such as Internet services, software development and natural resources). One lawyer who works with BV described its investment strategy as unique. Unlike Western PE funds, which carry out extensive due diligence and typically invest in only a few highly promising projects, BV invests in many small projects, hoping for a few big payouts. To date, it has backed over 60 companies across the CIS, with an average of roughly $30 million per investment — small by international standards. And by investing in mid-size businesses, it chooses companies that have proven their managerial efficiency, are able to increase their cash flow quickly with a comparatively small amount of injected capital, and are not big enough to attract too much invasive government attention.

Other investment groups may be scared off by the current political crisis in the CIS, but BV recently signed a memorandum of understanding on another investment: to put $75 million into GetTaxi, which is valued at approximately $400 million. Calvey comments, "Periodic crises are inevitable in rapidly evolving emerging markets, and while most investors develop a 'bunker mentality' afterwards — getting depressed and being reactive — these periods often present the best opportunities both to buy great companies and to transform existing businesses."

Elbrus Capital: Focusing on B2B Services and the Regions

Another example of a successful PE business model comes from Elbrus Capital — a fund founded in 2007 that now has over $1 billion in assets under management. In many respects, Elbrus is the stereotypical Russian PE fund: It invests in mid-market, high-growth companies, taking either a significant minority stake or a majority position. It follows the operational PE model, focusing on a "buy-and-build" strategy through both acquisitions and organic growth.

> "If you know the industry sector well, you can build teams of people who can speak the same language as the owners of the business and help them take a company to a new level."
> — Reinhard Kohleick

There are, however, some unusual aspects to Elbrus' strategy that set it apart from other PE funds and have helped it achieve significant growth since its inception. Above all, Elbrus aims to invest in companies that have low exposure to regulatory risk, are not particularly vulnerable to economic cycles, and operate in industries with significant barriers to entry. As a result, it has stayed away from direct involvement in the Russian raw materials industries. Even more interestingly, so far the fund has shunned the booming consumer-packaged goods (CPG) and retail industries. As an unnamed Elbrus investment advisor noted, "Most PE funds focused on the CPG and retail space, especially in the early 2000s. As a new middle class began to emerge in Russia, these sectors offered tremendous potential for growth. But now, the industry is already developed. Russian CPG firms and retailers are mature, sophisticated firms, which successfully compete with multinational firms. You can no longer reap ROIs in the range of 15%-20% in these industries."

Elbrus' solution has been to focus on emerging sectors that are still largely unexplored, such as the business-services space. The fund has invested in companies that provide

B2B online procurement services, payroll processing, records management and industrial laundry services. The investment advisor commented, "These are new business models, and the companies we have invested in have the first mover advantage. Moreover, these business models are highly scalable and cannot be easily replicated."

In addition, Elbrus has taken note of the huge disparity between the consumer services offered in Moscow and St. Petersburg and those offered in the Russian regions. The fund entered a number of businesses that provide essential services to the modern consumer but are not highly dependent on existing physical infrastructure limitations, such as cable television, broadband Internet, or radio and commercial TV broadcasting.

Another component of Elbrus' success in Russia has been its emphasis on building the right personal connections with entrepreneurs. According to the same investment advisor, "Most business owners in Russia are highly intelligent and capable people. They had to be, otherwise they would not be able to build and grow successful businesses during the 1990s and 2000s. So a lot of them look at PE funds with suspicion. They doubt that a fund manager can bring something more to the table than just money, which they could get in the form of bank loans. The key for a successful PE management team is to demonstrate that they know the market well, that they understand the culture and the unstated rules of the game. This is the only way you can earn trust in Russia."

Reinhard Kohleick: A German PE Manager with the Know-how to Crack the Local Market

Despite being a foreigner, Reinhard Kohleick has enjoyed a successful career in St. Petersburg as a PE fund manager. He accomplished this by knowing the local language, mastering a particular industry, and investing in technology products that he understood.

Kohleick arrived in Russia in the mid-1990s with a doctoral degree in physics from RWTH Aachen University in Germany, an MBA from Henley Management College in England, and experience working for CWB Capital Partners and Deutsche Bank AG. After three years as director of the St. Petersburg office of Quadriga Capital Russia, he became the managing director in 1998. He saw the company grow from a $10 million investment pool to $136 million pool in 2005. The 2005 fund closed in 2013.

"If you know the industry sector well," Kohleick explained, "you can build teams of people who can speak the same language as the owners of the business and help them take a company to a new level." Given his background in physics and his Russian language fluency, it is not surprising that Kohleick has chosen to invest primarily in Russian technology companies, including Morion (a producer of quartz processors for satellites and other advanced technology) and First Line Software (an outsourcer of software and web programming).

Both Morion and First Line Software thrive in the volatile Russian market, attributing much of their success to having the right attitude. "Many fear the controlling hand of government," the director of Morion noted. (His company takes government contracts and welcomes government investments.) "But there is no better ally to have in your corner than the Russian Federation." First Line Software does not see the Russian market as excessively hostile to small and medium-sized enterprises. According to CEO Alexander Pozdniakov, "Every market has its challenges. You just need the right attitude and local street smarts to get the job done. If a problem can be solved with money, it's not a problem — it's an expense."

Commenting on how the Russian PE industry has changed since 2009, Kohleick said, "Instead of leverage, private equity returns must be realized by traditional means: low entry price, top-line and bottom-line growth, and a successful exit. Private equity's ability to raise debt for acquisitions has decreased. The main focus now is to create value." But to understand which companies show value potential, undoubtedly a fund manager needs to have assets similar to Kohleick's: Russian-language fluency and superior industry insight.

New Opportunities and Challenges

PE opportunities in Russia generated significant interest internationally at the end of 2013 and beginning of 2014. But the conflict in Ukraine and the resulting sanctions on Russia have cast serious doubt on prospects for the country's PE industry. Many Russian PE managers believe that the industry's biggest concern now is the ability to attract foreign capital. As one manager put it, "Russia offers fantastic opportunities, but there is too much negative publicity. Most Western institutional investors do not want to be associated with Russia right now. It will be very difficult to raise funds for the foreseeable future."

Another major concern for the industry is the economic effect of the sanctions. The upward trajectory of Russia's economy has already been reversed. There are concerns that if the sanctions and Russia's economic isolation continue, the economy will plunge into a recession. This, of course, is very bad news for an industry that depends on high returns.

However, it is not all bad news. As the Elbrus investment advisor notes, "The Russian economy is in dire need of investment, and the funds that managed to raise funds before the crisis in Ukraine escalated are in a prime position to make cheap, successful investments." This sentiment was echoed by a Russian investment professional who recently retired after working with one of Russia's oligarchs: "This is the best time to invest for any fund that has the capital and the right understanding of the Russian economic environment. I think that a lot of money can be made if one selects their targets wisely."

The most attractive opportunities for PE funds now appear to be in the technology space. A Managing Partner at iTechCapital, one of Russia's leading VC funds, states, "Russia has some of the best programmers in the world. In many ways, the programmers here are trend-setters, and you see a lot of indigenous IT Russian companies emerging and successfully competing internationally." A similar view was expressed by a vice president at ICT Group, one of Russia's largest investment companies, who agrees that "the tech sector is Russia's most competitive industry internationally, and offers the most attractive opportunities for growth, provided that you have the right expertise."

Another area that offers significant potential for growth is the B2B and B2C services space. As demonstrated by Elbrus' investment strategy, this area has already been targeted by PE funds, but the potential for growth remains tremendous. According to a former managing director at Quadriga Capital, "Russians are not accustomed to paying for something that is not a tangible product. It is hard to persuade them to pay for a service, but this is rapidly changing as more Russian companies grow in scale and experience the need to outsource non-core services."

And last but not least, there is growing evidence that many Russian oligarchs, whose consortia have dominated the Russian economic landscape for the past 20 years, are becoming interested in partnering with both Russian and Western PE funds. A partner at a Western law firm involved in the marketing activities of one of the largest Russian PE funds (who insisted on anonymity) noted three main reasons for this interest: a desire to attain analytical rigor and best practices, win legitimacy outside of Russia, and access cheaper capital.

Know Your Environment Inside and Out

Winston Churchill once described Russia as "a riddle wrapped in a mystery inside an enigma." The same description could be applied to Russia's private equity industry. With its unpredictable legal system and foreign policies, massive resources and vast expanses of underdeveloped territory, Russia remains both dangerous and promising. However, the positive examples set by Baring Vostok, Elbrus Capital and Quadriga Capital demonstrate that, when deployed carefully, PE can be successful in Russia. What all these funds have in common is a very keen understanding of the cultural, historical and political nuances that define the Russian economic system. The main lesson that potential investors in Russia can draw is that a deep knowledge of the Russian reality is the most important ingredient to success in the country's PE space.

This article was written by Ashley Archibald, Robert Bond, Benjamin Johnson and Ivan Koutsarov members of the Lauder Class of 2016.

Social Impact in Peru and Colombia: How Do Companies Know Whether It's Working?

According to statistics from the national databases of Peru and Colombia, both countries have reduced their poverty rates significantly over the past 10 years. Peru's has fallen from 58.5% in 2003 to 23.9% in 2013, and Colombia's from 47.4% to 30.9%. However, poverty continues to be an overwhelming impediment to improving their national economies — especially extreme and multidimensional poverty. Multidimensional poverty means deprivation not just in money, but in health, education and standards of living. The federal governments in both nations have created specific organizations to combat poverty — the Center of Social Innovation and National Planning Department in Colombia and the Ministry of Social Development and Inclusion in Peru — but anecdotal evidence suggests that, in reality, these agencies do very little to generate urgency around social projects.

As a result of this shortfall, the social-enterprise sectors in Peru and Colombia have expanded significantly in recent years, building a private industry that, in a way, is replacing the government in providing social welfare.

According to Caballero, Fuchs, and Prialé of Universidad del Pacífico in Lima, Peru, a social-impact company or social enterprise is "[an] organization, or nonprofit, which was founded with the mission to solve a social or environmental problem, which contributes to the common good and is self-sustaining." Meanwhile, The Centre for Social Impact in Australia defines social impact as "the net effect of an activity on a community and the well-being of individuals and families…. [It] is outcomes-led adaptive thinking and action taken by businesses, government, social purpose organizations and knowledge creators that contributes to creating a positive, meaningful and sustainable change for the benefit of society and particularly those at a disadvantage as a result of systemic, long-term problems." In Colombia and Peru, social-impact enterprises are directed toward the latter population: those living in poverty, especially extreme or multidimensional poverty.

The bottom line for these companies is that they have a positive impact on the community in which they operate. But how can they tell if their efforts are working? Sources such as the IMF and the World Bank provide several methods for measuring social impact, including the IFC's "Measuring Impact Framework" and the Grameen Foundation's "Progress out of Poverty Index" (PPI). Both establish a baseline — measuring the poverty rate, income, education level, gender inclusion, etc. — before a social-impact company enters the market, and measure the same characteristics months and years later. This practice, according to Vanina Andrea Faber Fuks, a professor at Universidad del Pacífico in Lima, is essential for gauging the effectiveness of any social enterprise. By setting a baseline first, the company is able to judge what changes took place in the socioeconomic landscape thanks to its services.

Interestingly, social enterprises in Peru and Colombia do not use any of these established methods. Some don't even attempt to measure their impact at all. Many cite raw numbers such as how many families or people they have helped in a year. But, according to professor Juanita Duque, a social-impact specialist at the Universidad de Los Andes, these numbers measure only what is termed an "output," not a true indicator of improved social or economic environments. For example, if a company says it provided services to 50 more people in the past year, how does one know whether the 50 additional clients are from a community of 100 or 50,000?

Why Is Measuring Social Impact Relevant in Social Development?

Given that these companies are advancing social development in some way, why is it so critical to measure their progress? First, by comparing various companies' metrics, it becomes possible to identify the best social-impact practices. Duque posits that both financial and social impact measurements serve as "factors of comparison" across industries. In other words, if two similar companies intend to invest in education and start with the same baseline, employing social metrics allows investors to compare these enterprises and determine which is more successful. Future endeavors can then implement the more successful company's best practices.

Second, social enterprises need investors, and investors want to see results. According to Duque, stakeholders are increasingly demanding more accountability and transparency from social enterprises. They want to assess a company's efficiency — both economically and socially — and "ensure a company is actually generating impact, rather than simply providing assistance."

Finally, it is critical that social companies are aware of their own progress. If enterprises do not measure their social impact, they will not know if their actions have yielded positive results. Plus, it would be impossible to analyze a company's evolution during a certain period without hard data to support it. Duque suggests the best evaluation method would be establishing control groups to measure progress; this approach, however, is rife with ethical dilemmas, as it deliberately creates groups of haves and have-nots.

If a company says it provided services to 50 more people in the past year, how does one know whether the 50 additional clients are from a community of 100 or 50,000?

If, as we have seen, established metrics exist for measuring the impact of social enterprises, why are Peruvian and Colombian companies not using them? According to research, the firms are reluctant to use the several readily available methods for two reasons: one, that it is expensive to establish a starting point to use as a base of comparison; and two, that social entrepreneurs are usually more concerned with generating an impact than measuring it.

Impact Measurement in Peru and Colombia: Some Effort, But Not Enough

Caja Rural de Los Andes is a bank based in Puno, Peru, that provides micro-credit to people living in poverty in the country's southern region. It is a case in point about impact measurement in the region. In 2012, the bank began to measure the PPI in the regions in which it operates. While this was a good first step, Caja Rural went no further. In other words, even though it was using an existing metric, it published only the raw number of people living in poverty. Because their data did not establish a cause-and-effect relationship between the company's actions and the reduction of poverty, it is difficult to establish how the reduction of poverty has affected the community. In addition, because it measured poverty only among its clients, Caja Rural's results were not representative of the community's actual state. The reason that Caja Rural did not begin to utilize the PPI until 2012 was that it was unaware of the tool and in any case would have lacked the funds to implement it, according to Lyudimila Zea, the bank's co-managing director.

Another example is X-Runner, a company in Lima, Peru, that provides sewage services to urban residences through dry toilets (toilets that compost human waste and use little or no water). Like most of the companies discussed here, X-Runner measures its social impact through the raw number of people who have access to sewage services over the course of a year via the company's product. This is not a true assessment. To measure its social impact efficiently, according to Fuks, X-Runner would have to establish a baseline: For example, how many people did not have access to sewage services when the company began operations, and how has the number changed?

> Stakeholders want to assess a company's efficiency — both economically and socially — and "ensure a company is actually generating impact, rather than simply providing assistance."
>
> – Juanita Duque

However, it is possible that this relatively small, young company may not have the resources — either financial or labor — to conduct a baseline survey or measure impact. Moreover, it appears to prioritize the urgency of providing the service over measuring the need for it. In a sense, the sentiments felt by the founding entrepreneurs — in this case, the need for sanitation in extremely poor neighborhoods — is a metric in and of itself. In other words, the entrepreneurs do not feel the need to verify measures with a survey, but instead rely on their own interpretation of the studied population. This is a practice that Duque terms "expert feeling." It is not an ideal replacement for metrics, but X-Runner has few resources and recognizes an urgency of need.

Some organizations find it difficult to measure their impact. The Pachacutec Foundation is an educational organization in Lima that provides integrated education for a population of over 180,000 people who live in extreme poverty and social exclusion on the outskirts of Lima. Unlike most of the companies reviewed here, it does not measure its impact in any way. It considers itself to be like any other school in that it has data only on the number of alumni and the nominal tuition it charges. In this sense, the organization reflects the idea that the urgency of the service provided is more important than measuring the impact generated.

Most organizations find it easier to use process rather than outcome indicators. Volunteers Colombia, a nationwide organization, brings together volunteers, mostly from the U.S., to teach English at public and private schools and universities in Colombia. Similar to the other companies discussed here, it measures its impact by the number of students served and the number of volunteers it brings to the country, but it does not collect broader assessments of the impact generated. For example, it does not measure the income or even the educational levels of the students in Colombia who speak English versus those who do not.

However, this case is particularly interesting because the company does, in fact, cite studies that measure the social impact of learning English; however, these studies were not carried out in Colombia. So, it is not clear if the same concept that has worked elsewhere has operated or will operate in Colombia. To discern whether Volunteers Colombia's program has had an impact, the organization would need to develop further research in its target area.

Another case in point is Buena Nota, established as a web platform to share and support innovations and social ideas throughout Colombia. One of its initiatives is "Book by Book," a program that supports donations of books and educational resources to urban and rural schools in communities with limited resources. It calculates the gross number of books supplied and schools serviced, but not how its services improve the recipient communities. In order to calculate its social impact, the foundation could study the effects of its service in these communities and establish a baseline for comparison.

One final example, an early-stage startup in vocational education (as yet unnamed), is the only company discussed here that comes close to demonstrating the ideal way to measure social impact. It offers financing to young people aged 18-20 who want to pursue technical careers. In return, students agree to pay the company up to 8% of their income for the first five years after graduation. According to the founder, Ricardo Pinela Vila, before and after the program the company measures each candidate's levels of communication, leadership, group work, and wages, as well as professional development after graduation (for example, how long it takes them to find a job).

This start-up approximates the use of existing metrics for social impact by establishing a baseline to calculate the effects of the project on its target community. However, it measures its impact purely on an individual level, much like Caja Rural de Los Andes, rather than on a societal level. To assess its impact more broadly, it would need to measure the impact of its alumni not only in terms of their income and social skills, but also in terms of, for example, how an increase in the number of technical workers has improved the local, regional or even national community.

An Ongoing Dilemma

Social companies in Peru and Colombia do not measure their impact for several reasons, including the cost of such assessments, the urgency of focusing on providing actual services and the entrepreneur's reliance on his "feelings" about the company's performance. In some cases, enterprises measure only their "output," while others may strive to use existing metrics but still fail to measure their impact.

According to Duque, failure to produce comparable social metrics is due largely to the difficulties associated with isolating variables and attributing social impact solely to a company's actions. Usually, many other factors can be associated with a region's social advancement (such as government action and overall economic improvement), which makes it challenging to establish a cause-and-effect relationship with the company's activities.

> If established metrics exist for measuring the impact of social enterprises, why are Peruvian and Colombian companies not using them?

As mentioned earlier, Duque suggests that an alternative would be establishing a control group against which the company's performance can be measured. While this strategy ensures a base of comparison, control groups are costly and demand an investment that the companies typically cannot afford. But even if they could, the concept poses an ethical dilemma. Why should some people be entitled to social development while others remain in a poorer reality? How can someone choose who will benefit from the changes and who will not?

This article was written by Pjeter Dushku, Sarah Millar and Bianca Ziccarelli, members of the Lauder Class of 2016.

What's Causing China's 'Brain Drain' to Reverse Itself?

In 1980, 1,000 Chinese students attended American universities. By 2014, that number exceeded 270,000, with Chinese students comprising 31% of the U.S.'s international student body. But recent changes in the types of students studying abroad and variations in the world economy have given rise to a new wave of Chinese graduates who are choosing to return home.

China's economic transformation has reshaped world markets, and the influx of its students into universities abroad has had a major impact as well. According to the U.S. Department of Commerce, international students contributed approximately $27 billion to the U.S. economy in the 2013-2014 academic year, and there are no signs that growth is abating. Indeed, the total number of Chinese students in the U.S. has risen by more than 130% since 2009.

> "I really want to help junior Chinese firms develop into international brands."
>
> — Emma Wang

The first influx of Chinese students began arriving in U.S. universities in 1978, at least in recent times. They were largely graduate students pursuing degrees in science, technology, engineering and mathematics. Many chose to remain in the U.S. following graduation. Between 1979 and 1987, only a third of 63,000 students returned to China. A 1989 University of Hong Kong survey of Chinese students studying or working in the U.S. revealed that only 3% would choose to return to China immediately, while 80% would plan to return in five to 10 years and 17% would not go back at all. The survey pointed to the Chinese government's heavy-handed political controls and overall political instability in the country as factors contributing to the low repatriation rates.

As the number of Chinese graduates living abroad increased, China began to experience a "brain-drain" problem. An analysis of Chinese provincial-level data by the United Nations Development Program in 2009 found that emigration, both permanent and temporary, had hindered per capita GDP growth for more than two decades. The Chinese government, in addition to pursuing a wide range of economic reforms, undertook serious efforts to combat the intellectual outflow. The overall success of initiatives such as the "Thousand Talents Program," a government-sponsored plan aimed at attracting high-caliber expatriate talent back to China, remains unclear. However, recent changes in the types of Chinese students studying abroad and variations in the world economy have resulted in a new wave of Chinese graduates choosing to return home.

According to research conducted in China during the summer of 2014, the recent phenomenon of return migration among Chinese graduates has been fueled by three factors. First, economic and political changes have made working in the U.S. a less attractive prospect, while China has experienced strong GDP growth. Second, "soft" factors such as a desire to be closer to family and friends as well as re-immersion into the native culture also encouraged repatriation. Third, the types of Chinese students studying abroad have changed in tandem with China's economic development: A younger generation of students with a broader range of interests now ventures overseas.

For Students, China's Appeal Begins to Eclipse America's

Following the 2007-2008 financial crisis, many international students faced increased uncertainty in a shaky U.S. job market as well as heightened challenges in securing employer-sponsored visas after the U.S. State Department's sponsorship fee hike in 2009. At the same time, there is a growing number of enticing opportunities to use skills honed while studying or working abroad in China's own booming economy, as indicated from interviews with recent MBA graduates from the University of Pennsylvania's Wharton School.

Qun Zhao was raised in China's Jilin province. Following his graduation from the London School of Economics with a bachelor's degree in finance, he worked in London's investment banking sector. After completing his Wharton MBA in 2014, he returned to China to tap into the country's nascent financial services industry. He saw an opportunity to apply the quantitative techniques he learned in London with the managerial acumen he developed at Wharton to create a Chinese hedge fund with a focus on options trading.

Zhao discovered unique opportunities in China. In 2014, the Chinese government committed to opening the options market, and Zhao's fund will be one of the first to invest. Compared to financial centers like New York or London, where thousands of funds have operated for years, operating in China's newly opened sector gives Zhao's fund a first-mover advantage. In fact, his fund is one of the first in China to use the techniques he learned in London. "We do not perform fundamental valuations," he noted. "We are based purely on quantitative methods — few of which are currently used by other funds in China."

Emma Wang, another 2014 Wharton graduate, was also attracted by the opportunities China offered and chose to return to launch her career in investment banking. Wang had graduated with a bachelor's degree in law from Nanjing University and then worked in brand management. She decided to earn her MBA to enhance her knowledge of finance and better understand how companies develop global franchises.

> The percentage of Chinese graduate students in the U.S. declined from 80.1% in 2001 to 48.8% in 2011.

Wang found unsurpassed opportunities in China to combine the knowledge she had gained at Wharton with her background in brand management to develop expertise in investment banking and eventually to create a growth private equity fund focused on developing mid-sized Chinese brands into influential global brands. "I do not only want to just bring capital to help finance companies," she said. "I really want to help junior Chinese firms develop into international brands."

In addition to seeing exciting long-term career opportunities in China, Wang found the country to be a more practical place to launch her post-MBA career because of visa restrictions in the U.S. "In the U.S., I would have been highly dependent on my employer for a visa," she said.

Wang noted that some of her classmates were deeply concerned that U.S. visa requirements could stifle their career growth. According to a 2013 study by the Graduate Management Admissions Council, approximately 41% of full-time MBAs switch employers within 12 months of graduation. But the need for visa sponsorship renders such job movement nearly impossible for many foreign nationals.

Strong Pull of Family and Local Networks

Family relationships and local connections also motivate Chinese students to return home. In Wang's case, she felt a responsibility as an educated, young Chinese national to return to her home country to contribute to its development and economic maturation. "I wanted to be part of China's transition into a developed market — a once-in-a-generation opportunity," she said.

A survey of 19 Chinese passport holders in the Wharton MBA class of 2016 also revealed that family in China and local networks were key considerations. Among the respondents, two-thirds intend to return to China after graduation, while the rest plan to work elsewhere. Among the 12 people returning home, 11 cited "family" and nine cited "network" as major factors.

> Today's Chinese students — largely undergraduates — are funded by well-to-do families back home who can afford a U.S. education.

The "network" factor plays not only into the personal aspects of returning to China, but also into the economic benefits. Increasingly, well-connected Chinese graduates are positioned to enjoy the dividends of their strong domestic networks. "Raising money in China is not too difficult if you have a network," Zhao explained. He went on to describe how the market attracted him with its lucrative fundraising opportunities, which were reaped largely through his firm's network. He cited the complexities of raising money in China, with its cultural and bureaucratic nuances. "It is different from the West, where you only need to convince [mostly institutional or high net worth] clients that the fund has a good strategy," he said. To raise money in China, fund managers are required to work in unison with investors, channel companies or intermediaries, and private banks. Added Zhao: "The system is challenging for managers who do not have an intimate understanding of the Chinese market and way of doing business here."

Similar themes emerged in our discussions with 2008 Wharton MBA graduate Xinhua Zhou. She worked for Bain & Company in Shanghai immediately after graduation and later joined Dianping, a Chinese website where users review restaurants and other venues. The website was founded in 2003 by Wharton alumnus Tao Zhang. During Zhou's time at Dianping, first as a financial controller and later in corporate development, the website grew to over 100 million active users and received international recognition as the leader in its market. Zhou also launched her own startup, China30s.com, an independent media outlet and think tank focusing on China's emerging middle class. In mid-2014, she became a partner at HGI Capital, an angel investment/venture capital firm focused on early-stage Internet startups.

Zhou was fortunate to have offers from top banks and consulting firms in both the U.S. and China when she graduated from Wharton. She explained that while there were both advantages and disadvantages to returning to China at the time, she was attracted by the potential to take on additional responsibility quickly at businesses there. Another key factor was proximity to her family and friends, eliminating any concerns about a cultural rift.

Undergrad Business Students Replace STEM Grad Students

A third factor — the changing composition of Chinese students studying abroad — has also influenced recent return migration trends. According to research conducted by the Institute of International Education (IIE), the percentage of Chinese graduate students in the U.S. declined from 80.1% in 2001 to 48.8% in 2011. Concurrently, the percentage of undergraduate Chinese students ballooned from 14.7% in 2007 to 36.2% in 2011.

A key reason for the shift lies in the emergence of an affluent Chinese middle and upper class. In past decades, most Chinese students entered American universities at the graduate level because of readily available financial aid in the form of scholarships, fellowships, grants and teaching assistantships, among other sources of support. Such opportunities are more restricted for international students at the undergraduate level, and it is common for them to self-finance. According to the IIE, over 80% of tuition and fees associated with attending a U.S. undergraduate institution for an international student are typically covered by personal and family sources. On the other hand, only 40% of tuition and fees to attend a U.S. graduate program are paid for by personal and family sources.

Today's Chinese students — largely undergraduates — are funded by well-to-do families back home who can afford the U.S.'s formerly prohibitive tuition and living costs. This changing demographic has also led to a shift in these students' fields of study. Degrees in the science, technology, engineering and mathematics (STEM) fields, where financial assistance at the graduate level is also more common, have declined in popularity, while degrees in business and management have more than doubled since 2010.

Overall, China has taken the first steps to address and reverse the brain drain that has constrained the country's economic growth. More Chinese students are returning to China after receiving their education overseas and opting to live and work in a number of industries there. This is particularly true for young business-school students, as sampled at the Wharton School, who view visa restrictions as negatively impacting their career flexibility. It remains to be seen how the new visa rules unveiled in November 2014 will impact this trend.

The types of Chinese students studying abroad have changed in tandem with China's own economic growth. There is an influx of undergraduate students, most of whom self-finance their education in the U.S. We are also seeing a perceptible decline in interest in the STEM fields and a concurrent increase in interest in business education. These diverging interests are likely to result in a more demographically and professionally diverse pool of students pursuing international education.

This article was written by George Bradt, JB Marek, and Drew Soloski, members of the Lauder Class of 2016.

South Carolina: A Little-known Model for U.S. Economic Development

What comes to mind when you hear South Carolina mentioned? It would not be uncommon for you to think about beautiful Charleston, big mansions and tasty Southern food. You might also associate South Carolina with slavery and the Civil War. Any thoughts of an economic nature would probably involve industries historically associated with the region: large plantations of cotton, rice or tobacco, as well as textile mills — nothing very high-tech or innovative.

All those thoughts would have painted an accurate picture of early 20th-century South Carolina — but not of the state or its economy today.

Between the 1950s and the early 2000s, the government of South Carolina worked to ensure that the state had a flexible and low-cost workforce, low taxes and good infrastructure. These characteristics, combined with the government's openness and responsiveness, enabled the state to attract manufacturing companies from around the world, such as BMW and Bridgestone. As a result, South Carolina's per capita income rose an impressive 400% during this period. But then, in the 1980s and 1990s, manufacturing firms — mostly textile companies — began to relocate to countries like China that offered even lower labor costs.

The state did not accept defeat, even when faced with high unemployment rates and difficulties in convincing companies to stay. Realizing it was losing manufacturing industries, South Carolina sought alternatives. In 2003, the state collaborated with the private sector to invite Harvard professor Michael Porter, a leading authority on economic development, to conduct an analysis of its competitive strategy. The goals were to craft a response that would ensure South Carolina's long-term competitiveness and avoid more companies deciding to pack up and leave. The idea was to build a sustainable economy and ensure that low wages were not the only incentive for companies to remain in South Carolina. And, in his analysis of industry clusters, Porter offered eight recommendations that the state made a reality.

The first was to activate and upgrade business clusters in the state. Subsequently, official working groups were created to foster information exchange within the clusters and also with universities and the state. The second long-term strategy was to continue to enhance education and workforce training. This was done mainly with the support of the private sector. BMW, for example, worked with educational institutions to create curricula that would equip students with the requisite skills for careers in the automotive industry.

The third recommendation was to invest in research, which resulted in the founding of the South Carolina Research Authority (SCRA). The state created incubators and accelerators such as The Iron Yard and NEXT Innovation Center, helping to establish environments in which startups could grow. These hubs provide entrepreneurs with infrastructure, mentoring and access to capital. Organic development was a big focus, but the state also adopted a strategy of attracting foreign investment, which was spearheaded by South Carolina's Department of Commerce. Other important recommendations were to measure progress in raising prosperity, to create an explicit economic development program for distressed areas, and to found new institutions for economic development.

More than a decade after these recommendations were implemented, South Carolina is a revitalized state. Today, there is a solid structure of public-private partnerships and business-led organizations working together to ensure the state maintains its competitive advantage. Examples are "New Carolina," (the new name for the former Council on Competitiveness), and the SCRA, which facilitates and supports the region's technological research and development.

Although it is only a medium-sized state with a population of five million occupying 32,000 square miles, the Palmetto State has become a model for other states. It achieved a job-growth forecast of 1.9% for 2015, has continued to maintain the lowest corporate tax rates in the country, and has maintained the third-lowest unionization rate in the U.S., with 3.3% unionized workers. It has been ranked third for low labor costs and fifth for workforce development programs in the U.S. by Area Development.

Companies such as BMW, Bridgestone, Milliken and Boeing all have manufacturing sites in South Carolina. There is also an active entrepreneurial scene that is supported by both the state government and the private sector.

What made South Carolina a model of economic success and growth? Was it solely Porter's recommendations, or were there other, more subtle factors?

One Theory: Cluster and Coordinated Efforts

South Carolina is a prime model of how a unified strategy can promote and develop business. The State Department of Commerce works on many levels. It coordinates with the state legislature, county departments of commerce within the state, the ports, the education system, cities, businesses, organizations and individuals to promote new business. It also operates international offices in Japan, China and Germany to court foreign companies that are considering opening facilities in the state. An example of this statewide cooperation is South Carolina's brand campaign, "Just Right," which has been adopted by various sectors and industries and in multiple iterations: "South Carolina: Just right for business, just right for families, just right for you."

> South Carolina's per capita income rose an impressive 400% during this period. But then, around the 1980s and 1990s, manufacturing firms — mostly textile companies — began to relocate to countries like China that offered even lower labor costs.

The network and team that comprise South Carolina's collaborative effort encompass various industries in different parts of the state. This structure is based on one of Porter's recommendations, which was to strengthen the state's economic clusters. Cluster theory, which was actually first posited by Alfred Marshall in 1890, was reintroduced by Porter in 1990. The concept was later adopted and championed by many governments and development agencies around the world.

Cluster theory holds that for some industries, having firms (both competitors and suppliers) grouped in geographical clusters benefits everyone. The companies save by having suppliers close by and enjoy economies of scale, even in the case of small firms. Firms can specialize and increase innovation. In addition, new firms entering the market can benefit from the economies of scale and facilitate offshoots of the business cluster. The new firms increase the size and strength of the cluster, which in turn attracts new suppliers and customers, promulgating a virtuous cycle. The abundance of firms increases competition and drives down prices, thus benefitting the consumer. Silicon Valley and Hollywood are two of the best-known economic clusters in the U.S. Regional and national governments have tried to create industrial clusters, which actually function best when the clusters are both bottom-up and top-down.

In terms of developing an industrial cluster, South Carolina is looking to become the U.S. automotive powerhouse that Detroit once was. BMW's U.S. plant, its numerous suppliers and offshoots, Michelin's U.S. headquarters and Clemson University's International Center for Automotive Research (ICAR) are just a few components of the automotive cluster that has sprung up in the state.

> "South Carolina benefits from a confluence of factors that have helped to drive its economic development, but may not be transferable to clusters elsewhere."
> — Derek Willis

ICAR has partnered with many different car manufacturers, as well as companies along their supply chains, to research and develop new technologies for the industry. It serves as one of the few places in the U.S. where students can get hands-on automotive experience and come away with a degree in automotive engineering. Groups of students have the opportunity to develop and build concept cars as part of their programs. The automotive cluster also benefits from the experience of a multinational like BMW, which follows the German model of education by working with local technical colleges to train students in the practical skills needed at its plant.

South Carolina possessed a unique advantage in this area because it already had experienced textile workers who knew how to work with machines. Their skills were easily transferable to the automotive industry. The aviation industry is another important cluster in South Carolina, with Boeing being one of the most important participants. Other industries found today in South Carolina are advanced security, nuclear, and recycling. CUBEInC in Greenville is an impressive initiative that brings together students from different disciplines to develop innovative biotechnology solutions.

Another Theory: Conditions Specific to South Carolina

According to Derek Willis, program manager at SCRA Technology Ventures, "South Carolina benefits from a confluence of factors that have helped to drive its economic development but may not be transferable to clusters elsewhere." These include the state's small size and population, low labor and living costs, an educated workforce, and a friendly Southern culture that encourages the cultivation and maintenance of relationships.

Several of the above factors have helped to facilitate a tight network that fosters cooperation at different levels, which has positioned the state well to respond decisively and effectively to the needs of businesses. Faced with the challenge of reinventing itself following its industries' moves to developing countries to save on labor costs, South Carolina's Department of Commerce recognized the importance of creating an intellectual climate that would attract foreign direct investment and encourage entrepreneurship.

The creation of the SCRA was an important first step in fostering such an ecosystem. This agency works with both small and large businesses to win government contracts while investing in emerging companies throughout the state. Even though it is not formally connected to the Department of Commerce, the two work in tandem to develop South Carolina.

This collaborative model was then adopted by similar organizations at the county level, which helped to create intellectual networks across the state through the involvement of local universities. For example, the Spartanburg Economic Futures Group has partnered with the local community college to set up the fourth-largest incubator in the U.S. The government has also ensured a constant pool of talent for industries through other partnerships with educational institutions. For instance, Clemson University's ICAR was established in 2003 to train automotive engineers for the local industry. This proactive initiative led BMW to expand its production in South Carolina, eventually creating its largest plant worldwide, and led Boeing to build its 787 Dreamliner there.

Following the textile industry's emigration to the developing world, South Carolina was aided by the low cost of doing business in the state. It was able to turn a huge negative for industry and employment into a positive, as average wages and private-sector unionization rates were among the lowest in the country, leading to a friendly business climate that could attract foreign direct investment. South Carolina also offered the lowest corporate tax rate in the country, which was one of the greatest attractions for foreign business. The task of drawing talent into the state was also made easier by the relatively low cost of living, as senior executives were willing to take a reduction in salary to move there.

Another factor specific to South Carolina and other states in the region that may not be transferable is the ambient Southern hospitality and charm. Conversations between strangers start easily, leading to connections that would otherwise not arise. The desire to help others has also facilitated the creation of a tight network that has helped both mature and emerging businesses. And lifestyle factors such as the pleasant weather, comfortable pace of life, and Charleston's beautiful antebellum architecture have served as incentives for executives to move there.

South Carolina also had a ready pool of skilled labor for companies to tap into. This pool placed significantly higher in rankings by graduation rate than by average wage, indicating that businesses were getting superior value out of their workers. This fact was augmented by one of the strongest workforce-development programs in the country, as laid out by the Chamber of Commerce.

No Guarantees

While cluster theory and Porter's competitive-advantage recommendations have been shown to be beneficial, they cannot guarantee sustainable development. South Carolina today is tackling a variety of challenges.

The state tries to keep average wages low compared to the rest of the U.S., but is still vulnerable to competition from other countries that offer even lower wages. Continuing this strategy ultimately may be detrimental. Similarly, South Carolina's low percentage of unionized workers may have a negative side. Unions can be beneficial to both employers and employees. They can be a valuable link between management and workers, helping employers understand employees' needs and implement policies to motivate them.

Another of the state's vulnerabilities lies in its automotive cluster: It is made up of companies primarily based outside the U.S. American car companies, which account for 50% of sales in the U.S. market, have no manufacturing presence in the state.

Entrepreneurs in South Carolina have identified the challenges they face in raising venture capital. While the state's infrastructure is excellent, startups often need to seek business financing in larger cities. This could become an entry barrier for entrepreneurs if left unresolved.

The Palmetto State Looks Forward

South Carolina is not yet prominent in most business people's minds, but its authorities are implementing sustainable strategies to ensure that the state keeps growing economically. Visiting South Carolina, it is easy to be impressed by the openness and warmth of its people. At the same time, it is evident that these people are used to fighting for what they believe in. The initiatives being put in place have already contributed to a renaissance in the state, and it is clear this trend will continue, even beyond the automotive industry.

> The automotive cluster also benefits from the experience of a multinational like BMW, which follows the German model of education by working with local technical colleges to train students in the practical skills needed at BMW's plant.

Because of community support and the state's small geographic size and population, entrepreneurs are able to access local industry experts and influential executives. Many companies in South Carolina work with local universities and technical colleges to groom talent with the skills they require for success. The growth and entrepreneurial spirit of the region has generated positive energy. "It is truly an exciting time to do business in South Carolina," notes Jeff Boeh, campus manager of The Iron Yard, a business accelerator in Spartanburg.

This article was written by Kaline Brückner Saab, Lester Loi, and Zachary Queen, members of the Lauder Class of 2016

The German Mittelstand: Slow and Steady Wins the Race — But for How Long?

Germany is an export powerhouse, commanding a trade surplus greater than China's. But while economic giants such as Bayer, Daimler or Siemens are frequently touted as leading the German economy to global success, it is actually a cadre of "hidden champions," relatively small firms known as the Mittelstand, that sets the German export machine apart.

The Mittelstand is the backbone of the German economy, contributing over half of that country's GDP. It is a uniquely German phenomenon: Even the name is hard to translate. The word technically refers to the middle class between aristocrats and peasants that existed in medieval European society. The closest English counterpart is the economic subset of small and medium-sized enterprises, but that fails to express the complexity and depth of the phenomenon. The German Mittelstand is a unique marriage of innovation and sustainability that has endured since the Wirtschaftswunder ("economic miracle") of Germany's postwar period. Britain's Chancellor of the Exchequer George Osborne told The Financial Times in 2012, "We should all learn the lessons from the successful Mittelstand model."

> "We should all learn the lessons from the successful Mittelstand model."
>
> — George Osborne

So what constitutes the German Mittelstand? While many firms fit the German government's definition of "companies that employ fewer than 500 workers," Mittelstand businesses share unique characteristics. They are typically family-owned and many generations old. More often than not, they are market leaders within their respective fields, which are typically small niches: cell-phone chargers, fish food, concert organs or the powdered metals that comprise the "ink" in 3D printing, for example.

These companies continue to lead in their fields for a number of reasons. First, they consistently invest in in-house R&D and rely on iterative innovation, similar to Toyota's concept of *kaizen* or "continuous improvement." The pace of their "slow diversification," as German business expert Hermann Simon referred to it in the 1980s, can be startling to outsiders who are accustomed to viewing innovation as a major tectonic disruption of the market. Austrian leadership expert Peter F. Drucker reinforced this notion when he wrote in 1967, "A factory that is 'dramatic,' a factory in which the epic of industry is unfolded before the visitor's eyes, is poorly managed. A well-managed factory is boring. Nothing exciting happens in it because the crises have been anticipated and have been converted into routine." Another reason for the Mittelstand's success is a laser-sharp focus on sustainability — a profoundly influential philosophy within German business — which can easily be misinterpreted as simple risk aversion.

Sustainability as a principle has its roots in 18th century Germany. In Saxony during the early 1700s, it became apparent that much of the region's livelihood was threatened by deforestation. The area's extensive mining operations relied on timber to burn ore. In 1711, Hans Carl von Carlowitz published the very first work on forestry, *Sylvicultura Oeconomica*, in which he championed the idea that a new tree should be planted for each one cut down. He called this concept sustainability. Within the German business culture, this idea has evolved into a three-pillar model under which businesses strive to operate in an economically, socially and ecologically sustainable manner. Consideration for the livelihood of employees and responsible use of resources are fundamentals that must be in place before a firm is viewed as ethically able to make a profit. Risky business decisions are seen as threatening the well-being of employees and their families.

The Mittelstand philosophy translates into a long-term focus. Top managers view themselves as stewards of the future. Employees are invested from the moment they graduate from school, and many stay until retirement. In 2014, Philipp Klais, CEO of family-owned firm Klais Orgelbau, the preeminent builder of concert organs, told *Inc.* magazine, "I think leadership is a very, very, very strong word. I see it more as a responsibility issue. And not just being responsible for the financial situation, but also for a team of 65 people that have supported this workshop for a very long time and for this working place on which they are depending."

Customer relationships are also kept extremely close. One private equity professional we interviewed, who works exclusively with the Mittelstand, remarked on the integrity of the business culture.

Uniquely German?

A January 2014 World Economic Forum report, titled "Enhancing Europe's Competitiveness," noted that eight out of 10 jobs in the E.U. are created through small and medium-sized companies, but only 50% of those startups survive their first five years. In contrast, the German Mittelstand has been operating since the early 1900s and has played a dominant role in defining the country as it exists today.

The Mittelstand's success can be attributed to several factors. Multiple studies have shown that 99% of the Mittelstand firms are family-owned and follow a common strategy for running their businesses. First, the goals and policies set by the chief executive (who is usually also the owner) are long-term. Second, the companies rely on sound financial models, including financing their operations using their own equity or bank loans. The high equity ratio and vigilant approach enable these firms to make mid- to longer-term investments, even in times of crisis. Third, as noted in several studies, the German Mittelstand includes more than 84% trainees — the much-needed employees of tomorrow — inspiring extraordinary loyalty among young workers right from the start.

This particular aspect of hiring trainees fosters the German Ausbildungssystem, or "apprenticeship," which allows Mittelstand companies to create a significant human-capital imperative for their own longer-term success. It also helps reduce the macroeconomic risk of youth unemployment, which can be a drag on economic growth. Finally, most of these Mittelstand firms are engineering- and product-oriented companies. An August 2012 report from the major German consultancy Simon-Kucher & Partners shows that "there are a number of Mittelstand companies who file more patents in a year than an entire country like Portugal or Greece.... That's where it all starts."

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Another striking feature of German Mittelstand companies is their inclusiveness. Governments in many major industrial countries face the challenge of too much economic activity being concentrated in the major cities and find it difficult to adequately develop rural areas. But over 70% of Mittelstand companies are located in provinces and villages that are little-known, even to many Germans. A prime example is SICK AG, a global manufacturer of sensors and industrial applications headquartered in Waldkirch in Breisgau. It has close to 5,000 employees worldwide with US$1 billion in revenues each year. Another example is KUKA AG, an industrial robotics and automation company in Augsburg that was founded in 1872 and serves nearly every automotive company from BMW AG to Daimler AG. It has about 6,000 employees and 25 subsidiaries worldwide. Both companies are extremely successful and market leaders in their niches.

It is well known that since the inception of the concepts of *kaizen* and *kanban* — a scheduling system for "just in time" production — business leaders from around the world have flocked to Japan to understand these theories so they could implement them in their home countries. It is less well known that since the late 1990s, Chinese, Japanese, Korean and American businesspeople have flocked to Germany to understand the Mittelstand and learn to reproduce it at home. Almost no one has succeeded to date. The Mittelstand business model is deeply ingrained in the German economy, which encompasses deep relationships between schools, universities, companies, labor and capital investments. It far exceeds its products and profits, acting as a self-sustaining wheel that keeps the German economy moving and growing each year. Yet, despite the remarkable success of the German Mittelstand and its status as the backbone of the fourth-largest economy in the world, some structural challenges are on the horizon.

Not What's Next, But Who's Next

Fifteen years ago, everyone was talking about globalization; today's topic is succession. Numerous articles published recently in the German and American press, including one in the German edition of the *Harvard Business Review* in August 2014, have addressed this issue, expressing concern about the future.

"German firms, and particularly family-run ones, are the ideal takeover targets for Chinese investors at the moment."

— Stefan Heidbreder

Since World War II, the Mittelstand has successfully managed two *generationenwechseln*, which is roughly translated as "generational changes" and means the handoff of power and ownership to the younger generation. Handoffs in family businesses are often fraught with difficult personal dynamics: It's challenging for parents to relinquish control of the businesses they have built, and challenging for the younger generation to accept responsibility. When the first handoff between generations occurred in the 1970s, the generation whose economic success had rebuilt post-war Germany had to learn how to successfully transition, in keeping with the Mittelstand's defining focus on sustainability. As a result, German management research became the global thought leader on the topic of appropriate ways to manage succession in a family business, with additional expertise gained during the second major transition period in the mid-1990s.

The current controversy over the topic of succession is not centered on how to hand over the reins of the business, but rather, to whom they are being handed. The conversation among business leaders and the press suggests that the Mittelstand is heirless; there are not enough young people willing to step up. As a result, non-Mittelstand firms with an eye toward strategic acquisitions, along with foreign and domestic private equity investors, are taking over these companies and — the theory goes — leading them down a path in which they lose the exclusive qualities of family ownership and the long-term views that made them so unique and effective. But while there is definitely a trend of Mittelstand companies being acquired by both strategic and private equity investors, the panic and dire predictions may be unfounded.

Certainly, some of the fear of heirlessness is rooted in fact. The German population is shrinking: for every 2 potential heirs 50 years ago, there are 1.4 today. It is also a given that these businesses are more complex and challenging to run than they were 30 years ago. Take igus, for example, a firm that manufactures plastic polymers. In 1985, it had 40 employees, its customers were based in Germany, all of its sales were in Germany, and a move into France was considered a huge expansion. Today, it has 1,200 employees and 26 subsidiaries around the world. In some cases, the next generation simply may not have the skill set to run a company that is trading all over the world, but that is not likely to be a widespread problem.

Chinese Investors Turn Their Eyes to Germany

Firms with potent technology portfolios but no heirs are being targeted by foreign investors, especially from China. In his comments on Yahoo! Finance, Stefan Heidbreder, head of the Federation of Family-Owned Businesses, notes, "German firms, and particularly family-run ones, are the ideal takeover targets for Chinese investors at the moment." Recently, there have been examples of important Mittelstand companies being acquired by foreign investors, typically Chinese or American. The first major acquisition of a historic Mittelstand firm occurred in 2012: SANY Heavy Industry Co., the largest Chinese construction-equipment maker acquired a 90% share of Putzmeister, whose machines were used to entomb damaged nuclear reactors in both Chernobyl and Fukushima. Similarly, in January 2014, the U.S.-based McKesson Group purchased Celesio, a major pharmaceutical distributor.

The 2013 German film *Global Player: Wo wir sind isch vorne* expresses this fear of foreign takeover through the story of a family living in the Swabia region of southwest Germany, and who, in addition to dealing with a difficult dynamic between the son who is the current manager and the father who rebuilt the business post-war, are selling their business to the Chinese. Its humorous recounting of the process touches on questions of innovation, innovation ownership and management post-acquisition. The film ends on a comic note with the workers, who share ownership in the process, deciding to speak only the Swabian dialect, so that eventually the new Chinese owners will get tired and sell the company back to them.

While the film was intended as a comedy, it does convey some of the anxiety that exists around non-German, non-family investors. Yet there are some powerful counter-arguments to be made. One German investor, who manages private wealth for Mittelstand families, has proposed that foreign investment is much more a function of companies trying to put their capital to work in other countries than a succession issue. And on the foreign investor side, not only is the Chinese government looking for alternate investment sources, but major Chinese corporations have excess cash they would prefer to invest in growth opportunities while learning from the expertise of their acquisitions. The Putzmeister takeover is a good example: SANY retained Putzmeister's management team, kept the headquarters in Germany, and stated explicitly that its primary goal was to gain access to a global market, with a secondary goal of leveraging off the decades of Putzmeister's innovative thinking.

Has the appetite for private equity investment changed for the "hidden champions"? A private equity investor in Munich, who invests specifically in Mittelstand companies, said that private equity investment is increasing in the Mittelstand, but in his opinion, not due to succession issues. He believes it is a confluence of three factors: First, companies are trying to expand more than ever before, but need more capital to do so; second, the large German banks are less willing to lend post-crisis; and third, German private equity investors share an orientation toward long-term viability and recognize the value of sustainability, making them the best sources of capital for Mittelstand companies trying to grow. Instead of being seen today as unfriendly capital providers, private equity firms are viewed by many Mittelstand firms as potential network-building advisors and partners. One example is the young and growing IT-service company Inexio. According to an early 2014 article in *Handelsblatt*, Inexio — with over €50 million of investment in its fiber optic systems since 2007 — perceives the capital it has accepted from private equity investors as a creative and more long-term method of pursuing and ensuring its growth.

The marriage of innovation and sustainability is a hallmark of the Mittelstand, and that winning combination has given the "hidden champions" the power to adapt and modify as their needs, markets and products have changed with the times. The fear of succession is the question of the moment, but it may be a function of what American management research would describe as "defensive pessimism": a sharp focus on preparing for what might come. The ability to anticipate every potential outcome is both a positive and a uniquely German trait. It gives the Mittelstand the agility to continue to grow sustainably and will be the foundation for its future. Whatever that future looks like, the Mittelstand may well continue as the backbone of the German economy, with its twin strengths of innovation and sustainability prized by industry worldwide.

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Wharton
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