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THE LAUDER GLOBAL BUSINESS INSIGHT REPORT 2016

GROWTH STRATEGIES IN A GLOBAL ECONOMY

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As nations continue to emerge from the Great Recession, they face similar challenges in the effort to rebuild and strengthen their economies. But successful transformation does not come without growing pains: As they look to what worked in the past, businesses and governments face the future knowing that some things must change — whether that means embracing new technologies, shoring up inadequate infrastructure or borrowing ideas from different cultures.

In this special report, students from the Joseph H. Lauder Institute of Management & International Studies offer unique perspectives gleaned from interviews, observation and research into the struggle for self-improvement by nations.

In Tunisia, government officials and business owners are trying to draw a new kind of tourist who is willing to wander away from the all-inclusive beach resorts to explore the country's rich history and culture. In Brazil, the world's second-largest producer of ethanol, significant technological advances present an opportunity to adapt new, more efficient production methods. Japan is pushing itself away from traditional attitudes about money to develop a stronger private equity market. And in Colombia, high fashion is rapidly rising as a star of the economy, ready to give Paris and Milan a run for the money.

From a small shift to a sea change, transformation is taking place around the world. Some countries will win; others won't be so successful. But for those who persevere, the payoff will be big.

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Tunisia's Tourism Strategy Shifts from Sand and Sea to Culture

In a quest to reinvigorate its economy, Tunisia has embarked on a new strategy focusing on cultural tourism to showcase the country's rich and significant historical resources.

Tourism has played a central role in Tunisia's economy since the country attained independence from France in 1956, and while packaged tourism remains vital to the sector, a new emphasis on cultural and heritage-inspired tourism has evolved. After independence, President Habib Bourguiba aimed to position Tunisia as an open country that was receptive to the West in order to achieve progress and prosperity. He was generally successful, and by the time he was ousted in 1987, his rule was recognized for its support of women's rights, social development, openness to the West and receptiveness to foreign investment and tourism.

When tourism became an essential component of the government's development strategy in the 1960s, Tunisia focused on appealing to a mass audience through packaged tourism. Approximately 80% of this activity catered to large tour groups. To accommodate the primarily Northern European demand for low-cost resort tourism along the coastline, the government invested in major hotel construction projects along the coast during the 1960s and 1970s. In 1980, the country hosted 1.5 million tourists who contributed about 7% of the GDP. While investment in the sector has grown — for instance, private investment in Tunisian hotels amounted to TD 10.5 million ($4.5 million) in 1977 but grew to over TD 299.5 million ($486.6 million) by 2013 — the share of the GDP has remained stable over the years, amounting to 7.3% in 2013. While most of the hotels are located in the capital city of Tunis, about 80% of the bed capacity is found in the resort areas lining the coast.

The Challenges of Packaged Tourism

But packaged tourism poses several challenges for a country such as Tunisia. First, it is characterized by permissiveness, tolerance and limited cross-cultural understanding and communication. Tunisia accommodates this type of tourism but attempts to isolate it from the mainstream population by constructing resort enclaves along the Mediterranean coast, where European values supercede those of the local residents. When tourists interact with Tunisians, it is rarely spontaneous and often contrived.

Second, Tunisia experiences an average annual rainfall of 1.3 inches and has only one flowing river. As a result, there is much competition between the agricultural and tourism sectors over water. The average per capita rate of water consumption in tourist enclaves is more than eight times greater than in the rest of the country. The water supply is cut off intermittently in some parts of some cities, yet residents observe hotel staff watering gardens and filling swimming pools from a seemingly unlimited supply.

Furthermore, massive private debt within the tourism sector has resulted in limited spending on renovations and operations and has caused a downward spiral in both the quality and prices of hotel rooms, leading to stagnation in employment and revenues. Many hotel owners have also stopped paying off their debts, enabling them to undercut prices and hurt the profitability of the better-performing hotels. This has accelerated the decline in revenues and posed further problems for the sector.

A Shift in Strategy

In the early 1980s, Tunisia experienced a decline in tourism receipts driven by the second global oil shock and protectionist measures in Europe. As a result, the country found itself in the precarious position of being vulnerable to Europe's economic decline, the economic instability in the Arab world and a decline in demand for mass beach tourism. Soon after Zine El Abidine Ben Ali became president in 1987, he formed the Ministry of Tourism and Handicrafts to reshape and diversify the tourism strategy in response to these external factors and their potential widespread impact on Tunisia's economy. The country's focus on mass beach tourism and offering international tour operators an inexpensive Mediterranean destination left it with an image as a place for a cheap beach vacation. To attract a wider variety of tourists, it would need to grow its cultural- and heritage-based tourism.

Even as the government implemented initiatives to diversify the sector, Tunisia has continued to attract primarily those drawn by packaged tourism. The small segment of culturally inspired tourists had not motivated the government to devote significant time or resources to heritage preservation or museum development. For example, work to restore the Punic and Roman archaeological site of Carthage did not begin until the late 1990s. While tourists often visited the capital of Tunis as part of their packaged vacations and would visit the ruins of Carthage, the ancient medina, the town of Sidi Bou Said and the National Bardo museum, they usually quickly moved on to other locations along the coast.

During Ben Ali's rule, Tunisia showcased its greater concern for its cultural heritage by empowering groups such as the Association de Sauvegarde de la Medina de Tunis (Association for the Protection of the Medina of Tunisia), which was awarded outside funding for conservation projects in the medina of Tunis. In addition, in 1997 the government created the Agence de Mise en Valeur du Patrimoine et de Promotion Culturelle (Agency for the Development of National Heritage and Cultural Promotion) to enhance archaeological sites for tourism development.

> Packaged tourism poses several challenges for a country such as Tunisia. First, it is characterized by permissiveness, tolerance and limited cross-cultural understanding and communication.

The goals behind these initiatives were to not only expand the tourism sector and attract a type of tourist who would produce higher revenues, but also to shift some of the tourism incomes to inland cities and expand opportunities for craftsmen, artists and tour guides. To achieve these aims, the government expanded its spending on cultural affairs to over 1% of its total budget. This funding allowed for the construction of a new national library, the restoration of old museums, the opening of new museums and the introduction of exhibitions and festivals. While helping to shape the country's new tourism image, this spending also created a greater awareness of and interest in Tunisians' own cultural-heritage education. These values and goals were amplified after the Arab Spring, the democratic uprising that resulted in the removal of Ben Ali from office in 2011 and ushered in heightened feelings of empowerment, opportunity and nationalism.

The Preservation of the Medina

The project to preserve the medina of Tunis has not only inspired greater cultural awareness and interest among Tunisians but has also driven increased tourist interest in the country's cultural heritage.

In 1979, UNESCO designated the medina of Tunis as a World Heritage Site along with other districts in the Middle Eastern cities of Damascus, Syria, and Cairo, Egypt. But the medina of Tunis differs from other Arab old towns in that it has remained sheltered from global influences. Instead of selling real estate to foreign investors, the town and its preservation efforts serve an important identity role for Tunisians. To a great extent, those involved in the project are local and national and value the medina's symbolic significance.

The revitalization and preservation efforts are designed to brand the medina as a cultural asset so it does not become a dead museum or exclusively a tourist attraction and to ensure no part of it is sold to foreigners. Unlike revitalization efforts seen in other medinas in the Arab world, the efforts in Tunis aim to attract local residents and limit mass tourism. Instead, through the revitalization projects, culture-oriented tourism will attract individual travelers.

By controlling and regulating the real-estate market, the government can ensure that the medina of Tunis will not be influenced entirely by European residents.

By controlling and regulating the real estate market, the government can ensure that the medina of Tunis will not be influenced entirely by European residents. Currently, foreigners must obtain permission from the governor in order to purchase real estate in Tunisia, a long and complicated process that can extend over many years. This bureaucracy has discouraged foreign investors and has prevented a sell-out such as that seen in the Moroccan city of Marrakesh. Rather, officials seeking to encourage Tunisians to move into the medina have been offering incentives to homeowners to help them with their restoration projects.

Today, the medina of Tunis has become a shopping destination during the day and a place to meet, dine and stroll in the evening. Given the medina's symbolic significance during Ramadan — a holy month of fasting and spiritual renewal for Muslims — residents of Tunis are drawn to the many concerts and events hosted as part of the Festival de la Medina. TV shows, especially those broadcast during Ramadan, serve an important role in showcasing the area. The buildings and narrow streets of the town serve as a stage and backdrop for many of the programs and thus encourage greater appreciation among Tunisians and an increase in the number of visitors.

Heritage Preservation as a Social Movement

During Ben Ali's presidency, the tourism sector was controlled largely by those well connected to the regime. One of the most pronounced changes since the Arab Spring is the greater opportunity for new players to invest in the sector, with many of their investments focusing on small-scale developments with heritage in mind. However, as noted by Leila Ben Gacem, who owns the boutique hotel Dar Ben Gacem in the Tunis medina and works with the Association de Sauvegarde de la Medina de Tunis, the ecosystem for cultural tourism is still developing and much of the responsibility for its growth falls on social organizations such as Carthagina, a nongovernmental organization formed in 2013 to preserve and promote the heritage and history of Tunis. Since the revolution, Ben Gacem said, there has been an increase in the number of curious and socially interested tourists who want to learn more about Tunisian heritage and culture. The difficulty is in meeting their needs, given the limited number of professional tour guides and cultural initiatives.

In addition, much of the medina remains in disrepair. While some Tunisians have been inspired to invest in real estate there to open coffee shops, small hotels or restaurants, the return on their investment has been very slow. Across the medina's 670 acres, there are only 10 boutique hotels, including Ben Gacem's. She borrowed money to buy a historic courtyard home and spent four years restoring it. Even though her hotel is often fully booked and she can price her rooms at boutique prices, she laughingly says that it will take her 50 years to recoup her investment. She operates a formally licensed boutique hotel and thus pays monthly taxes of TD 1,000 ($500) and TD 3,000 ($1,500) in salaries for her employees. This high tax rate actually encourages many hotel owners to go unlicensed. Of the

10 such hotels in the medina, only two are licensed. As the project to preserve the area is ongoing and is largely a social initiative on the part of Tunisians, it relies on the growing support for cultural and heritage education initiatives.

Carthagina serves as a prime example of this symbiotic relationship. It benefits from Ben Gacem's patronage, hosting some of its meetings at Dar Ben Gacem. At the same time, it is one of those organizations responsible for helping to shape the cultural ecosystem that Ben Garcem says is central for those tourists attracted to the medina.

There is a growing desire among Tunisians to learn more about their heritage, and Carthagina caters to this interest. Since its inception, Carthagina has hosted a number of lectures and tours at various sites all across Tunisia. It brings historians and archaeologists together with interested citizens at sites where posted signage and information are limited.

From visits to the Roman ruins of Carthage and Dougga in northern Tunisia to learning about the olive oil industry, the events are often at full capacity. By fostering appreciation, interest and recognition of the value of cultural and heritage sites, Carthagina and similar organizations can help funnel money into those preservation projects that may encourage growth in culturally oriented tourism. However, as Carthagina's co-founder Emna Mizouni points out, "we cannot talk about tourism if we are not talking about how to identify ourselves."

> Unlike revitalization efforts seen in other medinas in the Arab world, the efforts in Tunis aim to attract local residents and limit mass tourism.

This article was written by Hoda El-Ghazaly, member of the Lauder Class of 2017.

The Global Push for Talent Development

When the public education system fails to graduate students with the skills needed to enter the workforce, many private companies are shouldering the responsibility of getting those young recruits ready for duty.

Throughout the world, there is a critical inadequacy within traditional state education systems to develop enough workers with skills relevant to the modern economy. This has resulted in a push by corporations to remedy this skill shortage through initiatives to train and educate both blue-collar and white-collar workers. The solutions range from simple internal training programs to customized partnerships with local technical schools, externships at competitor companies and even the development of accredited, affiliated educational institutions. It is clear that, with some ingenuity, companies are increasingly able to take control of developing their most important commodity and tap into the vast global pools of underutilized human capital.

> The educational structure in Germany places a heavy emphasis on industry-academia ties, so it is notable that BMW has had success in replicating its workforce-training model for its operation in the United States.

South Carolina: Importing a German Model of Skills Training

German automaker BMW has partnered with local universities around Spartanburg, South Carolina, to establish a two-year apprenticeship program for high-school graduates. Each graduate studies at the institution while working 20 hours a week at the BMW plant in Spartanburg. At the end of the program, for which BMW covers tuition costs, the student receives an associate's degree and has the option to join BMW full time or pursue a four-year degree at a university.

This model provides more experience and knowledge about BMW than a typical two-month summer internship would, and it enables students to learn critical skills that are in high demand and short supply in the workforce. If a student decides to join BMW after graduation (most take advantage of this opportunity), the company benefits from a new employee with highly relevant skills who is already engaged in the company's culture.

This unique form of training has traditionally helped German companies leapfrog over their competitors in the areas of innovation, efficiency and quality. The educational structure in Germany places a heavy emphasis on industry-academia ties, so it is notable that BMW has had success in replicating its workforce-training model for its operation in the United States.

China's Drive for Global Expertise

China's entry into the World Trade Organization (WTO) in 2001 resulted in an increasing demand for global talent. The "Go Out Policy," in which the government encourages enterprises to invest abroad, further increases pressure on employers to seek talented employees who not only understand the local market, but also have international exposure and global vision.

As a number of managers in China have pointed out, the country suffers from an acute talent gap. According to a September 2013 article in *China Daily*, "China needs 75,000 executive managers with global experience in the next five to 10 years, but there are only 3,000 to 5,000 people in the local market who meet the necessary criteria." There are several reasons for this shortage in talent. First, the vast majority of Chinese have never traveled abroad. Statistics show that only 3% of the Chinese population own passports. Second, most mid-to-senior Chinese executives born before 1985 did not receive an overseas education. And many Chinese who are overseas are not familiar with the local market and lack local connections.

Many state-owned enterprises (SOEs) and private companies have developed their own training initiatives to address the problem. Sinopec Corporation, one of the top three petrochemical SOEs in China, established a Management Institute in Beijing to provide executives with local knowledge and global exposure. The company, which is a quasi-governmental organization, is actively seeking overseas expansion and acquisitions. Yet it has difficulty hiring overseas due to salary and cultural issues. The Management Institute provides in-house English lessons and international business, leadership, communication and management courses for mid-level employees. In addition, it has established partnerships with the world's top business schools (Wharton, Harvard Business School and INSEAD) and regularly sends its employees to different locations for training, including at multinational competitors' oil firms. These overseas experiences have enhanced Sinopec's employees' intercultural skills and helped the company better integrate into the global environment.

Despite offering lucrative compensation packages, Hillhouse, one of the best-performing investment funds in China, also faces a talent shortage. Given its stellar track record and reputation, it has successfully attracted top talent from around the world. However, most of its staff has spent a significant part of their lives and careers abroad and are unfamiliar with the mindset of Chinese entrepreneurs. Hillhouse recently established an intensive training boot camp in which new hires meet for three weeks to conduct case studies and research projects on China's latest telecommunications, media and technology (TMT) investment trends. The program is mentored by high-caliber entrepreneurs such as Pony Ma of Tencent, Richard Liu of JD.com and Robin Li of Baidu. This training initiative has proven effective in boosting foreign employees' understanding of Chinese markets.

The Chinese government also sees an increasing need to introduce global talent into the economy and is working to complement private training initiatives. It has developed the Recruit Program of Global Experts (1,000 Talent Plan) to recruit expatriate experts — primarily strategic scientists and internationalized innovative teams — to promote what have been identified as "seven strategic industries." Many companies focused on research and development, such as Huawei, Goldwind and Mindray, are key beneficiaries of this program.

Vietnam: Bridging Local Skill Shortages

Vietnam is viewed as one of Asia's most attractive foreign investment destinations. Since joining the WTO in 2007, the country has prospered and shown a consistent growth rate of more than 5%, second only to China's in the region. But the situation was very different two decades ago. Unemployment rates were high, job opportunities for college graduates were scarce and there was a huge divide between the skills potential employers were seeking in graduates and those that educational institutions were training them in. A number of companies, including Glass Egg Digital Media and ISA TanTec, have done an outstanding job in bridging this skills gap.

The Chinese government also sees an increasing need to introduce global talent into the economy and is working to complement private training initiatives.

Glass Egg Digital Media was founded in 1998 as a 3-D digital-art development and offshore outsourcing agency for the flourishing PC game and edutainment industry in the U.S. At that time, no other agencies were doing this work in Vietnam, and the concept of outsourcing art production overseas was still alien to Silicon Valley's game developers. It was very much a niche industry for which students graduating from Vietnamese universities had no training.

To make their vision a reality, the founders of Glass Egg decided to hire the top 20 students from the best art universities in Vietnam. The company's chief technical officer leveraged the training resources available online along with his own expertise in the field to design an in-house 3-D training program. The game-development houses in the U.S. saw an enormous cost-cutting opportunity, and as the company gained more clientele, it invested more resources into employee training and a formal program tied to an incentives-and-reward system.

What distinguishes Glass Egg is that it has worked to bridge the gap at its very source: academic institutions. Through partnerships established with local polytechnic institutes, students can take courses in 3-D animation and digital art design as part of the university curriculum. These students may have the opportunity to work at Glass Egg, depending on their performance in the program. In addition, top performers within the company are eligible for sponsorships to pursue higher education in Vietnam and abroad.

> It is clear that companies can take control of their own destinies by training and developing the skilled labor force they require.

ISA TanTec is a major leather manufacturer, supplying internationally recognized brands and employing more than 1,000 people at its factory in Ho Chi Minh City. Committed to producing a high-quality product in customized colors and textures, the company places a great deal of emphasis on employee training to achieve its mission. Its senior leather technicians hail from Brazil and Germany and are specialized in the manufacturing process. The company has developed a comprehensively structured curriculum to train its workforce, and the training process can last up to three years for selected employees. They receive a certificate of completion that is recognized across the tanning industry. With their enhanced skills, they can seek faster growth and promotions at TanTec or explore opportunities outside the company.

Through formalized training systems, both Glass Egg and TanTec have empowered their employees to acquire skills that enable them to perform better and grow in their respective companies and also leverage those skills to further their long-term career prospects.

Closing the Education Gap in Kenya

Samasource is an international digital outsourcing provider in Kenya that performs labor-intensive work such as image tagging for self-driving-vehicle algorithms. With customers such as Google, Facebook, eBay and Tesla, it is, in its own words, "a leader in global sourcing for data projects that require a human touch." As one of three subsidiaries under the umbrella of the nonprofit Sama Group, it focuses on providing high-tech professional services at a profit while also having a positive impact on society.

Samasource's economic and social impacts revolve around two axes. First, it employs low-income individuals from vulnerable areas of Haiti, Ghana, Uganda, Kenya and India. This practice has helped alleviate poverty and increase local wage income by 114%. The cascade effect of this footprint has led to better housing, improved health and first-time access to primary education for employees and their families.

Through its education branch, Samaschool, Samasource is becoming an education engine for multiple high-poverty communities in Kenya. Rather than wait for the local education system to provide sufficient workers with relevant skills, Samaschool addresses this shortage directly. It provides people in these high-poverty areas with skills that help them become competitive in the digital outsourcing market, including at Samasource. It does so through a hands-on, market-driven curriculum that is updated continuously to meet market needs.

Samaschool offers education opportunities not generally accessible to low-income communities, enhances social inclusion and is a source of highly qualified professionals for Sama Group's subsidiaries.

Samaschool's value proposition encompasses three areas: (1) Training is highly practical, craft-oriented and takes place in groups, which boosts knowledge and feedback-sharing, and helps students develop teamwork skills. (2) The academic focus is aligned with skills demanded by Sama Group's customers, which ensures students' competitiveness at graduation and readiness to enter the job market. (3) Samaschool offers alumni networking and helps students in their job search.

The Simba Corporation is a conglomerate spearheaded by CEO Adil Popat. His daughter, Alyana Popat, leads the Simba Foundation, which has the primary goal of setting up a technical school. The school's mission is "to provide a platform for young people to create value that builds and sustains their own future," she said. "The main point that needs to be elaborated on is the fact that students who graduate from universities in Kenya tend to have little or no work experience, therefore making it difficult for them to join the job market."

Her words underscore the increasing trend by large companies worldwide to provide educational opportunities that fill the gap between the skills taught at academic institutions and those needed by job markets. They share a strong social component by focusing on the most vulnerable collectives of society and empowering and developing reservoirs of underutilized human capital.

Samasource and the Simba Corporation are not outliers in this endeavor. Equity Bank Group through its Wings to Fly program, Toyota through its Academy, and Safaricom through its M-Pesa Foundation Academy are also investing in a new paradigm for education in Kenya, one in which companies are engines of social good and producers of highly qualified professionals.

It is clear that companies can take control of their own destinies by training and developing the skilled labor force they require. Numerous companies around the world are successfully and profitably able to enhance or even supplant the formal education available for local workers. As this model gains a longer track record and greater visibility, it will become an increasingly critical driver of success in the modern economy.

This article was written by Miguel González, Jackson Hui, Andrei Margarit and Pushpak Pujari, members of the Global Program within the Lauder Class of 2017.

Colombia's Fashion Industry Moves Forward

Forget Paris and New York. Some of the hottest haute couture in the world is coming out of Colombia, which is quickly building a reputation as the new home for high fashion.

Colombia has changed enormously in recent years. No longer known for its high crime rate, it has now become a popular holiday destination with a vibrant economy. One sector that has evolved very quickly is the fashion industry. How has Colombia emerged as a fashion center in Latin America, rivaling the much larger markets of Brazil and Mexico? Why have international brands as well as new entrepreneurs been flocking to the country as they did to Brazil several years ago?

From 2009 to 2014, Colombia experienced a 5.5% growth in sales volume for clothing and footwear. This figure is larger than those for Mexico (4.9%), Brazil (3.3%) and Argentina (3.4%), according to research by Euromonitor published in April 2015. The agency projects that future growth in the Colombian clothing and footwear market from 2014 to 2019 will be even greater.

One of the most important factors that explains Colombia's emergence in the fashion industry is the prominent textiles industry in Medellin.

One of the most important factors that explains Colombia's emergence in the fashion industry is the prominent textiles industry in Medellin. This industry generates 30% of employment in the city, with about 50% of the exports reaching the United States, Costa Rica, Venezuela, Europe and Ecuador. As a result of the high quality of the fabrics and the low cost of production, Medellin has long been seen as an attractive manufacturing location for global designers.

The Colombian economy has improved in recent years as a result of political and economic reforms initiated by the governments of Álvaro Uribe and Juan Manuel Santos. Uribe's 2002-2010 presidency brought about a significant reduction in crime levels due to the "agenda-of-domestic-security" initiative. Santos, president since 2010, has continued this initiative through peace negotiations with the guerrilla organization FARC.

Additional reforms have opened the Colombian economy to global trade and entrepreneurship. Compared with other countries in Latin America, the legal prerequisites for establishing a business in Colombia are less demanding: For example, no upfront investment is required to begin a startup there. Furthermore, it is a favorable market for international investment. According to the Heritage Foundation's 2015 Index of Economic Freedom, the average tariff rate in Colombia is 4.4%, lower than that for Brazil (about 8%) and Argentina (about 6%). Colombia is also a member of the Pacific Alliance, which encourages cross-border investments between Chile, Costa Rica, Mexico and Peru. Foreign and domestic investors are generally treated equally under the law, and credit is allocated on market terms, with foreign firms receiving equal treatment.

As a result, Colombia was named in 2015 as the best country in Latin America to do business by the World Bank and an international leader in entrepreneurship by the World Economic Forum. It has experienced growth of 5% in its economy, with unemployment falling to its lowest level in more than a decade. A 2014 report from The Business of Fashion, an online publication that covers the industry, mentions that Colombia's stability and security improvements have contributed to an increase in purchases by the public. Many Colombians who chose to spend on luxury items abroad now feel safe enough to spend their money locally. Likewise, there has been an increase in the number of middle- and upper-class Colombians choosing to remain in Colombia rather than move abroad. The confluence of all these factors has led to an influx of local and international brands, including Spain-based clothing and accessories retailer Zara, entering the Colombian market.

"I believe Colombia really opened up as a 'serious' fashion market with the arrival of Zara," said Natalia Uribe, Fashion Editor of Esquire Colombia. "The good results this venture brought Inditex led to other brands wanting to invest in Colombia. It's been seven years since, and now other major middle market and luxury brands are coming in."

The Arrival of Luxury Brands

In 2012, Ferragamo, Longchamp, Montblanc, Vilebriquin and other brands set up shop in the capital city of Bogotá. Burberry, Dolce and Gabbana, and Tiffany & Co., among others, followed the next year. According to Kelly Talamas, editor-in-chief of Vogue Mexico and Latin America, "Roughly around 2009 or 2010, there was a change of mind regarding Colombia in general — a more hopeful outlook on its potential. Around this time, the country became safer and there was this Wild West effect because, aside from a few pioneers like Louis Vuitton, MaxMara and Hugo Boss, it was an unexploited market both for investors and for international brands."

The entrance of international brands has helped to spur the domestic fashion industry, turning Colombia into one of the most prominent and relevant destinations for industry professionals in all of Latin America. As described by Brenda Diaz de la Vega, editor-in-chief of Harper's Bazaar Mexico and Latin America, "To a certain extent, it was an advantage because the local fashion industry was able to develop during these years. I think that if international brands would have arrived in Colombia 10 years ago, the local talent would not have had the chance to show their work." Inexmoda, a private Colombian institute for fashion and exports, annually hosts two of the most relevant events for fashion and textiles in Medellin: Colombiamoda and Colombiatex.

Colombiamoda, Colombia's version of New York's Fashion Week, takes place in July. In 2015 the event attracted over 60,000 visitors, including 13,000 buyers (about 20% international) and generated over COL$1,063 billion (US$340 million) in deals, an increase of 11% over the previous year. Colombiatex is a world-class textile fair, promoting local factories and production that currently represents 12% of the country's GDP. According to Carlos Botero, president of Inexmoda, "It is the most important textiles-based event in Latin America … a trade fair that could represent US$150 million in terms of business opportunities, making it a fair that has a true impact on industries, on businessmen and those attending, and the visiting buyers will find really interesting, innovative and complete offers."

> Many Colombians who chose to spend on luxury items abroad now feel safe enough to spend their money locally.

The 2015 event boasted over 500 exhibitors and attracted over 10,000 buyers from all over the world. Both events are key opportunities for local talent and businesses to showcase their latest designs and innovations and have strongly encouraged the rise of entrepreneurship.

The presence of organizations such as Colombiamoda that work to promote local talent and propel the industry forward is incredibly important because Colombian fashion is representative of the country's cultural diversity. It is celebrated as a source of pride, demonstrating creativity and artistry and promoting a positive international perception. The Colombian people are extremely patriotic and display a contagious passion for their singers, athletes and even designers, who receive support from within the country. It is impressive that, in light of the arrival of more recognized international brands, the majority of sales there come from local products. Designers such as Julieta Suarez affirm that Colombians prefer fashions that are loyal to their local identity. She notes that "the arrival of luxury brands resulted in Colombians appreciating and supporting their national designers more, increasing [their] visibility, in [their] being more exclusive and [of] higher quality."

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The growing attention Colombia has been receiving from the global fashion community can also be attributed to a big push from Latin designers already living abroad, which started piquing an interest in the region, according to Talamas. Colombian fashion is anchored in national pride, which can be seen in sales and in the backing it receives from various entities. This support system is demonstrated by Creo Consulting, a platform created by two Colombian cousins, Giovanna Campagna and Claudia (Cloclo) Echavarría, to promote Latin American fashion and design. The pair strive to "create a program like the CFDA in the USA, an incubator program for young talent in Colombia." They embody the entrepreneurial spirit just as much as the designers they represent do, launching campaigns and trying to generate opportunities for the Colombian industry to grow to the level at which it can be competitive with the fashion sectors of Paris, Milan, and the U.S.

Staying Loyal to Their Roots

With regard to Colombia and its national identity, a strong connection exists between the country's natural resources and its fashion. Its designers are loyal to their roots: Their collections are influenced by their communities and traditions, which can be seen in the fluid silhouettes, high-quality craftsmanship and raw-material selection. The integration of these elements shows not only the beauty of the country, but also the positive social impact behind the process.

For example, the luxury handbag brand Mola Sasa depends on the molas (woven patterned fabrics) made by the Kuna women from an indigenous community in the Alto Caimas province of Urabá. Designer Yasmin Sabet creates the exterior of the bags using the molas and the interior from a local natural fiber. She said it is important to her to include the word mola in the brand name because she wants to recognize and share the very personal artistry that is produced by this community of women. Every piece is unique and tells a story of the woman who wove it. It follows then that each bag is representative of the Colombian identity, but even more so of the indigenous and less-familiar regions of Colombia.

The growing recognition of Colombia's fashion industry also calls attention to the obstacles in the sector and the areas that still need to be developed. Some production issues in Colombia don't exist in other countries that have been involved in fashion for years and have established processes in place. Campagna and Echavarria identify the difficulty of integrating a standardized sizing system for shoes and the lack of good quality control as major issues, while Paula Herrera, creator of the handbag brand MAPA Collective, notes the communication issues and a lack of urgency in Colombian production. In addition, there is currently a lack of diversity in university programs dedicated to fashion. Campagna and Echavarria insist that there must be a change of mindset in Colombia for fashion to be accepted as a "form of art" so it can be featured in museum exhibits and appreciated beyond the runways and boutiques. There are several areas for improvement, and not just in the fashion world. Colombia is a country that, until recently, did not require formal structuring in various sectors. Accelerated development in the last few years has brought about a conversation on how to modernize and adapt with this growth. The vision at Creo Consulting and other platforms could help to transform the fashion and design sphere in Colombia, providing the resources and support to keep it flourishing.

In conclusion, Colombia's healthy economic rise has opened doors and attracted many international fashion brands in the last few years. In turn, their success has enabled the fashion industry to blossom domestically. Through various efforts by Inexmoda, namely Colombiamoda and Colombiatex, Colombia has been able to establish itself as an important fashion hub in the region and continues to gain international attention. The industry has thus invested heavily in supporting the development of local talent, creating a marketplace for design that is strong in national culture and identity. As Colombian designers like Silvia Tcherassi attain international appreciation and recognition, international buyers will seek out Colombian design more and more. Colombia is truly an emerging market with many opportunities for growth and development as it continues to evolve in the coming years.

This article was written by Christina Cerezo, Vanessa Frances and Jessica Kong, members of the Lauder class of 2017.

Rio 2016: Winning the Olympics Bid

Securing a bid to host the Olympics is a big win for any city. But before the games begin, millions must be spent on facilities, transportation, security and environmental mitigation. For cities such as Rio de Janiero, which will host the 2016 Summer Games, it is an opportunity to create a legacy beyond the closing ceremony.

Hosting the Olympic Games can be a transformative experience that encapsulates the beauty, history and emotion of a city or country. The drama and glamour of the opening ceremony alone are a highly anticipated moment of national pride for the host nation. One landmark moment in American sports, for instance, is the image of Muhammad Ali lighting the Olympic torch in Atlanta, Georgia, in 1996.

At the same time, hosting is undeniably an arduous process to manage, which is why the International Olympic Committee (IOC) places great emphasis on its selection process. In several instances, the host faced challenges that came with potentially damaging long-term results. For example, the 2004 Summer Olympics in Athens cost twice as much as the projected budget, and the lasting image of decaying stadiums has left Greece with enormous costs, both financially and politically.

> The Olympics always entails investments in facilities that are developed exclusively for the event but are difficult to integrate into the city's lifestyle after the closing ceremony sets off its final fireworks.

In October 2009, the IOC chose Rio de Janeiro to host the 2016 Olympic Games. The other shortlist candidates were Chicago, Madrid and Tokyo. As possibly the first South American host, Rio developed its bid around a "Live Your Passion" theme that left a strong impression on several IOC officials. Nawal El Moutawakel, president of the 2016 IOC Evaluation Commission, was impressed by her visit to Rio, stating, "We found behind then-Brazilian President Luíz Inácio da Silva a dream of a city and also a dream of a nation."

In examining the key details of Rio's bid, the commission's report recognized that the city had benefited in both structure and personnel from successfully hosting the 2007 Pan-American Games. In addition, the $240 billion (R$480 billion) needed to finance the project was fully guaranteed by a mix of public and private players, and the bid had "the full support of the three levels of government (federal, state and city) across all political parties, as well as that of the private sector." According to the report, 85% of Rio's public supported the bid, along with 69% of the Brazilian public.

Since winning the hosting rights, Rio 2016 has been challenged by its relationship with both national and local governments in managing the project. Throughout the bidding process, Rio 2016 president Carlos Nuzman presented alongside members of the Brazilian government. Perhaps most notably, the final pitch to the IOC was conducted by Henrique Meirelles, the former president of the Bank of Brazil. In preparation for the Olympics themselves, the government and Rio 2016 are operating as two separate entities. In its most recent Annual Sustainability Report (September 2014), the IOC separates the project's tasks into three groups: "areas where Rio 2016 has/will have direct control," "areas where Rio 2016 has/will have influence," and "areas that are beyond Rio 2016 control/influence."

The final category is described as being the responsibility of the local, state and federal governments. Tasks in that category include construction of the committee's offices and carbon-footprint reduction, both of which are the responsibility of the state and local governments. In July 2015, Sidney Levy, CEO of Rio 2016, confirmed this division of assignments: "Rio 2016 develops the technical plans but their execution is the government's responsibility."

One of the most innovative public-private partnerships for Rio 2016 is an agreement between the IOC and Airbnb to increase guestroom availability throughout the city. Airbnb, the world's largest web-based hotelier, will leverage its network of some 20,000 private rooms in Rio to host guests from all over the world. This will be the first time that a business based on the shared economy model has been selected as a sustainable and viable alternative to a large hotel investment for an international sporting event.

The agreement also represents a significant wage-earning opportunity for the city's inhabitants. Revenues are expected to surpass the $26 million spent on private-apartment rentals during the 2014 World Cup, which Brazil also hosted.

At the same time, other public-private partnerships have not been as successful. For example, Uber's participation in the games has met resistance from different groups in Brazil. Once considered a potential partner to provide transportation alternatives in Rio, the platform was not selected after multiple protests by the cab drivers' union and unfavorable regulations passed in other states, including São Paulo and Brasilia.

In addition, the Olympic golf-course project in Barra da Tijuca has been plagued by protests. To comply with requirements set by the International Golf Federation, the course was built on the Marapendi reserve, which has negatively affected the biodiversity in one of Rio's few natural reserves. Concurrently, there are suspicions of corruption because the government has authorized construction of 22 apartment buildings with more than 20 stories each within the reserve. These buildings violate existing environmental and construction regulations, and the cost for each apartment is estimated between R$6 million and R$13 million ($2 million - $4 million).

For the IOC, a major aspect of Rio's winning bid was the importance of socioeconomic development. Undoubtedly, hosting the Olympics has revitalized the efforts of city leaders to improve the precarious conditions for those living in Rio's favelas or slums. The focus in the last few years has been on urbanization through the construction of cable cars and other forms of public transportation, and security with the placement of Pacifying Police Units (UPPs) inside the favelas. Since 2009, many favelas have witnessed significant improvements and have even become tourist destinations. The installation of UPPs in nearly 40 favelas has led to a reduction in violence across the city.

Other ambitious projects that were approved by Rio's political leaders fell into disarray once a financial crisis hit Brazil. One example is Morar Carioca, a "revolutionary project in social integration, unique in all of Brazil," as Mariana Cavalcanti, one of the authors of the project, described it. Launched in 2010, this initiative was designed to urbanize all the favelas in Rio by 2020. In addition to creating street layouts and building recreational areas, it would have brought significant improvements in education, health and other basic services. But the project gradually disappeared from the agenda because of budget constraints.

> Rio 2016 merely helps to develop a social conscience that could foster Rio's profound transformation into a more cohesive and secure city in the future.

The Olympics has had an indirect impact on the social transformation that Rio has witnessed since 2009. However, the direct impact of Rio 2016 in the city's social transformation will be temporary and limited — mainly through the creation of 80,000 jobs during the celebration of the games. According to Levy, "the games don't have the capacity to alter some of the perverse social structures that Brazil has had for many years." Thus, Rio 2016 merely helps to develop a social conscience that could foster Rio's profound transformation into a more cohesive and secure city in the future.

Room for Improvement

Two primary areas that have emerged in terms of relevant infrastructure for Rio 2016 are transportation and game-specific facilities. Improvements in transportation infrastructure could be a legacy for Rio, a city that has received astonishingly little investment in this sector. At the same time, the development of Olympics-specific facilities is tied more directly to the host city's execution capabilities. As past experiences have demonstrated, the constructed facilities are rarely maintained and typically fall into disrepair a few years after the conclusion of the games.

Rio has had a long-standing history of underinvestment in transportation infrastructure. This has resulted in a series of problems, including the failure to integrate different areas of the city, poor maintenance of existing transportation, overcrowding and occasional breakdowns. With these deficiencies in mind, Rio 2016 included the following projects as part of its candidacy proposal:

1. Implementation of a light rail system (VLT)
2. Development of an alternative bus rapid transit (BRT) that will operate on exclusive tracks
3. Extension of the existing highway system (*elevador do joá* and *viario da barra*)
4. Construction of Line 4 on the subway system

The overall goal was to provide efficient public-transportation alternatives that could easily connect all four regions involved in the Olympics (Maracaná, Copacabana, Barra, and Deodoro). By October 2009, these projects were either already underway or had been analyzed by Rio's government. Even though the IOC did not develop the initiatives, it served to promote and facilitate these projects. The first three projects were implemented on time and have met all their intermediate milestones. They are expected to be operational by the time the Olympics begin. However, construction of Line 4 on the subway system is behind schedule, and private analysts are skeptical that it will be completed in time.

> The true legacy of the Olympics will be realized only if the authorities and inhabitants in Rio de Janiero succeed in maintaining these programs beyond 2016.

With regard to infrastructure impact, the Olympics always entails investments in facilities that are developed exclusively for the event but are difficult to integrate into the city's lifestyle after the closing ceremony sets off its final fireworks. Rio's people and government are well aware of this. For example, as soon as the 2007 Pan-American Games ended, the Maria Lenk Aquatic Park fell into disuse. These developments often result in negative impacts for the host community in the medium to long term, thus making Rio 2016's hopes for a long-lasting legacy dubious.

Nevertheless, Rio 2016 decided to maximize the functionality of certain facilities by means of "nomadic architecture." This practice focuses on transforming what may have been a single-purpose venue into a multifunctional facility. For example, Olympic Hall 4, a full-fledged handball and goalball stadium, is being built in the Barra region. After the Olympics end, it will be dismantled and reassembled into four municipal schools that will host 2,000 students. Even though these developments entail a higher investment for conventional sports facilities (25%-30% more for this particular project), the positive social impact outweighs the increased spending from a city-planning perspective.

Environmental Footprint

In preparing for the Olympics, a frequent area of focus revolves around the event's environmental impact. As the Rio 2016 Committee noted, "imagine the impact of this on the consumption of natural resources, like water and energy, on the consumption of food and raw materials, and on waste production." Environmental practices represent one of the main challenges for the Olympics but are also a unique opportunity to disseminate a culture of sustainability in Rio. According to Levy, "Rio 2016 has a commitment to work with public and private entities to minimize waste and carbon emissions because of the games." He acknowledged these objectives will be a huge undertaking. Current estimates by the committee show that the games will result in the production of 17,000 tons of waste and the consumption of 23.5 million liters of fuel and 29.5 gigawatts of electricity.

Managing this environmental footprint will require a comprehensive strategy. The Rio 2016 Committee, in collaboration with its public and private partners, has developed a number of studies and programs to address waste management. However, public participation will be essential to ensure success. The authorities are trying to educate Rio's citizens and alter their behaviors. One of the most innovative solutions presented to date involves using recycling cooperatives, located in the favelas, to manage waste and to provide additional income opportunities to the residents of those communities. Multiple investments to encourage the use of ethanol for transportation and electricity-generation purposes will help reduce carbon-dioxide emissions.

Water management requires a very different approach. Rio 2016, along with the Brazilian authorities, has pledged to host sports-based competitions in natural bodies of water during the games. However, many athletes and private organizations are not satisfied with the results of the cleansing projects in these settings, particularly in the Bahia de Guanabara. Levy recognizes that not all the cleansing projects will be completed in time. Local authorities and the committee are erecting temporary garbage-containment barriers in bodies of water to improve sanitation conditions. These measures have proven to be effective on a temporary basis, but the underlying pollution in Rio's main bodies of water will remain an issue beyond 2016. This topic is critical, particularly now that Brazil is in the middle of a water crisis due to poor infrastructure and the growth of water-intensive industries.

The transformative power of the Olympic Games for Rio is undeniable. This is particularly true in light of the massive investments in transportation, reusable infrastructure and public-private partnerships that will have significant and tangible impacts on the city. Historically, the games have served as a catalyst for implementing social and environmental programs. However, these projects are just a starting point in addressing a long list of issues in these areas. The true legacy of the Olympics will be realized only if the authorities and inhabitants in Rio de Janiero succeed in maintaining these programs beyond 2016. Hosting international sporting events such as the Olympics provides the right setting to implement projects of large-scale societal impact, but they are not a one-stop solution to long-standing challenges for the host cities and nations.

This article was written by Michael Alerhand, Pierre Le Normand, Guillermo Medina, Francisco Taboada, and Lorenzo Zavala, members of the Lauder Class of 2017.

The Chinese Investor: Monolith or Mosaic?

Many stereotypes persist about China, not least on how the typical Chinese investor thinks. This look at four investors offers a glimpse into real-world examples.

Little news garnered more attention in the financial press last year than China's stock-market meltdown in late 2015. Professional investors, analysts and pundits have attempted the herculean task of understanding the Chinese investor, who is not some monolithic entity but rather a rich mosaic of unique individuals, all with distinct stories and backgrounds that have shaped their approach to investing. One way to grasp the diversity of Chinese investors is to examine several different cases.

Kevin Lee: The Conservative Professional

Kevin Lee is your typical mid-career professional. A resident of Beijing, he is part of a two-income household, has two children, owns his own apartment and drives an imported SUV. He is well-educated, having earned a master's degree in education from Beijing Language Culture University, and well-traveled. Both he and his wife work in education. While their salaries may lag behind those of other professionals, the benefits, including free day care for their toddler, help to narrow the gap.

> The "Chinese investor" is not a monolith but rather a mosaic of hundreds of millions of individual investors, all with their own risk tolerances, investment criteria and means of interacting with the market.

Lee's approach to risk is representative of not only many mid-career Mainland Chinese investors, but also many private, middle-class investors in developed countries. He views property markets, particularly in China's first-tier cities such as Beijing and Shanghai, as significantly more stable than the country's stock markets. He feels that demographics, the household registration system, employment opportunities and access to medical and educational services will continue to support prices in these major cities. If home-price appreciation in Beijing continues to slow, he will likely buy his first rental property.

In contrast, Lee's confidence in China's equity markets was shaken during the meltdown. Fortunately, he did not own any financial assets at that time, although he plans to enter the market in the future. When asked to what he attributes China's current market weakness, he responds that stock markets in China, as elsewhere, are simply inherently risky. Even though he does not attribute the late-2015 rout to meddling by foreign investors, as some Chinese media outlets have insinuated, he does not propose a specific alternative cause, such as anticipation about when the American Federal Reserve may begin to normalize U.S. interest rates or the relative lack of other investment options available to private Chinese investors. In response to a question about alternative investments, he notes that, aside from property and stocks, his investing experience is limited. He mentions commodities but admits he has no intention of investing in them.

What is telling about Lee's investing experience is that it seems to support the view that, even though retail investors account for approximately 80% of the trading that takes place in China's stock markets, their holdings as a percentage of total household wealth are quite limited (currently estimated at around 5%). If this is truly the case, the market rout's impact on the broader economy may turn out to be quite limited. The real question may center on where the country's property prices are headed.

Yuanxiang Ma: The Risk-seeking Middle-Class Entrepreneur

Yuanxiang Ma owned a small jewelry business in Zhengzhou, Henan Province. His wife works as a bank teller. Their daughter just turned 13. Ma is in his mid-40s and never attended college. After high school, he started working for a small business that produced store signs. At the same time, his older sister established a successful jewelry business. After several years, Ma joined her operation and eventually took over and became its sole owner. During its most profitable periods, he was earning more than ¥650,000 (over US$100,000) annually from his jewelry counters in department stores. However, the growing popularity of e-commerce in China gradually eroded his profits, forcing him to close his business. Looking for a new source of income, he began dabbling in the stock market.

It is important to note that Ma represents a generation that did not have ready access to a college education. Prior to 1999, university graduates accounted for less than 5% of the total population, according to figures from the World Bank. Following educational reforms in the late 1990s, the ranks of China's college-educated populace swelled, creating a clear dichotomy between those with and without a degree. Facing intense competition from a younger, more educated generation, Ma and many members of his age group had little choice but to establish their own companies or work in blue-collar occupations. The lack of a financial education and pressure to make a living sometimes pushed members of this cohort to engage in higher risk-taking behavior, as Ma's experience demonstrates.

For several years, Ma has been investing in stock-option indices categorized among the riskiest financial products on the market. His motivation is simple: "People who bet options are dreaming big. I want to win big." He believes that any of the alternative investment selections available in China offer yields that are simply too low. Furthermore, real-estate prices have risen too rapidly in recent years, and Ma feels it is already too late to enter this market.

Even in an environment in which many financial products offer yields in excess of 6%, he wants more. He admits he is out of his element, as he does not have the expertise to participate in such a risky market. Yet he is still willing to invest half of his savings in China's options market. He invests through a friend, who has been betting on options for years and convinced Ma that losses to his investment principal were unlikely. Unfortunately, his friend lost a significant amount of his own principal during the 2015 meltdown (approximately ¥108 million). Ma says, "I still have faith in the market." Once it stabilizes, he hopes to invest more in China's options market to recoup his losses.

Ziqiao Ji: The Perspective of a Young Master's Student

Ziqiao Ji is pursuing a master's degree in the foreign language department at Beijing Foreign Studies University. The Chinese high-school placement exam, known as gaokao, placed her into computer science as an undergraduate, so her background is more quantitative than that of her peers. Aside from the financial burden of tuition and a lack of income as a student, Ji is relatively unencumbered financially. In her spare time, she enjoys dance and makes some money on the side by teaching salsa classes to younger children.

> The real question may center on where China's property prices are headed.

China's financial technology has made the local stock market more accessible and investible than ever, especially to mobile- and tech-savvy investors. With some of her side income, Ji has joined the throngs of younger investors engaging in chao gupiao, or speculative stock investing.

One notable mobile app in this space that Ji uses frequently is Tonghuashun, which translates as "straight flush," a term borrowed from poker. This app provides an impressive host of free services and functions, including technical indicators such as various moving averages, motif-based investing indices such as the popular "military industry" and "Jack Ma's ideas," and forums for discussion about various stock issues.

Behind a paywall lie more advanced features and valuation metrics. Despite a name with gambling connotations, the app is widely popular and facilitates broader access to the Chinese stock market. Armed with a few early wins, Ji notes that she feels comfortable continuing to invest in the equity market with the gains from her initial investments, because doing so would preclude her from sustaining any net losses.

Ji has diversified with the initial funds, using money-market investment products provided by large Chinese mobile and e-commerce companies Alibaba and Tencent. These online investment vehicles have been on the market since June 2013 and January 2014, respectively, and offer rates often greater than 6-7% in products reminiscent of peer-to-peer lending.

Ji views these investments as safe, given the two companies' solid reputations. She feels they are a good way to reduce risk by being invested solely in the equity market. She also attests to the relative ease of the two products. Because the companies already have access to customers' regular Chinese bank accounts (through Zhifubao and Weixin, their respective mobile and e-commerce platforms), choosing to invest in one of their higher-paying, money-markets products is virtually seamless.

> "People who bet options are dreaming big. I want to win big."

Mr. Wei: A Sophisticated Individual Investor in China's Tumultuous Market

Lanzhou is the most unlikely place to start an investing career. Straddling the upper reaches of the Yellow River, it is closer to the inhospitable Gobi Desert than to the economic miracles of coastal China. Born and raised in this city, Mr. Wei (who did not want to be identified by his full name) first encountered the stock market when his mother's company privatized in 2001, just after China joined the World Trade Organization and thousands of state-owned companies underwent privatization.

Wei's mother bought about ¥30,000 in company stock options prior to its initial public offering. Within a few days of listing, the company's stock price had risen from ¥1.00 per share to over ¥5.00 per share. Having made more than ¥300,000 in profit, Wei's mother sold her options after her lock-up period ended. However, her next investment was not as fortuitous. With no prior investing experience and without researching her investment targets beforehand, she invested all of her previous profits into a single company. When a bear market hit a few months later, the share price plummeted and took a number of years to recover. When the share price finally recouped its losses in 2006, Wei's mother sold her holdings and turned management of the assets over to her son.

Unlike his mother, Wei was still young, brash and willing to gamble. He invested the entire sum in a battery company. The company's strong performance, along with a growing bull market, more than tripled the share price. As his asset base grew, Wei also spent more time learning how to invest. He quickly realized that his previous investments were incredibly risky, given the level of concentration. While running his own media and advertising firm during the day, he began to formulate a more sophisticated investment strategy. In his next round of investments, he allocated only a portion of his asset base.

In 2007, Wei had made enough money to pay off the mortgage on his new home. By then he had gained a stronger grasp on valuation methodologies and knew his holdings were too expensive. He effectively reallocated his assets from the equities market to real estate. Again, his timing was fortuitous, occurring just as China was entering a multiyear real-estate boom.

After paying off his mortgage, Wei allocated his remaining assets to two emerging trends. He invested some money with companies that his friends had started. He also placed some of his cash in loan companies that provided financing to small and medium enterprises (SMEs). These latter investments were riskier than bank deposits but compensated with a higher interest rate. Given the state of the bond market in China, Wei had very little choice in the fixed-income market outside of bank deposits.

Dreaming Big

One theme unites all of the aforementioned investors: They continue to believe in China's growth potential.

While unanticipated, the 2015 meltdown can be explained in part by the investors' collective experiences over the last few decades, when China was growing at a dizzying pace. This experience also influenced their approach to investing. Like Ma, almost everyone wants to win big. The challenge currently confronting China is not only one of transforming the economy, but also tempering people's expectations. The years of double-digit growth in the country's gross domestic product have likely passed.

The "new normal" will entail slower but potentially more sustainable growth. However, human emotions and psychology often lag behind reality. China's current market turmoil can be attributed to some degree to this disconnect. Fortunately, the ranks of China's irrationally exuberant (think Ma) are offset at least partially by those with cooler heads (think Lee). What is clear is that the "Chinese investor" is not a monolith but rather a mosaic of hundreds of millions of individual investors, all with their own risk tolerances, investment criteria and means of interacting with the market.

This article was written by Charles McCarren, Travis Pfander, Sumiko Taku, and Ray Wang, members of the Lauder Class of 2017.

> China's financial technology has made the local stock market more accessible and investible than ever, especially to mobile- and tech-savvy investors.

Getting to Scale: Colombian Startups Look to International Growth

The business environment is changing in Colombia, and the country's economy is transforming along with it. Yet it's still a struggle for startup ventures that are trying to get off the ground.

Nestled on a tree-lined street in the Chapinero — Bogota's central business district— the headquarters of Polymath Ventures occupies an English-style home once used as the campaign office of Colombia's current president, Juan Manuel Santos. Polymath's headquarters is symbolic of Colombia's entire entrepreneurial ecosystem: It incubates new enterprises to occupy Colombia's increasingly vibrant economy.

Indeed, the past five years of Santos' presidency have seen a flurry of reforms, plans and public-sector initiatives to promote entrepreneurship in Colombia. At Polymath, financial advisers from startup Aflore convene down the hall from an angel investor meeting. Upstairs, bay windows and dark hardwood floors contrast with the office layout of a modern startup. A new economy is emerging from the old.

> Even though Colombia has made tremendous strides, no venture-backed companies there today fit the profile of the extraordinary North American startup.

Understanding the state of entrepreneurship in Colombia requires both an appreciation of the country's rapid progress and a sober understanding of the limits of that progress. On one hand, Colombia has enjoyed years of strong growth and macroeconomic stability. Gross national income per capita has more than tripled since 2000, and the country continues to climb the World Bank's "Doing Business" rankings. An emphasis on public-private partnerships has allowed Colombia to grow infrastructure spending to 3% of the gross domestic product, compared with 1.5% just 10 years ago. Well-supported public-sector programs such as iNNpulsa Colombia provide education and investment in the country's new enterprises. A 2015 study by the Global Entrepreneurship Monitor (GEM) and the World Economic Forum (WEF) praised Colombia as one of a small group of "entrepreneurial all-rounders" — countries that produce a large volume of innovative startups that employ a significant number of people.

On the other hand, it is still too early to characterize Colombia as a mature entrepreneurial economy. The country's entrepreneurs operate in an economy where approximately 60% of nonagricultural employment is informal. Women rarely participate in formalized entrepreneurship. Even though the World Bank attributes a 30% reduction in extreme poverty in Latin America to women entering the workplace (with the highest rate of entry occurring in Colombia), it is especially difficult for women to make the transition out of the informal market — particularly in light of challenges such as formal financing. Of the 40 Colombian entrepreneurs highlighted by the global nonprofit Endeavor since 2007, only four are women.

Furthermore, Colombia's 20th-century violence has contributed to a capital environment that remains conservative. Business angels are rare and true venture capital funds number in the low single digits. Investors typically operate on a small scale with very short time frames when dealing with entrepreneurs. In addition, the new Colombian businesses that do succeed are likely to bump up against the limited size of the domestic market. Even though Colombia outpaces Latin America's GDP growth, its economy is still less than half the size of Mexico's and about a quarter as large as Brazil's.

Chasing Extraordinary Growth

Perhaps the ultimate measure of a country's entrepreneurial economy is the extent to which new enterprises have contributed to output and employment. An often-cited statistic from the National Venture Capital Association states that even though venture-backed companies make up only a small share of the total number of new enterprises in the United States, they account for about 20% of GDP and 10% of employment. The disproportionate impact of highly successful new enterprises is why governments the world over preach entrepreneurship and take public-policy measures to jumpstart the process.

Even though Colombia has made tremendous strides, no venture-backed companies there today fit the profile of the extraordinary North American startup. So what's the playbook for a new Colombian business that aspires to global economic impact? Ash Kirvan, a partner at Polymath, believes his company has a plan to address two of the most difficult obstacles Colombian entrepreneurs face: a weak entrepreneurial ecosystem and the limited size of the country's domestic market.

Entrepreneurial ecosystems include entrepreneurs themselves, the incubators that help them develop their business ideas and a venture capital community that provides the seed investment needed to begin operations and grow. As Kirvan notes, the venture ecosystem takes time to emerge organically. He explains that building a strong ecosystem usually necessitates work over at least a generation as it requires the involvement of already-successful entrepreneurs to function at scale. The first generation — as is the case in Colombia — needs to gain the capital and experience before it can advise and fund others. Likewise, it takes time to develop relationships among investors, entrepreneurs and important supporting institutions such as universities. The 1959 investment in Fairchild Semiconductor, widely considered the first venture capital investment in Silicon Valley, preceded a strong Silicon Valley ecosystem by decades.

Polymath speeds up the process by combining the elements of a venture ecosystem under one roof and connecting them with an international pool of talent and capital. It incubates its new business ideas through a four-month international fellowship program called Seed. Seed convenes professionals from inside and outside Colombia to tackle a topic area such as financial services, transportation or working women. Its teams have global connections and a variety of talent in engineering, design, ethnography and business. The companies that emerge from the program receive funding from one of Polymath's LABS funds, a set of startup capital funds supported by international investors. As companies grow, Polymath helps them secure additional capital from business angels and other venture investors. The result to date has been five new businesses, with plans to double that number in the next two years.

> Valuations will not match the stratospheric levels of Silicon Valley, but success in Colombia will be cheaper and more frequent when companies combine the right capital, talent and knowledge.

Polymath addresses the second obstacle — the size of Colombia's domestic market — through the expansion-oriented business models of the companies it develops. All Polymath companies are designed to play off market opportunities and trends that affect many countries in Latin America. The region's surging middle class is an underlying trend. For example, rising per capita incomes have resulted in dramatically increased car ownership in countries such as Colombia and Peru. However, when car owners need to service their vehicles, their options are usually limited to informal repair shops or expensive dealership service departments. Autolab, one of Polymath's companies, aims to be the third option, providing high-quality service at an affordable price. As Kirvan explains, Polymath invests in ideas that it believes could represent regional value propositions worth US$1 billion or more.

Regional growth models are especially promising in Latin America for a variety of reasons — some of them new and some of them old. Cultural similarity and compatibility across many Latin American countries facilitate new-market entry. While it would be wrong to deny the significant internal diversity of the region, simple factors including a common language have been the basis for successful international expansion across Latin America since the 1980s. For example, Grupo Bimbo — the US$11 billion Mexican food giant — has built strong positions across Latin American markets over the past three decades. Today, the growth of multilateral bodies such as the Pacific Alliance among Chile, Colombia, Mexico and Peru has connected broad swaths of Latin America like never before. As investment and people flow more freely across the region, expansion plans will become more appealing.

> Regional growth models are especially promising in Latin America for a variety of reasons — some of them new and some of them old.

Beyond the Power Curve

While much of Colombia's entrepreneurial project aims to replicate the success of advanced ecosystems like Silicon Valley, there is reason to believe that the former's new ventures will behave and grow differently than those in North America given the fundamental difference in the risk profile of investments in each place.

A key distinction lies in the concept of the "power curve" that Peter Thiel used to characterize his experience as an entrepreneur and investor in the U.S. North American startups succeed infrequently. Thiel explains that his venture capital company, Founders Fund, counts on its investments succeeding extraordinarily only one time out of 10. Furthermore, most of the value produced by these extraordinary companies will not appear until years later. The U.S. venture investor is often swinging for home runs.

In comparison, the risk profile of a Colombian venture is entirely different. There are few venture capital funds to compete over deals. Many target industries are full of weak, fragmented and informal players that could not compete against top talent, the right business model or sufficient capital. Startups that do succeed are likely to generate cash much faster than in the U.S. Valuations will not match the stratospheric levels of Silicon Valley, but success in Colombia will be cheaper and more frequent when companies combine the right capital, talent and knowledge.

Today, many Colombians are returning home. Equipped with both education and experience from abroad, they have seen the economic improvement in their home country and want to be part of it. Kirvan describes this movement as a "reverse diaspora in historical scale." As Colombia continues to grow in talent, capital and connectedness with the global economy, it should begin to realize the extraordinary benefits of the venture economy.

This article was written by Renan Andrade, Koehler Briceño, Randal Drew and Tom McElwee, members of the Lauder Class of 2017.

The Flower Industry in Colombia: Current Trends and Challenges

Colombia's flower industry is a key export for the country, yet it faces many challenges. The government and growers both have a role to play in making improvements.

Colombia is one of the most advanced economies in South America, with a GDP growing at an annual average rate of 4.6% over the last five years, according to the World Bank. Its economy depends on two key industries: minerals, including oil and gas, and agriculture, with coffee and flowers among the most important economic products for the country.

Colombia is the second-largest worldwide exporter of flowers after the Netherlands. Its flower exports to the United States have grown rapidly since the initial shipments 50 years ago. Today, the U.S. market is by far the dominant market for its flowers, taking up 75% of the exports. Russia is the second largest customer, but trails far behind at 5% of the flower exports.

The Colombian flower trade is considered a model of economic cooperation between Latin America and the United States. Several early factors formed the basis for this industry's long-term viability and success. In August 1961, U.S. President John F. Kennedy launched the Alliance for Progress, which aimed to increase economic cooperation between Latin America and the U.S. with a specific focus on agriculture.

In 1967, David Cheever, a graduate student in horticulture at the University of Colorado, identified the industry's attractiveness in his master's thesis, "Bogotá, Colombia as a Cut-Flower Exporter for World Markets." He noted in his research that the region around Bogotá was ideal for growing flowers, and its proximity to an international airport and the U.S. made Colombia an ideal exporter. He established a business in 1969 that become so successful that nine competitors joined the export industry within five years.

But the U.S. market has been a challenge as well, especially due to consumers' changing tastes. Take the case of Passion Growers, one of the largest flower producers in Bogotá. It has been in business for 13 years and, through its well-developed network, delivers roses five to seven days after they are cut. Moisés Croitoru, the company's operations director, said the three main sales markets for the Colombian flower industry are the U.S., Russia and Japan. Valentine's Day, Mother's Day and Christmas account for over 50% of the annual demand in the U.S. market. Planning to meet this capacity at specific times of the year is challenging, especially in terms of hiring and training temporary labor.

> Colombia is the second-largest worldwide exporter of flowers after the Netherlands.

According to Croitoru, Colombian flower producers have also had to adapt to the particular tastes of American consumers, who do not want the larger flower heads desired by Russian and Japanese consumers. As a result, Colombian producers have developed shorter growing cycles that facilitate mass and rapid production. In addition, American consumers tend to fall under the influence of trends in flower styles, so Colombian flower producers must adjust their output frequently in terms of types and colors. For example, Croitoru said that he changes his rose plants every four to five years even though these plants may produce flowers for up to 12 years.

Croitoru said Colombia's flower industry has been looking at ways to broaden its global opportunities. A number of producers are exporting their flowers to new markets such as Japan, despite the more expensive transportation costs. This requires that the producers adjust their flower cultivation and shipping processes to meet Japan's strict quality standards.

Expanding the Market

Japan is a premium market where flowers are sold at higher prices than in the U.S, which makes these exports profitable even with the additional transportation costs. Aiming at selling into this market would reduce the dependence of Colombian growers on exports to the U.S., and achieve a more consistent revenue stream throughout the year.

As in the U.S., there is great demand in Japan for flowers for special events such as Mother's Day, Valentine's Day and Higan (spring and autumnal equinox days when memorial services for ancestors are held). The Japanese buy flowers more frequently for home decoration, floral art or as congratulatory gifts. Moreover, Japanese consumers are willing to pay a higher price for better quality. This means that Colombian flower producers who meet the requirements of the Japanese market can enjoy the benefits of more stable demand and a higher profit margin.

> Each percentage-point increase in flower production reduces the homicide rate. ... In contrast, coffee price hikes lead to a rise in homicides.

At the same time, flower importers in Japan are thought to be demanding, not only because of the consumers' strict requirements but also because of the specificity of their orders. For example, when American importers order flowers, they generally indicate only the color they want, so the producers have more flexibility in selecting what type of flower they supply. Japanese importers, however, will order a specific variety of flower and will not accept anything else, no matter how similar it may be.

In addition, flowers generally must be transported from Colombia to Japan within 72 hours of being cut. Even though the flower-production area is concentrated in a suburb of Bogotá, about an hour from the principal airport by truck, and the Colombian flower industry has improved the shipping process significantly, it is still difficult to complete delivery to Japan within 72 hours and control the flowers' bloom rate to ensure they will be in peak condition when they are delivered.

New Government Policies Provide Some Help

As noted above, flower exports are an important revenue source for the Colombian economy. Yet the industry is volatile and affected by many factors, including the weather. Farmers also are one of the least protected classes in the country. To understand recent trends in this sector and the government's role in it today, two aspects must be considered. What has happened to the industry in recent years? And how did the Colombian government's role evolve during this time?

It is important to understand the current situation from the point of view of the local producers, especially those who have spent many years in the sector. Croitoru noted that the government has implemented two key tools to support the sector: loans for farmers and an open-skies policy, under which the cost of air transportation has decreased.

The flower industry, like most agricultural industries, is unpredictable and requires investments in technology, land and material. To purchase seeds and plants, companies typically take out loans and repay them after the harvest. There are two constraints on loans from private banks in Colombia — the high interest rate and the banks' reluctance to issue loans to volatile and high-risk businesses.

To address this issue, the government in December 2014 established 40 different credit lines for agricultural industries through Banco Agrario. This process gives farmers access to credit in less than three days and takes production cycles into account. Companies can apply for a loan of up to $30 million for four years to invest in working capital. The interest rate is set at 16.77% APR and fixed for the life of the loan.

It is useful to compare the role of Colombia's present government with that of Holland, the largest flower exporter in the world. The Dutch government had tried to promote growth in the sector by subsidizing the cost of new technology and allowing the use of new pesticides. Currently, financing is processed by commercial agrarian banks, such as Rabobank, which offer loans at a low interest rate.

As for the Colombian government's open-skies policy introduced in 2011, the agreement with 36 countries gives more airlines access to the Colombian market and offers consumers more attractive prices. As a result, transportation costs and delivery times have declined significantly, and the competitiveness of Colombian flowers abroad has increased.

Another important point to consider regarding the Colombian flower industry is the workforce. This sector employs primarily women who have little education. It is difficult to underestimate the benefits for these mostly rural employees who have few opportunities for employment outside the home, especially in the formal sector. In addition, 69% of the women employed are heads of households. These women reap the benefits of greater income, property attainment, an expanded social network and increased self-esteem. Their jobs also change the power dynamic in their households as they gain more economic autonomy.

Increased female employment and empowerment create ancillary benefits to society, especially around the flower-producing areas. Murder rates have decreased in these regions. According to a 2015 paper by Sara Hernandéz, "Guns N' Roses: The Impact of Female Employment Opportunities on Violence in Colombia," each percentage-point increase in flower production reduces the homicide rate in the flower-producing districts by 0.08 per hectare. In contrast, coffee price hikes lead to a rise in homicides. This phenomenon can be explained in part by the changing household dynamics and reduced financial difficulties in households with employed females.

Despite the benefits to society, workers in the flower industry endure significant physical and emotional tolls. Their jobs are solitary, repetitive and physically exhausting, and employees work under hard deadlines. Often, employees say the salary is the only positive aspect of the job.

According to a paper by Corporación Cactus, a nonprofit organization that works to improve the lives of those in the flower industry, workers experience little job satisfaction, not much predictability, no sense of belonging or emotional support, excessive psychological demands, job insecurity and other challenges. Given that labor costs for the industry comprise 55% of the operational costs (the comparative figure for the textile industry is only 27%), companies are reluctant to implement improvements that increase costs or reduce productivity.

Workers in the flower industry endure significant physical and emotional tolls.

Nevertheless, the industry has made steady improvements in working conditions, due largely to pressure from importing countries. Florverde, a certificate of environmental and labor standards, was created in 1996 to improve operating standards in Colombia. Passion Growers provides a number of support programs for its employees at zero or nominal cost. Croitoru noted one in particular that enables employees to complete their formal education and another that provides pre-school for their children. The company's Ipanema farm was recognized in 2011 as a "Great Place to Work" by Great Places to Work Institute Colombia, which evaluates and ranks businesses. In addition, organizations including Asociación Herrera, the Untraflores union, the House of Flowers, Corporación Cactus and CorpoLabor provide services and support to women in the industry.

The Colombian flower sector has been successful because of international demand. It has managed to attain this level with little government involvement. However, to continue to thrive, the industry needs more government support and better working conditions. Despite its long history, this industry still has a long way to go before becoming the largest in the world.

This article was written by Sebastian Apud, Gennadiy Babenko, Bobby Gianchandani and Mizuho Imanishi, members of the Lauder Class of 2017.

The Global Oil Industry and Africa's Role in Its Future

The gas and oil industry has always been complex and challenging. The current state of the sector is marked by price volatility, the adaptation of new technologies and the lingering question of the role of certain African nations in oil production.

In 2015, the world witnessed one of the most important collapses in oil prices in recent history. Less than 200 days after the beginning of the decline in June 2014, the price of crude had been cut roughly in half, rapidly changing the business scenario for multiple actors in the complex value chain that dictates the pace for the oil and gas industry. Many oil-exporting nations were exposed to significant revenue shortfalls, while consumers in petrol-importing countries enjoyed lower costs for driving their vehicles. Companies focused on exploration and production (E&P) have since been forced to restructure their business models and strategic investments, whereas players in the refining business are benefitting from an unexpectedly competitive price for their main product.

Governments in resource-rich countries face an increasingly urgent need to make their domestic petroleum industries as competitive and investment-friendly as possible.

More than a year has passed since prices began to drop, yet there remains a high level of uncertainty about the future of oil prices. Companies that are active or looking to operate in the oil and gas industry today need a comprehensive awareness of the present environment. In particular, an examination of three major trends is necessary to better understand the oil industry today. Six more factors outlined here are important in order to determine whether, given the current political and economic environment, Africa represents an attractive opportunity or dangerous risk for companies in the oil and gas sector.

Trend 1. Even though oil price declines may not last, players will have to continue to deal with volatility in prices.

In the near to medium term, analysts see little reason to expect a significant or sustained recovery in oil prices. Indeed, the oil supply has been increasing while demand has not, creating price volatility and a challenging scenario for oil companies. Shale oil produced in the United States will continue to exert upward pressure on the global supply. By drastically reducing the need for oil imported into the U.S. and forcing producers to look elsewhere to compensate, U.S. shale oil has also created a war for market share in Asia — one that will likely lead to sustained downward pricing pressure in the region.

According to Goldman Sachs, the successful reserve additions since 2009 from both deepwater and shale projects have transformed the cost curve, which now encompasses more than three times the future peak production from new giant fields that the investment bank had expected in 2010. Over the years, the uptick in U.S. onshore activity has led to greater learning-curve effects, resulting in geological improvements and efficiency gains that in turn have unlocked a vast amount of reserves once deemed economically unfeasible. In addition, U.S. shale production has driven the large oil supply growth over the past years. U.S. shale production also played a significant role in the collapse of oil prices since the first half of 2014.

In addition to U.S. oil production, non-OPEC supply growth also boomed in 2014. According to Goldman Sachs, all of the resulting extra supply contributed to a perfect storm, with record production from U.S. shale, the long-awaited ramp-up of the Santos basin and a normalization of years of very poor delivery in mature offshore regions including the North Sea, the Norwegian Continental Shelf and the Campos basin. These combined factors drove oil production up 2 million barrels per day on a year-over-year basis.

On the OPEC side, production was flat over the course of 2014. However, this statistic masked two divergent trends: consistently strong growth in Saudi Arabia and continued volatility in production in the rest of OPEC (where Iraqi production growth made up for a year-on-year decline in Libyan production). Saudi production has consistently ranged between 9.5 million and 10.3 million barrels per day since May 2013, with higher production seen during the summer months to meet greater domestic demand. Data from Goldman Sachs show Saudi production topping 10 million barrels per day in March 2015 – earlier than in previous years – thereby suggesting that the country is building oil stocks in order to feed refining additions seen in the country during the previous 18 months. According to the Boston Consulting Group (BCG), Saudi Arabia is OPEC's most critical player because it holds 72% of the organization's current spare production capacity. Moreover, Saudi Arabia seems quite content to let the market self-correct due to a belief that a period of stress for marginal producers and high-cost projects will lead to a more stable and sustainable pricing environment over the longer term.

Meanwhile, on the demand side, Asian economies continue to face weaker-than-expected demand growth, contributing to the plunge in oil prices and further stalling a recovery. More traditional oil-consuming markets such as Europe continue to struggle against recession, and many of the financial weapons employed to fight the crisis, such as quantitative easing and a decrease in interest rates, have already been used. That means positive surprises for oil-demand growth are improbable, at least in the short term. According to oil-market experts from BCG, oil demand may face even more downside pressure in the future due to improvements in energy efficiency, the increasing substitution of natural gas for oil in the transportation sector and the increasing implementation of carbon-emission targets. All of these factors taken together will likely cause the volatility observed in current oil prices to continue for a period of time.

Nevertheless, this context may create new opportunities primarily in the merger and acquisitions sector. New petroleum resources remain in the hands of a few, while some companies have excess cash due to a lack of research and oil-prospecting investments in the pipeline. Goldman Sachs highlights as potential buyers companies with low financial leverage but high project costs that can use their solid balance sheets to gain access to lower-cost projects currently only in the hands of companies that have high financial leverage. Such deals can potentially change the oil-market dynamics around the world, including in Africa.

> Industry experts seem to have differing concerns and opinions about recommending Africa as an attractive opportunity for today's major multinational oil-and-gas-exploration players.

Trend 2. Structural supply constraints should continue to put upward pressure on investment and operational costs.

It is important to note that subsea exploration and production are not considered novel activities. Roughly 54 years after the first subsea production well was installed by Shell Oil Company in the Gulf of Mexico, and despite great technological progress made in the sector since then, the industry is now facing important new challenges related to its maturation. A study conducted by BCG shows that, while subsea oil installations typically are designed to last 20 years, multiple regions of the world have producing wells that are on average more than 10 years old. This indicates that many production areas are operating with equipment that is approaching the end of its design. Choosing to repair this aging equipment often means choosing between investing in replacements or performing costly maintenance interventions. The latter option presents a particular dilemma for operators because as technology has progressed rapidly over the past five decades, so have the many technical specifications for equipment and installation tools. A mismatch in adaptability of older and newer specifications can generate technical bottleneck inefficiencies and high maintenance costs for these operators.

Trend 3. Governments are expected to be increasingly influential as both players and regulators in the sector.

Governments in resource-rich countries face an increasingly urgent need to make their domestic petroleum industries as competitive and investment-friendly as possible. Many of them (e.g., Norway and Canada) rely heavily on oil revenues to fund their budgets, and the sudden drop in price has pushed many countries into deficit status and posed sudden risks to government stability. Policymakers will need to become more innovative and creative in designing policies to incentivize long-term petroleum investment in such a volatile environment. Indeed, the policy paths governments choose to manage the current situation will ultimately have a significant impact on the long-term dynamics of the global petroleum industry.

Government involvement in the petroleum industry is looking far beyond regulation and incentivization, however. In recent years, state-owned enterprises have become increasingly prolific across the world. Some notable examples include Petrobras (Brazil), Statoil (Norway), Gazprom (Russia), Saudi Aramco (Saudi Arabia) and the many state-owned petroleum firms in China, such as China National Offshore Oil Corporation (CNOOC), Sinopec and China National Petroleum Corporation (CNPC). A salient point has been the increasing role of African governments in actively managing their respective oil resources. National oil companies and sovereign wealth funds have been developing across the African continent. Even though such initiatives are certainly vulnerable to corruption, they show an increased willingness on the part of African governments to diversify their economies (to prevent Dutch disease implications) and "level the playing field" with foreign entrants through joint ventures and partnerships with local entities.

In addition, rising environmental and social pressures around the world will increase the role of governments and other stakeholders. New norms in corporate social responsibility (CSR) are reshaping the balance of power between oil companies, governments, nongovernmental organizations and communities, and the instantaneity of today's communications will help ensure that, from a public relations perspective, CSR will remain central in international corporate strategy.

Opportunities and Challenges for Africa

In the face of the compounded effects of old and new challenges, industry players must continue to search for new opportunities in different geographies across the globe. At the same time, most experts agree that the majority of the older, easier-to-drill oil fields are no longer up for grabs. New supplies often prove costly and are generally difficult to find. An analysis of hydrocarbon discoveries between December 2011 and June 2013, conducted with data collected by the oil and gas upstream consulting firm IHS, shows that most new opportunities are located in regions that are considered politically and economically unstable, with roughly 25% of the discoveries announced during that period located in West and East African countries. The continent's growing value to the industry is also demonstrated by data from the U.S. Energy Information Administration (EIA), which show that 12 African countries had proven oil reserves of more than 500 million barrels by the end of 2012, and four of them held more than 10 billion barrels at the start of 2013.

According to Ernst & Young, even though only a fraction of Africa's mineral resources is being extracted, the continent has 8.6% of the world's proven oil reserves and 7.2% of its natural gas. Industry reports commonly include West Africa in the so-called "Gold Triangle," alongside Brazil and the Gulf of Mexico, to indicate world regions that will dominate oil extraction expenditure over the next five years. Moreover, deepwater gas discoveries in 2014 in regions such as East Africa have helped to propel the African continent into the center of discussions about future oil and gas opportunities. But operating in less explored and more politically unstable geographies such as Africa not only amplifies the aforementioned challenges but also brings new risks into the equation.

Industry experts seem to have differing concerns and opinions about recommending Africa as an attractive opportunity for today's major multinational oil-and-gas-exploration players. These experts express varying observations and predictions about the conditions in which these companies find themselves today and of the strategies they may choose to employ in a time of crisis. However, it is possible to highlight six common points in the discourse about relevant risks such companies will likely face if they choose to enter Africa.

First, there is the risk of political conflict. A company must be prepared to face instability and uncertainties in dealing with local governments. Instabilities generally translate into contract defaults in the form of bid annulments, unforeseen tax increases and contract revisions. Companies will also likely have to develop local cultural and linguistic capabilities if they wish to succeed. As noted by Marcos Gallotti, vice president of Geonunes, a private-services company that has served operators in Western Africa exploration blocks, "to do business in countries like Benin and the [formerly Belgian] Congo, it is absolutely imperative to have knowledge of the local law policies and cultural habits. Knowing not only how to understand your counterpart, but also how to read the nuances in their (sic) discourses are necessary tools in any negotiation, and this is especially true in dealing with governments in Africa."

Second, there is the risk of local conflicts and violence. According to Gallotti, many of the less expensive opportunities in Africa are onshore, often requiring that supporting infrastructure, or even day-to-day operations, pass through multiple inland regions that are undergoing conflict. Adding to the complexity, onshore exploration often demands the use of explosives that are also sought as contraband. There are additional costs to bring these tools into the country of operation and also to protect them from theft. The resurgence of piracy attacks in African waters has prompted additional serious concern in the industry. The International Maritime Organisation (IMO), a global maritime watchdog, has estimated that West African countries lost just over US$1 billion in oil revenue in 2011 due to piracy.

Third, the costs of logistics in the region are high. Onshore opportunities on the continent require large capital investments in Africa's currently underdeveloped infrastructure. However, even for offshore operations, the governments often enforce strict laws favoring local suppliers. Many African countries still have underdeveloped supply chains, thus amplifying the risk of delays in delivery and project management and significantly impacting operational costs.

Fourth, there is a shortage of highly skilled labor. Access to a skilled workforce is challenging in many parts of the world — Africa included — particularly in highly technical fields such as engineering and geophysics. At the same time, many African governments are tightening local content rules and forcing companies to hire a significant percentage of their workforce from the local population. Not only do such requirements create a key operational cost issue for companies — developing training programs can be capital intensive and take decades to accomplish, and companies often resort to paying above-average salaries for scarce talents — they also present a unique and somewhat perplexing management phenomenon. As one French oil industry insider noted, "Several European engineers on my team were astonished to discover that they were earning less than their African peers. This created an irrecoverable imbalance in the morale of the group."

Fifth, petroleum companies need to adapt to the complexity of managing environmental impact laws. Negative impacts of the oil industry are a major concern globally, and Africa is no exception. For example, in 2013 Angola introduced a zero-gas-flaring policy, and the South African government announced clean fuel legislation. Public and official concerns about exploration for shale gas by means of hydraulic fracturing have highlighted the environmental risks associated with the industry, and this heightened awareness is expected to result in more stringent environmental regulation, requiring additional expenditures for environmental management and protection by oil and gas companies. However, some experts continue to believe there is an opportunity for major companies. The fact that African governments still have nascent regulatory structures arguably opens space for companies to participate and influence decision-making that may benefit their operations or, at least, minimize the negative impact.

Sixth, there are competing global business models at play. In particular, Chinese oil companies have entered Africa with a completely new model that intertwines the extraction business with aid commitments, credit lines and infrastructure investment. China first entered the African petroleum landscape through Sudan in 1996, at a time when Western companies were hesitant about inserting themselves due to the nation's political instability and poor human-rights record. Such issues posed no barrier to China, however, and the country has since reproduced this model throughout the continent in Angola, Nigeria, the Republic of Congo and Gabon. China's strategy — informally called "petro-diplomacy" by its critics — is based on five key ideas: preserving direct control of the petroleum resources in order to contribute to China's controlled domestic development, not hesitating to pay more than the market price to fund long-term resource acquisitions, forming privileged partnerships with African national oil companies, focusing on ways to increase technical capacity and know-how and abiding by a "no-judgment" policy on human rights and corruption. In comparison, the primary differentiating factors of Western entrants are their higher sensitivity to CSR and more developed technical capacity — the latter of which still represents an important advantage, according to experts. Going forward, Angola will provide an interesting study of the efficacy of the two divergent business models, as both Western and Chinese entrants are present and highly active in the country.

Conclusion

In order to operate in the oil and gas exploitation industry, companies must be ready to face a set of important challenges dealing with price volatility, supply constraints leading to higher operational and capital costs, more active presence of governments as players and investors, and increasing pressure from environmental and social laws. As newer and easier opportunities become increasingly harder to find, Africa appears to be a potential way forward for companies looking for growth. Although Africa amplifies many of the challenges of the petroleum sector and adds further complications for companies that want to operate on the continent, it is clear that there are still opportunities to seize. It will be interesting to see how exactly these trends and beliefs develop and materialize in the coming years.

This article was written by Caio Guimarães, Imran Karim and Alexandre Nogueira, members of the Lauder Class of 2017.

Colombia's Informal Sector

An informal economy, composed of unlicensed, unregistered businesses that do not pay taxes, is a challenge for any country. The informal sector in Colombia is especially difficult because it represents such as significant portion of the economy.

In many developing countries, informality is a key economic concern and accounts for a significant share of economic activity and employment. According to the World Bank, the "shadow economy" in Latin America averages 40% of the gross domestic product, and more than 50% of the labor force is informal. This is typified in Colombia, a country that also faces other complex and pressing challenges including terrorism, deficient infrastructure and high regional economic inequality. Moreover, informality can hinder economic development. Challenges associated with the informal sector of the economy include the government's inability to collect sales and income tax revenue, the lack or insufficiency of quality and safety standards, and the dearth of good jobs for the country's citizens.

During Colombia's most recent period of strong economic growth, the size of the informal sector declined. Research has shown a positive correlation between growth in gross domestic product and formalization, but this also implies a retreat in formal activity during economic downturns. Therefore, relying solely on economic growth to reduce the size of the sector will have limited and temporary results. Additional political, social and cultural factors must be addressed in order to discourage informality.

Definition of the Informal Sector in Colombia

The informal sector is distinguished from informal employment, as undeclared work can exist within formal enterprises. The International Labour Organization (ILO) of the United Nations defines the informal sector as a set of small-scale enterprises that have a rudimentary organization and do not distinguish between labor and capital as factors of production. These informal companies are not registered according to national laws, including commercial regulation and social security laws, and their employees are not covered by labor legislation. In addition, the informal sector does not include underground production, illegal production or household production for its own use. It is often difficult to measure directly the size of the informal sector. In Colombia, the National Administrative Department of Statistics (DANE) estimates the informal sector through surveys of micro enterprises, which are defined as establishments with up to 10 people employed through trade, services and industries. The survey instrument considers a business to be formal when two requirements are met: commercial registration with the government and a set of accounting books and records.

Several benefits are associated with formalization, including increased access to capital and greater support from the government.

Impact of Economic Growth on Informality

The size of the informal sector moves in a countercyclical fashion with regard to official economic growth. Over the last few years, Colombia's informal economy has grown during recessions and declined during economic booms. According to an ILO report on the country's formal and informal sectors, the countercyclical movement of the informal sector can be seen as an indication that GDP growth and informality follow an inverse relationship. The report explains that, in a recession, companies lay off employees, which in turn increases the unemployment rate. These newly unemployed workers open companies without registering them with the government as a means to save on costs and regulatory burdens. According to the DANE, in 2007 only 43% of micro enterprises were registered legally and only 53% maintained accounting records. By

2013, the latest year for which data are available, these figures increased to 72% and 71%, respectively. During this same period, Colombia's GDP increased from COL$ 431,072 billion (US$207 billion) to COL$710,257 billion (US$380 billion). As the data suggest, throughout the latest economic boom, informal companies have formalized, registering with the Colombian government and maintaining accounting books and records.

Key Factors Leading to Formalization

It is clear that, on a macroeconomic level, informality is correlated negatively with economic growth. However, on a microeconomic level, firms analyze the benefits and costs of formalization and weigh each factor based on their individual operations and priorities. As a result, firms may reach different decisions about formalizing. In addition, many firm owners are unaware of the benefits of formalization or have misperceptions about the process that influence their decision making.

In a country with low GDP per capita and low disposable income, consumers may be more willing to sacrifice quality over price.

Several benefits are associated with formalization, including increased access to capital and greater support from the government. According to a 2009 statistical study by Mauricio Cárdenas Santa María, the director of Fedesarrollo, a Colombian think tank focused on economic and social policies, and Sandra Rozo, Inter-American Development Bank research fellow, informal firms have more difficulty obtaining credit. As a consequence, they acquire capital primarily from moneylenders, relatives or friends. Another benefit of formalization is the support, such as consulting and counseling, offered by the chambers of commerce to small businesses and the advantages that the government grants to small and medium enterprises (SMEs), such as tax exemptions, reduced administrative procedures and priority in public bids. Despite these advantages, a 2010 DANE survey showed that 53% of informal business owners were satisfied and had no plans to change their business structure. Of this group, 83% cited excessive paperwork as a reason to remain outside the formal sector and 65% indicated they did not understand the benefits of formalization.

Several key burdens are associated with formalizing. The first is taxation. According to the World Bank, over 20% of companies with fewer than five employees and 10% of companies with more than 100 employees in Colombia do not report their sales. The 2015 Ease of Doing Business report shows that the taxation level in Colombia reaches the equivalent of 75% of income, which is particularly high when compared with the 48% rate in other Latin American countries. This extreme level is driven by high payroll taxes, so jobs tend not to offer adequate guarantees for health and pension benefits. Cárdenas and Rozo conducted focus groups with business owners who stated that companies can spend less to bribe officials and remain informal as opposed to formalizing and paying taxes. Another cost derives from poor institutional quality. Many businesses avoid formalization because they believe the money the government would receive through taxes would never return to benefit the businesses. A study by Friedrich Schneider, professor of economics at the Johannes Kepler University of Linz in Austria, showed that the lack of efficiency in providing decent public services can be associated with higher shadow economic activity.

Finally, a strong cultural component creates a low-threat environment. According to Gustavo Adolfo García Cruz, a postdoctoral research fellow in economics at the Universidad de Los Andes in Bogotá, informality is widely accepted by society and Colombians do not hesitate to frequent such businesses. For example, many citizens routinely eat at food carts that have not been formally registered. This could be due to the endemic distrust of the government and its institutions. Another hypothesis could be derived from microeconomic and marketing theories: The lower prices offered by the informal sector (tax- and regulation-free) may provide a significant competitive advantage. In a country with low GDP per capita and low disposable income, consumers may be more willing to sacrifice quality over price.

In summary, businesses do not value equally the benefits and costs, and they will reach different conclusions about whether to formalize. The costs to follow this route are too high for some, while others do not have full information about the benefits.

The Role of Public Policy

Economic growth is often not sufficient to reduce the informal sector and informal employment. As a result, the government can play a role in educating companies about the benefits of formalization, connecting them to available resources, reducing the costs of formalization (payroll, income taxes and the required paperwork) and regulating companies. In recent years, the Colombian government has made decreasing the size of the informal sector a priority in several ways, implementing new laws and public policies and making changes to key programs for micro, small and medium enterprises (MSMEs).

First, the government has promoted business formalization through legislation. The Micro, Small, and Medium Business Law, enacted in 2000, established national councils that are responsible for ensuring the creation and implementation of public policies that support MSMEs. The law also created tax incentives for their creation, including periods of exemption, lower rates and reductions in contributions during the first three years of operation. The Formalization and Generation of Employment Law, passed in 2010, further reduced the regulatory burden on small enterprises and simplified administrative procedures.

Second, the size of the informal economy is correlated with elevated tax rates. A 2014 study by Jesús Rodríguez de Luque, research associate at the International Center of Tropical Agriculture, suggests that a government's public policies can reduce the informal sector through tax and regulation policies. In 2013, the Colombian government implemented a tax reform that reduces an employer's payroll contributions in cases where a worker's salary does not exceed 10 times the minimum salary. The ILO estimates that this reform led to a 13.5% reduction in employers' payroll contributions.

Third, the Colombian government has also implemented various initiatives to reduce the level of bureaucracy encountered when registering a business, to connect enterprises with sources of credit and investment, and to disseminate information about the benefits of formalization. By 2013, 30 Centers of Attention to Businesses had been established throughout the country to reduce the amount of paperwork required and the number of different government agencies to be contacted to register a business. Prior to that, the National System of Micro, Small, and Medium Businesses was created in 2004 to incentivize formalization through credit guarantees, lines of credit through Bancoldex (a bank for entrepreneurial development) and access to formal financial services in locations that lacked formal banking services. Finally, the government introduced the Colombia Formaliza (Colombia Formalizes) program, which disseminates information about the benefits of formalization and helps businesses that are looking to formalize through lines of credit from Bancoldex or nonrefundable financing through the iNNPulsa MiPyme and Emprendedor funds, among others.

In recent years, the Colombian government has made decreasing the size of the informal sector a priority in several ways, implementing new laws and public policies and making changes to key programs for micro, small and medium enterprises.

Even though Colombia has implemented many laws, public policies and programs to promote the formalization of MSMEs, few studies have evaluated the impact of these policies. As a result, it is difficult to determine their quantitative effect on the reduction of the informal sector. In addition, it is important for the government to establish a strong system of regulation and enforce sanctions to encourage formalization. According to professor Gustavo Adolfo García Cruz of Universidad de Los Andes, the lack of government regulation encourages informality. Without the threat of credible punishment, many businesses continue their informal operations. In contrast, García Cruz referenced the case of Ecuador, which has created a government ministry to prosecute and penalize informal companies or entrepreneurs and has subsequently experienced a drastic reduction in the level of informality.

Does Microfinance Encourage Formalization?

In its 2011 development plan, Colombia's Ministry of Finance and Public Credit recommended microfinance as a method to encourage the formalization of micro businesses. In recent years, due to support from the government and other sectors, growth in microfinance has accelerated. In 2007, microfinance institutions (MFIs) had a combined loan portfolio valued at COL$2 billion (US$1 million), which increased to COL$8.7 billion (US$4.6 million) by 2014. Today, Colombia's microfinance sector is the largest in Latin America, serving 1.9 million people. However, while the establishment of microfinance should help reduce the size of the informal sector, the evidence suggests otherwise.

The rationale for supporting microfinance to encourage formality stems from the assumption that funds will be used to grow a business and that such growth will allow, and sometimes require, the business to formalize itself. However, this assumption is flawed for a number of reasons. Most importantly, access to capital has been one of the main drivers in a small business's desire to formalize. With the introduction of microfinance — a legitimate and comparatively easy way to access credit — many businesses find they no longer require formalization to attract needed funds. In addition, as noted above, many business owners lack the willingness to formalize their enterprises. Even for those who want to formalize, very few MFIs offer additional services to clients to help them understand the process.

No studies have shown the effect of microfinance on the formal sector in Colombia. However, studies from other countries help shed light on the relationship between microfinance and the size of the informal sector. A World Bank study by Miriam Bruhn and Inessa Love, published in 2014 in The Journal of Finance, is particularly revealing. It shows that the opening of one MFI branch in a community in Mexico was related to a 7.6% increase in the number of informal local businesses in one year and no change in the number of formal businesses. Furthermore, the income of micro businesses in the informal sector increased by 7% over the same period, diminishing the incentive to formalize. While few resources in Colombia have attempted to gauge this impact, many organizations promote microfinance. Future studies should measure the percentage of MFI clients that have formalized their businesses and investigate whether additional services offered by an MFI, such as education on the formalizing process, lead to higher rates of formalization.

More Work Ahead

In many developing countries, the informal economy is an important component of economic activity, but one that also has detrimental effects on economic development. In Colombia, the size of the informal sector moves in tandem with the country's economic growth. When a significant portion of economic activity is not formalized, the government is faced with lower tax revenues, and a considerable percentage of the population is left without benefits such as health care programs and retirement savings. While benefits from formalization include increased access to capital and government support for small businesses, many enterprises view the costs as too high or lack full information about the process. The Colombian government is taking steps to reduce these roadblocks in an effort to encourage small and midsized companies to formalize. However, without rigorous studies that evaluate the results of government policies and institutions, it is hard to determine their impact. Future research should be undertaken to understand the most effective government programs and to prioritize initiatives effectively.

This article was written by Frank Ballard, Rafael de la Rosa, Craig Jones and Monica Scheid, members of the Lauder Class of 2017.

Second-generation Ethanol Production in Brazil: A Historic Opportunity

Brazil has been the historical leader in the production of ethanol ever since Portuguese settlers derived alcohol from sugarcane in the 16th century. The newest iteration of ethanol production, known as 2G, holds the promise of greater efficiency and profit margins — if companies can surmount the challenges.

In 1532, Portuguese settlers in Pernambuco, Brazil, extracted alcohol from sugarcane for the first time. Today, Brazil produces 27 billion liters of ethanol from sugarcane each year. In the early 1920s, when the United States was dismantling the Standard Oil Company, the governor of Pernambuco ordered that all vehicles run on ethanol. This singular history of fuel in Brazil is particularly relevant in light of the sensitive current debates on sources of energy for vehicles and how to reduce carbon emissions.

Amid one of the most critical economic crises in Brazil's history, the development of second-generation (2G) ethanol could be a tremendous source of economic growth and power as well as advance the country's environmental responsibility. As philanthropist and entrepreneur Louis Glickman once said, "The best investment on earth is earth."

With a 25% global market share, Brazil is the second-largest ethanol producer in the world behind the U.S. While the latter relies on corn for its ethanol production, the former focuses on sugarcane. Ethanol as a fuel source originated in Brazil in the early 20th century but did not gain traction until the 1973 oil crisis and the resulting *Programa Nacional do Álcool*, or PROALCOOL. This program accelerated government and private investment in bioethanol production, making it the centerpiece of Brazil's energy sector.

> The environmental benefits of ethanol relative to other combustible fuels have positioned Brazil as a leader in the alternative fuel space.

The 2003 introduction of flex-fuel vehicles (FFV) capable of running on both gasoline and hydrous ethanol rapidly became the standard for Brazil's vehicle fleet. By 2014, FFVs accounted for 88% of new light vehicle sales and cemented the economic viability of a domestic ethanol market. The environmental benefits of ethanol relative to other combustible fuels have positioned Brazil as a leader in the alternative fuel space.

However, recent developments highlight additional challenges for Brazil's ethanol industry. The 2007 discoveries of pre-salt petroleum reserves off Rio de Janeiro's coast and the 2015 tumble in oil prices shifted momentum away from ethanol. From a supply standpoint, first-generation (1G) processing is starting to show signs of maturity. During 2013-14, only three new ethanol factories were built, compared with 30 during 2008-2009. Conventional production yields are stagnating at about 6,000 liters per hectare.

> The potential for 2G ethanol is huge, and the increased resource efficiency makes it an innovative and socially responsible industry worth following closely.

Enter 2G ethanol production, which relies on both technological-process improvements and raw-material innovation to achieve significant gains in efficiency. Since 2011, Brazilian companies have invested heavily in the development of 2G technologies. If successful, these advancements, combined with Brazil's relative cost advantages and ample arable land, have the potential to radically transform the country's role in the global ethanol market.

How 2G Ethanol Works

The primary difference between 1G and 2G ethanol is the input. The process for 1G converts the natural sugars in crops such as sugarcane, corn and sugar beet. 2G production is relatively input-agnostic — it can be manufactured from a wide-range of biomass, be it corn or sugarcane variants. However, some input materials are more yield-efficient and potentially more cost-effective than others. Overall, the 2G process is more environmentally friendly than 1G, utilizes more of the plant and has higher conversion yields. This results in less waste and an improved carbon footprint.

According to a study conducted by *Foreign Policy*, ethanol production in Brazil averted the production of 600 million tons of carbon between 1974 and 2004. This has given Brazil the clout to influence negotiations on environment policy, such as during the Sustainable Innovation Forum held at the Conference of Parties (COP21) in Paris in 2015. Jeremy Rifkin noted in his book, *The Third Industrial Revolution: How Lateral Power Is Transforming Energy, the Economy, and the World*, that, "In practice, many South American countries have been slow to wean themselves off fossil fuels. Brazil, the continent's economic powerhouse, is an exception. It generates 84% of its electricity from renewable hydroelectric power, and domestic ethanol makes up between 20% and 25% of every liter of petrol used in transport.

The strong reliance on hydroelectric power and plant-based ethanol makes Brazil one of the most advanced renewable energy economies in the world." Today, Brazil's edge provides a very strong advantage in the global economic competition and geopolitical game.

2G ethanol production is more efficient and eco-friendly than the 1G process. Collection of the input material is simple. For example, farmers allow employees of biotech company GranBio onto their lands after harvest to collect the straw left on the field. The gatherers pay according to the weight collected. The real challenge lies in the requisite time frame between the harvest and the collection, which is generally 7 to 10 days. Thus, 2G ethanol production facilities need to be close to the collection fields, resulting in logistical and infrastructure constraints.

The efficiency gains from using the waste are considerable: The same area planted can generate up to 50% more combustibles. A key point is that 2G ethanol is exactly the same as 1G ethanol, with no difference in usage or energy output. However, 1G ethanol production is 30% more expensive. This is due to the enzymes used to degrade the sugar in the straw or molasses. Even though prices fell 78% in four years, the enzymes still represent a significant proportion of the production costs.

The 2G production process also has greater potential for profit. Currently, a batch of enzymes can be used only once. The industry is working on creating enzymes that survive and can be reused over many production cycles. This would reduce the price and improve competitiveness, important factors in a global-energy landscape where oil is cheaper by the day.

However, many observers have become disillusioned with an industry that is not delivering on its forecasts. The industry as a whole is experiencing large-scale difficulties with the production process. Indeed, GranBio and its competitors in Brazil, Italy, China and the U.S. have been unable to achieve and maintain stable production. With teams working nonstop on the issues, these companies are certain that success is near. 2G ethanol's potential is huge, and the increased resource efficiency makes it an innovative and socially responsible industry worth following closely.

The 2G ethanol conversion process employs enzymes to break down the woody lignin of the plants. An optimal fermentation for producing 2G ethanol requires steam pre-treatment of the leaves and bagasse (plant residue after juice is extracted) and an enzymatic hydrolysis. Two major innovations have generated substantial enhancements in the production process. First, enzymes are now integrated in a more productive conversion process. An article published in Brazil in 2015, "Biotechnology for Biofuels," noted that a 55% increase in enzymatic conversion generated a 25% increase in sugarcane biofuel yield. Second, enzymes purchased by laboratories are now largely reusable. This has resulted in significant decrease in the marginal cost of producing 2G ethanol.

Pushing the Boundaries of Technology

One of the most fundamental changes about 2G ethanol is the use of cellulose in lieu of sucrose. Cellulose is the primary structural component of green plants, some algae and other organic life. Because it is ubiquitous across nearly all plant life, the options for deriving ethanol utilizing a 2G process are exceedingly input-flexible. By implication, this flexibility opens an expansive set of options to engineer input stocks that are higher in cellulosic content while allowing for crops tailored to particular environments. These crops, called energy crops, are genetically engineered to have favorable traits including high yield and resiliency. Various platforms are being developed around the world using base plants such as grasses, trees and, in the case of GranBio, sugarcane.

To date, GranBio has invested over $300 million to develop a genetically modified energy sugar crop called Cana Vertix, commonly known as energy cane. According to the company's website, energy cane was developed by genetically crossing commercial sugarcane hybrids with ancestral types of sugarcane in a combination that, like other energy crops, maximizes biomass production rather than the production of sucrose. In addition, GranBio has engineered favorable traits into the cane, allowing it to thrive in more extreme climates that are traditionally ill-suited for sugarcane cultivation.

> Today, with applications from general energy to the plastics industry, 2G ethanol's potential appears more and more important.

The robust nature of this cane and its enhanced growing cycle make it, on paper, the perfect 2G fuel stock. It can be cultivated in areas that are currently not being put to productive use with traditional sugarcane. A study completed by Granbio shows that, in Brazil alone, energy cane could be planted across 32 million hectares of degraded pasture land — an area larger than all of Europe's current arable farmland.

As GranBio looks to scale up production, it faces several key challenges common to the development of nearly all genetically modified organisms. GMO plants in Brazil are heavily regulated, often with onerous requirements and extensive timelines for approvals. Any new GMO product, whether for human consumption or for cultivation for energy, requires assessments of the risks to both humans and the environment. However, one element works in GranBio's favor: Sugarcane is cultivated in areas where the climate does not allow the plant to produce a flowering body. This reduces the risk of unintended cross-breeding between the GMO plant and the natural stock of sugarcane.

This is one of the reasons the native platform of energy cane has been categorized as a Class 2, or low–risk, GMO product. Even so, the approval process for a new modification takes at least 18 months. This poses a substantial bottleneck in GranBio's development cycle for 2G ethanol and is another example of how this product's future in Brazil is deeply intertwined with the regulatory framework. As GranBio looks to reinvent the ethanol space through a 2G process, it will clearly look to energy cane to achieve many of the economies of scale it needs to make 2G ethanol a profitable substitute for both ethanol and other traditional fossil fuels.

During the 20th century, gasoline monopolized energy production for transportation purposes. All the negative effects of this monopoly — from the Standard Oil Company to the war in Iraq — hampered the development of a competitive market for other energy sources. In the 1970s, following the oil shock, the Brazilian government decided to invest heavily in the production of bioethanol derived from sugarcane, one of the country's main agricultural resources. The progressive destruction of the gasoline monopoly will generate a substantial surplus for consumers, a shift in the geopolitical landscape and positive externalities for the environment. These outcomes will be reinforced by biofuel ethanol mandates around the world that are pushing for a 5 to 10% ethanol blend for use in all combustible vehicles by 2020.

Today, ethanol appears to have far greater potential beyond being an efficient energy source for cars. Historically, in Brazil it has aimed to be versatile and universal. The father of ethanol production in the country, João Bottene, who was a contemporary of Nikola Tesla, invented a locomotive that could operate on alcohol energy, the *Fúlvio Morganti*, and several boats that could run on the same energy. Today, with applications from general energy to the plastics industry, 2G ethanol's potential appears more and more important. It could be a unique opportunity for Brazil and the global energy landscape.

This article was written by Jeff Aziakou, Casey Dwyer, Typhaine Robert and Stephane Fisch, members of the Lauder Class of 2017.

How the U.S. and China Each Nurture Innovation

Innovation thrives when intellectual property is protected. Here is a look at how innovation is flourishing in two very different places: South Carolina and China.

From ancient battles to the Industrial Revolution, history is filled with examples of how technological advantage drives a country's economic and political success. But an active approach towards developing an innovation system is something that governments have engaged in only somewhat more recently. In the late 20th century, academics began discussing the role of innovation policies and defining actors who shaped innovation systems.

What is an innovation system? Shannon Brown, dean of faculty and academic programs at the Dwight D. Eisenhower School for National Security and Resource Strategy in Washington, D.C., explains that it is based on the following pillars: a system of patents protecting intellectual property (IP) that can be enforced in the courts, an affordable and effective system of national universities where research can take place, and a business-financing system that supports the spending necessary for research and development. In the United States, the public and private sectors together have shaped some of the world's most successful innovative companies, from Boston to Silicon Valley.

Dating back to the 1790s, patent protection is among the oldest laws in the U.S. While it has given rise to some controversial cases — such as the rivalry between Antonio Meucci and Alexander Graham Bell over the telephone or the dispute between George Selden and Henry Ford over the automobile — the American IP-protection law has given investors and inventors the motivation to finance risky R&D ventures that would not have attracted sufficient financial backing. (For a more recent example of a patent that has given rise to heated debate over its enforceability, consider the case of Vertex and its recently approved $259,000 drug to treat cystic fibrosis).

The other protagonists in the U.S. innovation system are venture capitalists (VCs). While often downplayed as secondary actors, it is impossible to split VCs from technology companies in successful innovation hubs. While there have been many attempts to replicate the Silicon Valley ecosystem or the Boston medical technology scene, it could be argued that the unique combination of access to human and economic capital is the secret ingredient that makes these two innovation hubs unique.

However, this is not the only possible model of innovation development. In Turkey and China, for example, governments act as the primary promoters of technology parks, bridging the gap between a thriving academic scene and a still-nascent financing industry. At the same time, academic research has shown that while public incentives for developing innovative technology can leverage the mobilization of large-scale capital, the private sector can better respond to changing market dynamics.

In the United States, the public and private sectors together have shaped some of the world's most successful innovative companies, from Boston to Silicon Valley.

On a different note, does the interaction between the government and the private sector shape the direction that an innovation system will take? In the U.S., when making an investment decision, an institutional investor normally ascribes significant weight to whether a company's competitive advantage is protected by a patent. In countries with a different IP protection structure, the presence of a patent does not hold the same importance. This does not preclude innovation from flourishing, although the types of companies and technologies that are financed and developed will be different and greatly affected by the IP protection present in a given country.

Drawing examples from the U.S. and China, this paper illustrates how a country's IP rights influence how investors think about their opportunities and how innovation develops as a result. The cases are from the South Carolina Research Authority (SCRA) and HAO Capital, a Chinese private equity fund. Conclusions are drawn from numerous meetings, online research, phone interviews and professional experiences.

The U.S.: South Carolina's Crisis Resolution

During the 1970s and '80s, the U.S. textile-manufacturing industry lost much of its competitive edge to cheaper labor in overseas markets. Many textile plants in South Carolina closed and moved to China and Japan, creating a devastating scenario for the state. In 1983, in response to the rising need to find another lifeline for the economy, the state of South Carolina established SCRA with a founding grant of $500,000 and 1,400 acres of undeveloped land. Figuratively situated between academia and government, this applied R&D nonprofit bridged a critical gap by investing in tech startups and matching businesses and academic organizations to government projects. According to SCRA's website, the agency's cumulative output into South Carolina is more than $19.5 billion since its inception, and it has helped create 15,000 jobs with annual salaries between $55,000 and $79,000.

> South Carolina is a clear example of how strong IP protection makes the U.S. a hub for innovation and research.

SCRA started out by identifying inconsistencies in supply management within the defense and aerospace industry. The team it formed for this area focused on product and process development. According to SCRA staff, its teams have always believed that the science behind the projects was protected under a strong IP structure. This fact was crucial to extending the network of SCRA's enterprise partners. As a result, SCRA benefited not only from deeper relationships with universities but also from a broader network of clients, primarily in industry and government.

Investors soon appreciated the environment that was emerging in South Carolina, and strong foundations were built for what is recognized today as long-standing strategic partnerships. There are more than $4.5 billion in active contract value of R&D portfolios; over 250 projects underway in the Department of Defense consortium, which has funded $1.2 billion in applied research to date; more than 300 high-tech jobs that have benefited from over $78 million in funding and infrastructure; and over $280 million invested directly and indirectly in startups.

SCRA attained an important milestone in 1992 when it won a competition to lead a consortium formed by McDonnell Douglas, Grumman, General Dynamics, Boeing, Northrop and Lockheed Martin to collaborate on the development of specific product-data standards. The SCRA-led team interacted across multiple companies and industries. Boeing, the Eurofighter and the U.S. Air Force are among the thousands of clients that today use the standards developed by this group. Certainly, this wouldn't have been possible without the right mix of IP, R&D and finance systems.

Investing in science can make a difference for development. South Carolina appears to be committed to policies that promote long-term well-being over fast and short-term growth. SCRA has been clear in this regard: Investing in knowledge has led to great strides in understanding complex problems. This wouldn't have evolved without a strong IP system in place to protect investments. Replicating a successful environment such as SCRA is difficult. No doubt, South Carolina is a clear example of how strong IP protection makes the U.S. a hub for innovation and research.

China: A Unique Innovation Route

Mirroring South Carolina's design, the Chinese government's ambitious national innovation policy and improvement of its IP law have played pivotal roles in transforming the country from being simply a copycat factory to an emerging hub of innovation. According to VCs there, the national innovation systems are strongly affected by the importance of IP in investment decisions. With an increasing number of VCs investing in high-tech sectors, a healthy cycle that promotes innovative culture should be established that will further complement China's national innovation system.

The Chinese government's innovation policies comprise a series of top-down strategies that encourage breakthrough innovation. Over the last 40 years, the government has issued a series of policies aimed at stimulating innovation. In the early 1980s, the country established the National Natural Science Foundation of China (NSFC), a state-level lab program, to fund university research projects. The NSFC has enjoyed strong support from the government, and its annual budget increased by an average of 21% in 15 years.

In 2006, the government issued a "Medium-to-long-term Plan for the Development of Science and Technology" (MLP) in which it declared its intention to transform the country into "an innovative society" by 2020 and a world leader in science and technology by 2050. In addition to its efforts to promote domestic innovation, the government (with its immense foreign-exchange reserves) has been encouraging Chinese firms to acquire leading technologies from overseas. Currently, the official plan is to balance the foreign direct-investment inflow and outflow by 2015 and to encourage outbound mergers, acquisitions and expansion by private companies.

Even though China's efforts to promote innovation have shown a positive impact, its IP law needs improvement. First, there is a large gap between the copyright law and the requirements to promote copyright industries. Second, the country's patent laws still need improvement in the areas of transparency of the approval process, rewards for employment invention and enforcement measures in cases of infringement and abuse of patent rights. Two case studies exemplify how the national innovation and legal systems have affected the importance of IP in investment decisions and how companies innovate and protect IP in China.

TCL Healthcare: Investment Based on a Strong Sales Capability

TCL Healthcare is a joint venture between TCL Corporation, a Chinese consumer-electronics giant, and HAO Capital, a $600 million private equity fund in China. Its primary business is manufacturing diagnostic imaging equipment, which requires a large R&D investment. When HAO Capital decided to invest in TCL Healthcare in 2012, the latter had only eight mid-end X-ray patents registered in China.

Nevertheless, HAO Capital's investment team placed a high value on its wide distribution channels and financial strength. To strengthen TCL Healthcare's patent portfolio, HAO Capital, as a precondition for investment, reached an agreement with other company board members to pursue an IP acquisition strategy. Following the investment, TCL Healthcare reached a number of technology-licensing agreements with leading medical device companies so that improved products could be sold through its national distribution channels. This is a classic example of how Chinese investors value the strength of sales capability (i.e., distribution channels and market share) over patents when companies don't have strong technological advantages.

The Chinese government's innovation policies comprise a series of top-down strategies that encourage breakthrough innovation.

LP Amina: IP as a Key Precondition for Investment

LP Amina is a Beijing-based company that specializes in deNOx, a technology that reduces the amount of polluting nitrogen oxides in the air. When Qiming Ventures, a leading Chinese VC fund with $1.7 billion in assets-under-management, invested in its series A round in 2008, the company developed its proprietary Low NOx Burner De-NOx technology in its U.S. lab without any registered patent. Qiming evaluated the technology and affirmed its potential to become a force in China's environmental efficiency market. However, concerned about weak IP protection there, it encouraged LP Amina to retain its R&D function in the U.S. and file patents in both the U.S and China. This ensured Qiming's strong protection of the company's technology and ability to commercialize it in both markets.

As these case studies illustrate, Chinese VC funds have developed their own way of capitalizing on opportunities that China's national innovation system has created, and pursued creative strategies to avoid the consequences of incomplete IP protection in the legal system. As the country's national innovation system develops further, VC funds will be able to play larger roles in promoting innovation.

The U.S. and China have taken different approaches to developing a national innovation system. In both markets, VCs play an important role in fostering innovation while adapting to different IP protection regimes. There is no fixed set of ingredients that a national innovation system needs. Rather, the results of the interactions between governments and private actors will determine the shape of innovation in a given country.

This article was written by Antonio Muñoz, Gabriele Pigoli and JungHa Yi, members of the Lauder Class of 2017.

Back to the Future? Germany's Evolving Startup Scene

Germany is nation that has never been short on brilliant ideas and innovation, but it is struggling to keep up with the United States when it comes to nurturing startups.

A century ago, Berlin was the center of innovation. Known as Elektropolis, it was the Silicon Valley of its time, world famous for the profusion of electrical gadgets invented by its local powerhouses. But a series of hurdles has kept today's German entrepreneurs from becoming bigger and changing the world. The last German tech startup to become a global star was SAP, which was founded in 1972. The current question is: Will the recent innovation wave in Berlin help the city regain its former status?

Germany rose from the ashes of World War II to become a socio-political and economic powerhouse once again. Compared to the other countries that comprise the G7, Germany has by far the highest surplus on its current account (+7.5% of GDP) as well as the second largest savings ratio (26.3%). On the flip side, the country's private consumption ratio is moderate (56%) and its investment ratio (18.9%) is at the lower end of the G7 spectrum. Germany seems to be a capital-generator dynamo, but why isn't it investing its money?

The complexity of the German identity is evident in its ability to be creative and highly efficient and organized — all at the same time. According to British writer Stephen Green, "There is no culture on the planet greater than that of Germany. No country has contributed more to the history of human ideas and creativity. No country has been deeper into the abyss. And no country has seen a more remarkable redemption and renewal." In the business realm, one bank notes that a new startup is founded every 20 hours, making Berlin a standout among the world's tech clusters. Bavaria, the country's most prosperous state, together with its neighbor, Baden-Württemberg, are now home to hundreds of biotech, IT and environmental technology firms that have emerged in the past 20 years.

With regard to the more traditional aspects of Germany, the Mittelstand, or small- and medium-sized family-owned firms, are highly innovative in terms of new product development and industrial processes. According to a 2013 article in The Economist, "the country's oversized trade surplus, its low unemployment rate and its thousands of makers of machine tools, car parts and chemicals are proof that it is keeping up with trends in industries in which it excels." So, there seems to be sufficient evidence that Germans do have the mindset for innovation. Why Germany is not yet home to a gigantic initiative such as Google, Amazon or Facebook is not for lack of potential.

Why Germany is not yet home to a gigantic initiative such as Google, Amazon or Facebook is not for lack of potential. On the other hand, a lack of finance seems to be a major contributing factor.

On the other hand, a lack of finance seems to be a major contributing factor. Deutsche Bank estimates that the number of capital investments in Germany is proportional to the number in the U.S., or 11 to 12 per one million inhabitants. However, it is becoming clear that the venture capital market in Germany still has untapped potential that needs to be released: Since 2012, €2 billion (US$2.2 billion) of venture capital has been invested in young companies in Germany, compared with €64 billion (US$69 billion) invested in startups originating in the U.S. Moreover, the average investment in Germany is €780,000 (US$840,300), which is dwarfed by €6 million (US$6.5 million) in the U.S.

The Success of Rocket Internet

A key player in early-stage investing in Germany is Rocket Internet, which focuses on creating versions of successful venture ideas for other geographies or customer groups. In

October 2014, the Rocket Internet Group and Zalando — its most successful venture — were responsible for two of the largest technology-sector IPOs in Germany since 2000. Several years ago, the founding Samwer brothers decided to move into new markets and focus mainly on online channels (e-commerce) as "the biggest trend worldwide," according to Oliver Samwer. The company is now present in more than 50 countries, from Brazil to Pakistan. Key components of its global strategy are speed and sharing of resources. That is, the faster a new venture is launched simultaneously in multiple countries, the better.

> There are important differences in innovation financing between the U.S. and Germany. The U.S. is the world's uncontested leader in this sector, while German companies still lag far behind in creating digitalized services.

Rocket Internet is often referred to as a copycat and is known for its "'growth-at-all-costs" culture. The firm could be seen as a company-builder, as it launches similar companies around the globe and keeps track of them by collecting data and comparing the performances of sibling ventures. This business model does not resonate with the cool image venture capital firms tend to have. However, it possesses something very German in terms of efficiency and pragmatism.

Point Nine Capital is one of the few early-stage venture capital firms born and based in Berlin. While investing in Software-as-a-Service (SaaS), marketplace and mobile startups internationally, the firm's philosophy serves as a contrast to that of Rocket Internet. According to Rodrigo Martínez, an associate at the firm, "being an angel venture capital means that we invest early and we try to be as approachable, founder-friendly and supportive as an angel. But with the deeper pockets of a venture capital fund."

In practice, Point Nine Capital invests between €300,000 (US$342,000) and €1 million (US$1.14 million) in selected startups and spends a significant amount of time supporting their operational activities. It looks at three aspects for a successful investment at an early stage: the potential size of the business, the management profile and skills (is the team the right one?), and proof of the concept. This approach has definitely paid off, as the fund was able to identify and invest in a number of successful Internet companies, such as Zendesk, DeliveryHero, DocPlanner and DaWanda. Recently, it raised its third fund, a new €52.6 million (US$60 million) fund that will be used to invest mainly in Europe and North America.

In contrast to these successful and very satisfactory ventures, Hasso Plattner Ventures, the venture capital fund of the SAP software founder, has been struggling to find deep technology startups in Berlin. It tends to invest in fast-growing, IT-driven companies in Europe, South Africa and the U.S. Hasso Plattner, the founder of SAP, is regarded as one of the most important and influential IT entrepreneurs alive, with numerous awards for his success in business and science. Thus, his venture capital firm focuses on sophisticated and highly innovative technology startups. Yair Reem, one of the managing partners, claims it is very hard to find such ventures in Berlin, as most startups there are founded by people with business backgrounds and aren't technology driven. He claims that the majority of the technology startups are in west and southwest Germany, in cities such as Munich, Karlsruhe, Darmstadt and Stuttgart — "close to the real industries."

The Role of Banking and Government

There are important differences in innovation financing between the U.S. and Germany. The U.S. is the world's uncontested leader in this sector, while German companies still lag far behind in creating digitalized services. Specific examples demonstrate key aspects of the German innovation-financing environment: Innovation is not rewarded; innovation is scarce; and when checks are written, they tend to be small. Furthermore, the local savings banks and cooperatives that fund many traditional companies are hesitant to lend to untested digital entrepreneurs.

Be it Microsoft, Facebook, Google, Apple or the latest additions to the startup elite such as Snapchat, Slack, Pinterest, Buzzfeed or Flipkart — all were founded in the U.S. Through public funding of universities, the U.S. government has helped to back innovation in Silicon Valley. In 2014, Germany's government passed a "Digital Agenda" bill aimed at helping the country become a worldwide leader in expanding high-speed data lines and Internet security and fostering cyber-related entrepreneurship. Among other results, the plan aims to increase the number of newly established IT firms from the current annual rate of 10,000 to 15,000.

German Minister of Economic Affairs Sigmar Gabriel acknowledges the document does not have all the answers, but IT has gained greater economic significance than the auto industry. Despite the "Digital Agenda," the German government is still struggling to provide the necessary domestic infrastructure, investment and legal-political frameworks necessary for a future startup landscape that is competitive with that found in the U.S. Germany's current key structural deficiencies remain limited state funding and overall bureaucracies, such as a complex tax system and the complexities involved in firing employees. "It took less time to create a company in the U.S. than it did for us to open a bank account in Germany for our business," says German-born Florian Leibert, a former senior engineer at Twitter and Airbnb.

Germany's government also tries to help on the investment side. KfW, the federal development bank, and other state-level financial institutions finance innovation through debt to new companies. The largest investor is High-Tech Gründerfonds (HTGF), a semi-official venture capital firm that draws investment capital from big German companies (€574 million [US$618 million], 20%) and from the economic ministry (€2.3 billion [US$2.5 billion], 80%) that writes checks of about €500,000 (US$538,650) in exchange for a 15% stake.

Finally, Germany differs from the U.S. in one key aspect. The German system and society despise and punish failure, placing a burden on entrepreneurs and potential investors who have a different, higher risk perception.

"It took less time to create a company in the U.S. than it did for us to open a bank account in Germany for our business."

— Florian Leibert

Europe's largest economy holds the potential for a promising trajectory regarding innovation. SAP was the highlight of the IT sector several decades ago and is still used as a reference, so there is track record. Rocket Internet is already making enormous strides in terms of execution, so there is innovation. Smaller funds such as Point Nine Capital are out there making smart (and rather small) investments, so there is intelligence. It is Germany, so there is capital. What is lacking is the openness and ability of formal institutions to embrace and promote failure. This way, potential investors can acknowledge lower risk and thus be more open to financing innovation.

This article was written by Stephanie von Staa, a member of the Lauder Class of 2017.

Transportation Infrastructure Development in Asia: A Comparison of Indonesia, Vietnam and China

As the middle class and number of city dwellers swells, traffic congestion has quickly become a top concern in the world's most densely populated cities. A comparison of the problems and solutions in Indonesia, Vietnam and China illustrate the difficulties and show how a road less traveled could lie ahead.

The modern airport in the Indonesian capital of Jakarta makes a good first impression on visitors. However, that positive impression usually ends on the 16-mile bus ride from the airport to downtown. Massive gridlock on the eight-lane highway keeps traffic moving at a snail's pace, making the short trip take up to three hours.

> With many rising economic centers and thousands of miles of incomplete [transportation] lines, Southeast Asia remains a lucrative market for all infrastructure development companies.

Southeast Asia is one of the most vibrant and fastest-growing regions in the world. With rapid economic growth, an expansion of manufacturing sectors and exploding urbanization rates, countries in the region face increasingly critical challenges from inadequate transportation infrastructure.

In contrast, China, Southeast Asia's powerful neighbor to the north, is an infrastructure-advanced country and a major investor and supplier for transportation-infrastructure projects around the world. An examination of governance structure, land-acquisition processes and funding resources reveals important lessons about the drastic differences in infrastructure development across Indonesia, Vietnam and China.

Indonesia: Struggle and Stagnation

Jakarta is the most populous city in Southeast Asia, and every day about 1.38 million commuters travel there from its surrounding area, known as Jabodetabek. Jakarta has long been notorious for its traffic jams. In 2015, the Castrol-Magnatec Stop-Start Index, published by British motor-oil company Castrol, ranked it among cities with the worst traffic in the world, where drivers idle about 27% of the time. The congestion stems mostly from a lack of adequate public transportation – in quality and quantity — which encourages people to take private vehicles. Currently, more than 70% of the vehicles on the road in Jabodetabek are privately owned, and every year about 13% of public-transit users shift to private transport.

The existing public transit system comprises mostly minibuses that offer almost no safety and little comfort. In 2004, the TransJakarta Bus Rapid Transit (BRT) system began operations with the objectives of providing residents with fast public transport and reducing rush-hour traffic jams. However, a number of logistical problems have made it difficult for the system to meet its initial goals, including the lack of a feeder system and other vehicles occupying dedicated bus lanes. To address these problems, in 2013 the government began construction of a light rail Mass Rapid Transit (MRT) system, with Phase 1 planned for completion in 2018.

Suharto, the second president of Indonesia, ran a highly centralized government that created a number of socioeconomic issues, including corruption, collusion and inequality, according to many observers. After his forced resignation in 1998 amid a sweeping Asian financial crisis, Indonesia experienced years of decentralization. Today it is the third-largest democratic country in the world.

While this decentralized system accords more autonomy to local governments, it proves to be less effective in coordinating among different stakeholders in infrastructure projects.

One example is the Jakarta monorail project, which began in 2004, was abandoned in 2008, resumed in 2013 and was abandoned again in 2015, mainly because the city administration had doubts about the contractor's ability to fund the project. According to Jonathan Pincus, adviser in economic affairs at Transformasi, a Jakarta-based think tank, the land around the monorail stations will become more valuable after the project's completion, and the government could establish a mechanism to capture part of that profit by agreeing to terms with the land owners. The additional revenue could then be used to build the actual infrastructure. But instead, the government's failure to coordinate between the public and private sectors resulted in a funding shortfall for the monorail project. A similar issue has also affected the current MRT project.

The legal framework of property ownership also creates an obstacle for infrastructure construction in Indonesia, particularly in the land-clearance process. The current land law dates to the 1960s, and in remote parts of the country there is a combination of modern property rights and communal rights. As a result, land ownership is often unclear. Different parties may claim ownership of the same piece of land, leading to confusion and disputes. The long and costly process of land clearance has delayed the progress of Jakarta's MRT construction.

> Government and politics obviously play important roles in transportation infrastructure.

The first, pre-construction phase of the MRT project was funded through a loan by the Japan International Cooperation Agency (JICA). In March 2009, the Indonesian government and the JICA signed Loan Agreement 2 (LA2) for ¥48,150 billion ($400 billion), which was forwarded to the Jakarta City Administration as a grant. This latter group will offer two more proposals to the central government for additional loans in lieu of grant agreements.

In addition to the financing component, the Indonesian government has invited various international companies to participate in the construction process. India-based Delhi Metro Rail Corporation has been awarded work in the form of management consulting services on the Jakarta MRT system, as part of a joint venture with eight other international companies. In 2015, subway trains for the north-south line were ordered from Sumitomo, a Japanese company.

In addition to the efforts to build public transportation infrastructure, the government has also taken measures to limit the use of private cars, including the "3 in 1" carpooling mandate in congested areas during rush hour. At the beginning of 2015, President Joko Widodo decided to abolish the gasoline subsidy to free up funds for infrastructure projects, which also discouraged private-vehicle usage to some extent.

Vietnam: Growing Problems, Emerging Solutions

Even though Vietnam was reunited under communist rule in 1976, brutal wars during the preceding decades had destroyed most of its transportation infrastructure, and its economy remained depressed. Beginning in the late 1990s, the country's liberalization policies began to have a positive impact, and the economy has grown steadily since then. But economic growth has led to exponential population surges in Vietnam's cities, where chronic congestion often grinds traffic to a halt.

> Jakarta has long been notorious for its traffic jams. The congestion stems mostly from a lack of adequate public transportation, in terms of both quality and quantity, which encourages people to take private vehicles.

As Vietnam's economic hub, Ho Chi Minh City has witnessed a number of modernization efforts within the transportation infrastructure. One notable example is the new terminal at Tan Son Nhat International Airport. Begun in 2002, construction was completed in 2007 with help from the Japanese Official Development Assistance (ODA).

Vietnam relies heavily on air travel, and the new terminal handles two-thirds of the country's international flights. Another important project is the Ho Chi Minh City Metro, first proposed in 2001. Construction began in 2012, and service is expected to start in 2020. The city's historical core, with its extremely high population density, has seen relatively little population growth in recent years, while growth in the suburban areas has soared. The metro is expected to connect various neighborhoods and alleviate the current motorbike-dominated quagmire.

Government and politics obviously play important roles in transportation infrastructure. Compared with China and Indonesia, Vietnam's political environment seems to blend elements of both and is somewhere between the two systems. On one hand, Vietnam has a centralized party structure for decision making, similar to that of China. On the other hand, political fragmentation and rivalries among various ministries and regional governments more closely resemble Southeast Asian realities found in Indonesia.

For example, a key obstacle in any large public project is land rights and clearance. In Vietnam, the government in theory owns all the land and grants use rights to individuals under different terms and stipulations. Government officials also have been known to hand out personal favors or profit from usage-rights changes, adding further difficulties to each project. In Ho Chi Minh City, however, the local government, given its more limited and defined scope of responsibilities, has been better able to manage competition among contentious factions. Early squabbles over land and contracting rights for the metro project were settled by the city government, and conflicts have been more manageable during construction.

Unlike China, which actively sought to add foreign expertise to local industrial capabilities, Vietnam does not have a grand plan to develop local heavy manufacturing to the same degree of self-sufficiency. Compared with China, Vietnam's state-owned industry was never quite as developed to begin with and currently does not run a large trade surplus. So, the binding constraint is almost always a need to find capital for technology acquisition and physical construction. Even though Vietnam's economic growth has been impressive over the last 20 years, it is not yet realistic for the country to establish a large heavy-industries sector in the near term from developments in transportation.

Both the Tan Son Nhat International Terminal and the Ho Chi Minh City Metro are funded primarily by the Japanese ODA. Indeed, this agency is an essential funding source for many of Vietnam's infrastructure projects, of which about 90% have long-term (30-year plus) loans at near-zero concessionary rates, with the remainder comprising free grants and technical assistance.

The Japan International Cooperation Agency (JICA), the central agency that manages the Japanese ODA, has a strong influence during a given project's initial discussions, and local governments negotiate with the JICA on contracts between local and Japanese manufacturers. After the contract distribution is set, the local government takes control and owns the entire project upon completion, with the Japanese contractors fulfilling only maintenance duties.

Even though concessionary loans appear to be great deals for Vietnam, they also complement Japan's own industrial strategies. Since many of these loans flow back to Japanese manufacturers, the ODA helps Japan maintain its industrial base. In addition, the metro project is a stepping stone for Japan to export its rail standards to the entire Association of Southeast Asian Nations (ASEAN). With many rising economic centers and thousands of miles of incomplete lines, Southeast Asia remains a lucrative market for all infrastructure development companies.

While the JICA sometimes proposes projects on its own, Ho Chi Minh City's government devised the master plan for the metro first and pitched it to potential aid agencies around the world. The city government managed most of the negotiations, with the national ministries of transportation and finance in the background granting approvals. This approach led to better administration of the project.

The general lack of public-transportation infrastructure in Ho Chi Minh City, aside from the aging and increasingly unreliable bus network, has led to widespread use of motorbikes. This, in turn, has caused chronic congestion, worsening pollution and a rising number of accidents. With the city's frontiers expanding outward, the local government is striving to build infrastructure to ameliorate deteriorating traffic conditions. Vietnam is sure to grow with more maturity and confidence in the future.

China as a Potential Example for Others

The expansion of China's modern infrastructure began after its economy opened in 1978 and accelerated after the early 2000s, when the country prioritized improvements as a way to promote growth and bridge widening regional and urban-rural disparities. China undertook construction of its first controlled-access expressway in 1984 and its first high-speed railway in 1999. Today it has a national expressway system that surpasses the interstate highway system in United States in terms of total length, and the largest high-speed rail network in the world.

During the same period, China has made equally impressive progress in urban transportation systems. In 1995, only Beijing, Shanghai and Tianjin had working subway systems comprising merely one to two lines each. Twenty years later, Beijing and Shanghai boast the world's two longest metro systems, and 22 cities across China now have modern urban metro systems. Sixteen more will have them by 2020.

> Compared with Indonesia and Vietnam, China has significantly more internal funding available for infrastructure projects.

The strongly centralized communist government has helped China effectively plan and execute its infrastructure-development projects. China's railway system is controlled almost completely by the National Railway Bureau, which has managed all major railway expansion since 2008, according to the State Council's Mid- to Long-Term Railway Development Plan. In the area of urban metro transportation systems, even though local governments plan and manage construction and operation, all construction, upgrades and equipment expansions must first receive approval from the powerful National Development and Reform Commission (NDRC) before proceeding. With these mechanisms in place, the central government effectively coordinates and guides the overall development of transportation infrastructure at both the national and regional levels.

In addition, the ease of land acquisition under China's current political system facilitates construction of infrastructure projects. As all land in China is state- or collective-owned in theory, the government has absolute authority in its expropriation of it. Once a project is approved by the relevant government agency and receives funding, local authorities can usually manage to finish land clearance by preset deadlines.

Compared with Indonesia and Vietnam, China has significantly more internal funding available for infrastructure projects. Initially, it also utilized ODA funding from Japan and other foreign loans for its infrastructure projects. In fact, ODA funding supported some of the most prominent infrastructure projects during the early 2000s, including China's first high-speed rail system, which was completed in 2003, and the major expansions of Beijing's and Shanghai's airports about the same time.

However, in recent years the massive infrastructure expansions in China have been mostly self-funded by the government and domestic sources as the country's economy and wealth have grown rapidly. Railway expansion, for example, has been funded primarily with central and local government allocations as well as domestic bonds issued by the National Railway Bureau. For example, an important source of the recent surge in railway investment came from the central government's US$600 billion stimulus package in 2008, which earmarked a large portion for high-speed rail expansion.

China's focused industrial policies supporting domestic production of transportation equipment and systems play a key role in facilitating its expansion of transportation infrastructure. While it initially needed to acquire technologies from abroad, China had clear plans to use the power of its market to exchange for the transfer of certain key technologies it lacked. It then incorporated these technologies and developed its own industrial capabilities in relevant transportation systems and equipment.

For example, in recent years, the NDRC has requested that at least 70% of the system equipment for all newly approved metro projects in China be manufactured domestically. These new Chinese technologies, controlled by large state-owned enterprises such as the CRRC Corporation, helped to further reduce the costs of construction, operations and maintenance of transportation infrastructure. Furthermore, these large state-owned enterprises are also expanding beyond China. On the urban transport front, in 2014 the CRRC won the contract to supply Boston's MBTA subway system. On the high-speed rail front, China is now competing with Japan for every new planned project around the world, with the most recent being in Indonesia.

Even though neighboring countries in Southeast Asia need the infrastructure expansion that China was able to achieve in the past decades to support their growing manufacturing-based economies and improve living standards, key differences in government structure and funding can make China's experience difficult to replicate elsewhere. However, with the country now becoming a more active funding source — through its Asian Infrastructure Investment Bank and its One Belt, One Road initiative — and a provider of cheaper equipment and systems, neighboring countries may be able to take advantage and accelerate their lagging infrastructure improvements.

This article was written by Xinlong Cheng, Yifan Li and Ivy Wu, members of the Lauder Class of 2017.

Favelas: Brazil's Lingering Infrastructure Problem

Imagine living in a place so dangerous that the electric company won't send in crews to fix the infrastructure or provide the most basic of services. That's what life is like for people living in the slums, or favelas, of Brazil's second-largest city, Rio de Janeiro.

Favelas, or shantytowns, figure prominently in Brazil's landscape and in the collective consciousness of its people. Before 2008, when the government undertook a community policing effort known as pacification to clean up the slums, access to the entire spectrum of basic public utilities (water, electricity, waste disposal, etc.) was limited in nearly all of Rio de Janeiro's favelas. With rival gangs vying for territorial control in the city's poorest neighborhoods, utility companies refused to service areas where the state could not ensure the integrity of their infrastructure and the safety of their employees.

Those living in Rio's favelas devised access to the electricity grid via a *gato* — a wrench inserted manually into power lines to divert electricity into residents' homes and businesses. The *gato* raised the risk of electrocution, short circuits and sudden fires from electrical surges. It also symbolized the city's inability to service its poorest neighborhoods. Moreover, the city's main electric utility, Light Serviços de Eletricidade S.A. (Light S.A.) ultimately became the primary supplier of electricity — officially and unofficially— to its favelas.

The widespread use of the *gato* became a critical driver for Light S.A.'s economic losses in 2013. Stolen electricity amounted to R$1.5 billion (US$500 million) or more than 5,200 GWh — about 15% of the private company's yearly electric distribution capacity. By way of comparison, electricity stolen from Light S.A. across the entire city of Rio was equal to the yearly electric consumption of the state of Espirito Santo, home to over 3 million people. Maintenance was also impacted adversely by the illegal electric installations: In 2013, 76% of the damage suffered by the utility's electric transformer infrastructure was due to energy surges in areas known to have *gatos*.

In addition, Light S.A. faced significant challenges in billing clients in certain communities because safety concerns precluded in-person collection and payment of invoices. This resulted in staggering non-technical electric losses and default levels in low-income communities of 64.1% and 90.4%, respectively.

From a social standpoint, the issue of electric-service availability was equally daunting. Stealing electricity in Brazil is a crime that carries a sentence of one to four years in prison. Of the 120 people the courts of Rio sentenced in 2012 for utilizing *gatos*, many might have been forced to steal electricity given Light S.A.'s inability to build sufficient infrastructure to service their communities.

> One of Light S.A.'s most intriguing and innovative social-inclusion programs is Light Recicla (Light Recycles), a recycling-centered sustainability program with a bill-credit component.

Light S.A. Finds a Solution

As noted, it was impossible for Light S.A. to serve customers properly in the favelas. After the Pacifying Police Units (UPP) successfully began to occupy and guarantee security in these communities in 2008, the utility was able to address the challenges of not only creating a new relationship with favela residents, but also incorporating them as legal consumers of — and payers for — electric service.

Light S.A.'s priorities revolved around modernizing electric infrastructure in the communities (power distribution lines, transformers, etc.), identifying and eliminating *gatos* and generally regulating electric consumption in the areas. Since 2008, the utility has implemented several projects promoting company-community relationship-building and education on sustainable energy use. For example, the company's *Comunidade Eficiente*, or Efficient Community project, focuses on rewiring private homes in the favelas, swapping old electric bulbs for more efficient versions and replacing kitchen equipment, such as refrigerators, to reduce energy waste. *Travessia*, or Journey, is another project in the favelas sponsored by the state government and BNDES, Brazil's development bank, that aims to revitalize sports and leisure spaces for favela residents. This complements Light S.A.'s other community- and relationship-building efforts, which include art and cultural development projects such as *Favela Criativa* (Creative Favela) and *Intercambio juventude-Arte* (Youth Art Exchange).

> Light S.A's recycling model has been a real success story. The program has grown from three recycling centers in 2011 to 14 in 2014.

One of Light S.A.'s most intriguing and innovative social-inclusion programs is Light Recicla (Light Recycles), a recycling-centered sustainability program with a bill-credit component. This project follows a national trend among private recycling companies that has made Brazil one of the top recyclers of aluminum cans, among other materials, in the world. Inspiration and empowerment also came from the success of Coelce, the electric company of the state of Ceara, which pioneered the exchange of recyclables for discounts on electric bills. Launched in January 2007, Coelce's *Ecoelce* project offers discounts to any client who brings in waste to be recycled. The results have been astonishing: As of July 2015, more than 430,000 registered clients had helped to recycle over 18,000 tons of waste through 100 collection points across the state, generating savings of R$2.5 million (US$800,000).

Building on Coelce's experience, Light S.A. decided to focus on only residents of favelas and low-income communities when it launched its recycling program. The pilot was created in August 2011 and offered to nearly 4,000 residents in Rio de Janeiro's first pacified favela, Santa Marta. Its social-impact principles included alleviating poor sanitary conditions resulting from piled-up garbage and establishing an economic "escape hatch" to facilitate the payment of electric bills and to decrease the default rate among existing customers. To put these challenges in perspective, prior to pacification in 2008, there were 1,597 houses in the favela, of which only 24 of the 73 receiving electric bills actually paid.

In that sense, the recycling program has been a real revolution. According to Fernanda Mayrink, Light S.A.'s community outreach officer, it "encourages recycling within the company's concession area and at the same time contributes to sustainable development and the consumer's pocket. Light S.A. wins, the customer wins [and] the environment wins."

The Light Recicla model has three sets of constituents: the residents, the recycling companies and Light S.A., which serves as the intermediary. From the residents' point of view, the recycling flow is very user-friendly and transparent. First, they need to register at one of the recycling centers for an "ecocard" — a type of credit card — that is used to record discounts electronically each time they deliver waste for recycling. They can then start collecting and bringing clean and categorized waste to one of the 14 favela recycling "ecopoints" to accumulate credit electronically on their card. Finally, they can decide how to use that credit — either by donating it to one of the 48 registered institutions (e.g., schools, hospitals, social groups or nongovernmental organizations) or by applying a discount to their own electric bills.

Light S.A. has several partners that help at different stages in the process. 3E Engenharia coordinates registration for the ecocard, and Coopama and the NGO Doe seu Lixo are the recycling companies that purchase the collected, clean and categorized material.

The materials Light Recicla has been receiving include metal, plastic, paper, glass and vegetable oil. Credits have ranged from R$0.10 (US$0.03) per kilo of paper and plastic to R$2.50 (US$0.90) per kilo of aluminum and lead. For very proactive residents, the amount credited can cover or even exceed their monthly bills. In an interview with TheEcologist.org, Mayrink told the story of a Santa Marta resident identified only as Severiano who has not paid a bill since the program began and has saved R$1,256 (US$ 400) that he is putting into an account for his son.

A Program with Impact

Light S.A's recycling model has been a real success story. The program has grown from three recycling centers in 2011 to 14 in 2014. As of December 2014, more than 13,000 residents had registered in the 14 favelas with centers, recycling more than 2,717 tons of material and 11,500 liters of vegetable oil. The company has also received a number of environmental protection awards, such as Environment Action 2014 from the Industry Federation of Rio de Janeiro, Engie Brasil for Innovation 2015 and the sixth award of the Business Association of Rio de Janeiro for Sustainability.

The recycling-for–a-discount initiative has been adopted by other electric companies in the Brazilian states of São Paulo, Ceará, Pernambuco, Maranhão, Bahia and Rio Grande do Sul as of 2014.

From a financial standpoint, participating favela residents are saving an average R$40 (US$15) per month on electric bills that normally range from R$80 to R$120 (US$25 to US$40). That translates into roughly a 33% savings that can go up to 100% for the most disciplined consumers. At the same time, households are not the only stakeholders gaining a financial benefit. Many institutions such as local hospitals, schools and child care centers are receiving donations through Light Recicla. For example, the electric bill for a samba school for children in the Santa Marta favela has been reduced by over R$500 (US$160) per month through the program. Such savings are crucial for these communities, considering the limited budgets families tend to live on.

One of Light S.A.'s biggest problems – even after the UPP pacification – was user default rates on unpaid electric bills. Under the Light Recicla model, the revenue source for these payments is covered by material purchases from the recycling companies. This allows Light S.A. to reduce repayment and collection risks significantly, while minimizing end-user electric-bill costs. In addition, Light S.A has arranged off-take agreements with market-based adjustments for the purchase price of recyclable material, ensuring that the utility's costs for and revenues from the program (i.e., electric-bill discounts vs. sales proceeds from materials) are balanced.

> In Santa Marta in the past, the waste produced by the neighborhood was usually thrown into the streets and accumulated in rivers and channels.

Financial savings are possible only through the energy saved by recycling. Using recycled material instead of typical production materials saves a considerable amount of energy because manufacturing companies can use the recyclables as a base for their production, instead of starting from scratch. The 13,000 clients registered in the program in 2014 collected enough material to save 10.6 GWh of energy, equivalent to the consumption rate for 4,800 households. Thanks to this program, favela residents are now more aware of the cost of the electricity and use it more cautiously. This has had a direct impact on emissions related to electricity production, as Light S.A.'s programs have curbed consumption patterns in Rio de Janeiro.

Rio is one of the most beautiful cities in the world, but it is also among the 10 dirtiest, as reported by Globo television. In Santa Marta in the past, the waste produced by the neighborhood was usually thrown into the streets and accumulated in rivers and channels. José Mario, president of the residents' association, stated in a recent interview that Light Recicla drastically changed the pollution situation in his community. Light S.A.'s recycling site for Santa Marta alone is collecting 800 kilograms of waste per day, and the reduction in trash has freed up rainwater-discharge channels and decreased the amount of waste that is pulled toward the bottom of the favela on rainy days.

All these changes are having a tremendous social impact. People who lived in communities dominated by crime and overrun with weapons and drug trafficking are now becoming active citizens. Light Recicla is also a learning process that is making residents more aware of the problems in their favelas. Jerson Kelman, the president of Light S.A., notes that Light Recicla represents a new commitment by community residents to the company and themselves. Everyone is hoping for a cultural change that will bring a better quality of life to the city and its residents, he said.

Light S.A.'s efforts to promote and establish social-outreach programs in low-income communities throughout Rio de Janeiro have clearly begun to pay dividends. The win-win model of economic growth, coupled with the environmental stewardship offered by Light Recicla, is an outstanding example of the company's success in building relationships with the communities it serves while fostering the social integration of Rio de Janeiro's most forgotten inhabitants with the rest of the city.

This article was written by Christine Burq, Joel Filippi and Guillermo Nemirovsky, members of the Lauder Class of 2017.

Living in the Shadows: How Rural Workers Pose a Challenge to Chinese Urbanization

In Beijing, a million people live in underground housing units, mostly rural workers seeking cheap rents. China, which wants to shut down these homes, is grappling with these and other challenges from urbanization.

Two stories beneath a mixed-income residential building in the Haidian district is a collection of dark, musty corridors, exposed wiring and damp laundry that form one of 3,000 underground communities in China's capital, Beijing. Down deep in these former bomb shelters, noise from the crowded streets above becomes a whisper. Narrow white hallways lead to about 10 dwellings, sized from 100 square feet to 300 square feet, on each floor. Dusty pipes, tangled wires, closed-circuit cameras and flickering fluorescent lights line the ceilings. Garments hang outside red doors; some doors are covered with thin, colored sheets — a reminder of the different styles, ambitions and livelihoods of the residents eking out a living under the city.

Behind one of these doors lives a young woman who goes by the pseudonym Shizi. She shares a small room of about 200 square feet with her classmate from a nursing school in Hebei province. Like many aspiring young professionals in China, they came to Beijing to seek job opportunities, hoping to obtain professional training and work experience at a nearby, top-tier hospital before returning home. Their goal is to improve health care in their hometowns by bringing leading medical practices to local hospitals.

Like most migrant workers in Beijing, Shizi and her roommate have limited access to low-cost government housing and receive little income from their internships. Thus, moving into underground residences seems to be the only affordable option for these and other young professionals. According to Shizi, their combined rent totals RMB 1,100 per month ($174), significantly less than above ground rentals that typically exceed RMB 4,000 per month ($634). These rental rates align with a 2014 study conducted by Annette Kim, associate professor at the Sol Price School of Public Policy at the University of Southern California.

Shizi explains that, despite the poor lighting, communal bathrooms and other negative aspects of living underground, she feels it is a safe place to live. Moreover, she points outs the lack of options within a reasonable commute to her internship. Many of her neighbors in underground housing are in a similar situation. For Shizi and her roommate, Beijing will provide the training and prestige they need to accelerate their careers back in their hometowns, and living temporarily in underground housing is just a necessary part of realizing their ambitions.

> An unprecedented pace of urbanization, outdated government policies and the city's reputation as a land of opportunity all led to the flourishing of below-ground communities.

Mr. Huo, who did not want to be identified by his full name, is a successful entrepreneur in the publishing and education business in Beijing who also once lived in a similar type of underground residence in China's Shanxi province. He was drawn to underground housing as a graduate student decades ago because it was both affordable and a quiet place to study. However, the poor ventilation, high humidity and lack of access to natural light –- which led to long-term damage to his eyesight — forced him to relocate six months later to an equally small but above-ground subdivided apartment unit. At the time, he says, the cost of the above-ground rental and underground unit were fairly similar.

Based on his personal experience, Huo recognizes that economic hardships can be a rite of passage for residents born outside China's major cities. Nevertheless, he also supports the government's plans to shut down underground housing in Beijing. These residences, he notes, are not only an image problem for China's capital city, but are also fundamentally unsuitable for living. He adds that underground residents may not realize they are putting their lives at risk in the event of catastrophes such as fires or floods.

> Government policies have both exacerbated the challenge of finding housing and helped establish the underground spaces that are used as homes today.

The Chinese government's plan to demolish underground housing brings a number of issues to the forefront. For one, how did these underground spaces become such a significant part of Beijing's capital city? How will the government address the economic and humanitarian challenges of evicting a population of 1 million underground urban migrants? How will the plan be put into effect and over what time frame? And, in a crowded city with expensive housing, how should the spaces be used in the future?

An Integral Part of the City

While many developing cities have faced acute housing issues – from the slums in Leeds in 19th century England to the favelas in Rio de Janeiro — Beijing faces a unique confluence of factors. An unprecedented pace of urbanization, outdated government policies and the city's reputation as a land of opportunity all led to the flourishing of below-ground communities.

First, Beijing has seen one of the fastest urbanization periods in history. Professor Li, who teaches at a prestigious university in Beijing and did not want his full name used because of the sensitive nature of the topic, conducts research that supports the local government in urban planning. He notes that since the 2008 Olympics in Beijing, the city's population has been increasing by about 500,000 per year. Even though half of Beijing's current housing was built in the last 10 years, it has not kept pace with demand.

Second, government policies have both exacerbated the challenge of finding housing and helped establish the underground spaces that are used as homes today. China still maintains a household registration system — a carryover from central planning policies — in which, despite some recent loosening of controls, migrants from outside of Beijing cannot buy houses or benefit from government housing support.

This led to the rise of informal housing options, including the practice of crowding multiple people into apartments — or crammed renting — as well as underground living. In Beijing, the per capita living space among migrants can be as small as 60 square feet, compared with 210 square feet for native residents. In addition, the fear of potential attacks from the Soviet Union during the 1960s and 1970s led the Chinese government to mandate that housing developments in major cities including Beijing have underground spaces with minimal plumbing that could be used as temporary bomb shelters. This resulted in thousands of previously underutilized spaces two or more stories underground. However, these underground spaces were not designed as permanent residences.

Finally, Beijing is still recognized as a city of opportunity and especially welcoming to migrants. Huo speaks of people starting anew and becoming rich, similar to the "American dream." This reputation draws people from different social strata to the city despite its shortcomings. A 2014 study by Kim estimated that approximately 1 million migrant workers live in underground apartments, and Li's own research shows that these residents come from different levels of society, including builders, teachers, beauticians and nurses. The large population, varied economic functions and levels of social standards reveal the deep level of integration of the underground society with the rest of Beijing.

Changing Policies

The underground housing situation is in a state of flux and will likely look very different a decade from now. Spurred by challenges involving the health and safety of current residents, as well as its vision for Beijing's future role in China's northeast, the central government has begun to implement policies to eliminate underground housing and develop the manufacturing industry in nearby regions, creating a potential solution for migrant workers in Beijing.

According to Li, while fire and flooding have always been hazards, it was not until several deaths occurred that Beijing's government began to roll out policies aimed at closing the underground housing. Those deaths, which were well publicized by the press, came about after a flood and poorly installed electric cables led to the electrocution of two people in 2012.

A concurrent safety concern is the long-term effect of pollution. Beijing's rapid urbanization has led to an unprecedented number of cars on the road. The sheer number of vehicles, along with the still-present factories in Beijing, accounts for most of the air pollution that continues to attract intense media coverage and global criticism. Policies aimed at reducing the population pressures of top-tier cities such as Beijing are thus related to the wide-ranging government efforts to address pollution in China.

Another key driver for the government's removal of underground housing is the desire to transform Beijing into a more service-oriented economy, which plays a role in the development of a new, integrated urban area called 'Jing-Jin-Ji' (from Bei'Jing,' Tian'Jin' and 'Ji,' the ancient name of Hebei province). Li describes this plan as reducing duplicative industries in the region by moving existing manufacturing businesses, such as garment manufacturing, steel production and ocean logistics, to Tianjin and the Hebei province, which can help transition a large segment of lower-waged migrant workers out of Beijing while evolving the city's tertiary industry.

As a result of safety concerns and its longer-term economic vision, the government has rolled out policies to eliminate underground housing in the next three years. Li takes a more realistic view, noting it may take several more years to initiate. While the government directly owns some underground spaces, other spaces were granted 5- to 10-year contracts prior to 2010. The government will likely need to wait for the contracts to end and then take over and repurpose the underground properties.

New Opportunities

Relocating more than a million people is bound to be a monumental task that will face challenges as well as opportunities along the way. Eviction of the underground residents can be viewed from two angles: How would the underground spaces be reused, and where will the residents go?

Providing alternative housing solutions for migrants is a tougher challenge, especially given the government's goal of slowing intense population growth.

Li and many residents, including Huo, believe that transforming the spaces into underground car parks is the best solution. These facilities, which do not require the same level of air quality and lighting as residents, would alleviate the parking shortage problem while earning ticket revenues. Moreover, some are already being converted into luxury retail areas, such as underground cafes, malls and swimming pools. Li believes the government might have underestimated the economic value of these underground spaces and their use as private development operated by real estate businesses, or as gyms, cultural centers, libraries, community open spaces and others.

Providing alternative housing solutions for migrants is a tougher challenge, especially given the government's goal of slowing intense population growth. The long-term transition to an integrated economic zone across Hebei, Tianjin and Beijing will provide dedicated housing opportunities for people in the manufacturing industry outside Beijing, but there will still be short-term pressures as well as a significant service-oriented population that will seek to remain in the city center and support the city's economy.

Li observes both formal and informal options to evict residents of underground housing. Informally, some residents will find housing on the outskirts of Beijing's 5th- and 6th-ring roads, which already cover a huge geographic area. In order to stay centrally located, however, many residents are turning to crammed renting in apartments located near the 2nd- and 3rd-ring subway lines and fit more than eight people to a room — violating the legal requirement of 86 square feet per person. The scale of this housing option is significant and increasing: Crammed renting listings can be found easily online and via telephone hotlines.

A more formal near-term solution that Li believes will align with Beijing's development objectives is to repurpose factories and unused spaces in the city center into cheap, government-subsidized housing. This will accelerate the migration of industry to the industrial hubs in Tianjin and Hebei while immediately solving some of the more pressing housing needs in Beijing. This type of housing is provided today, but the supply is still too limited because much of it was offered exclusively to government employees. Now it is being opened up to migrants who do not hold Beijing resident permits.

However, Li still thinks the current population in Beijing requires tight controls to prevent exacerbation of housing-supply issues. Thus, it is highly unlikely that the government will significantly loosen the system restrictions in Beijing. However, it has taken some steps by issuing transitional resident cards based on criteria such as employment, length of stay and educational level — much like the green-card system in the U.S. In the long term, once the pace of urbanization stabilizes, Li thinks the system can be standardized and opened up across cities as has been done in other Chinese cities such as Chongqing, which doesn't face the same demand and supply constraints.

Performing on a Global Stage

The 2008 Olympics put Beijing in the global spotlight. Under the glare of the international media, the city carried out many temporary policies — including removing unsanitary street vendors and clearing out huge numbers of migrant workers who had constructed most of the Olympic sites — to present the image of a clean, global city. This kind of internationally reactive behavior was also reflected in the original decision to build the underground spaces to address a potential Soviet conflict.

Another motivation behind the recent policies to evict underground residents could also be political in nature, driven by the need to build and maintain Beijing's reputation as a global city. This point of view may provide insight into the nature and timing of future policy changes, such as easing transport pressure with underground car parks, developing global-standard luxury amenities underground or implementing key policies in advance of the 2022 winter Olympics, which is slated for Beijing.

Whether it is about adjusting historical urban planning policies to meet tomorrow's demands, accelerating the move from central planning to a more fluid and competitive labor market or proactively adjusting the image of a city in the global spotlight, the case of the underground residents highlights Beijing's unique challenges as well as opportunities for innovative urban solutions to be found in a continuously evolving China.

This article was written by Dee Ng, Joshua Lee Van Dyke and John Withers, members of the Lauder Class of 2017.

Why the Organic Food Industry in China Hasn't Taken off

With a burgeoning middle class willing to spend more money for high-quality food, China is ripe for a meteoric rise in the organics industry. But the numbers tell a different story.

China's rapid growth over the past few decades has dazzled the world. Until 2015, it was the world's fastest-growing major economy and currently trails only the United States in the number of billionaires produced. It plays a vital role as one of the world's leading importers and exporters, and a sizable young population comprises its emerging middle class. This consumer market is particularly attractive to investors and businesses.

Favoring short-term growth, however, comes at a price. Food safety is a systemic challenge in China and a prime concern among its citizens. In order to compete for more customers, who now have more money in their pockets, Chinese food businesses have resorted to unscrupulous methods of cost cutting. Examples covered in the media include tainted baby-formula, cooking oil made from waste, contaminated meat and fake eggs. People generally mistrust the sources and third-party preparation of their food, and news reports of food-safety scandals are fairly common.

Given the abundance and frequency of these scandals, as well as the increase in average income, it is surprising that China has not seen a boom in the organics industry, which is one way to obtain cleaner, safer food. This industry is still emerging, and only a small percentage of the population understands what it is or consumes its products.

In general, Chinese consumers prefer to buy imported products, even if not organic, over domestic organic products.

The Rise of the Organic Food Sector

The Chinese organics industry has been growing steadily over the past 20 years, spurred by the numerous food-safety scandals and the increased purchasing power of the middle class. In 2013, nearly 10,000 enterprises held organic-product certificates. In terms of product variety, there were 1.6 billion organic labels, with total domestic sales ranging from ¥21 billion to ¥31 billion (US$3.23 to US$4.84 billion). Yet the numbers account for a very small percentage of total consumption.

Organic produce enterprises are found all over China, but the vast majority cultivate and process their products in less developed areas where large tracts of agricultural land and manual labor are available at lower costs. Only 1% (3.52 million hectares) of China's agriculture land is organic, with most of that dedicated to farming cereal grains, fruits, nuts and vegetables for domestic and international consumption. A small portion is reserved for organically raising livestock, poultry and aquatic products. Historically, most of the output has been exported (sales of ¥160 million or US$25 million) to countries including the U.S., Germany, the Netherlands, Canada and Japan, with sales increasing annually. The U.S. is this industry's largest export partner in terms of sales and volume and buys primarily agricultural products.

> The Chinese government is more concerned about food security for its population of 1.4 billion than about promoting organic products.

Along with the rise in organic-product exports, domestic demand has also increased significantly. Chinese consumers have become more health-, safety- and environmentally savvy and are willing to pay a premium price to purchase organic goods. Often, the price for organic products is double to quintuple that for conventional products. Given these higher prices, it is no surprise that most of the organics industry's consumers live in urban and wealthier cities, otherwise known as China's "first-tier cities," such as Beijing, Shanghai, Guangzhou and Shenzhen. The majority skew younger (20-40 years old), are professionals (e.g., teachers, white-collar workers and civil servants) and possess high education levels. They work in occupations that provide sufficient disposable income to buy organics or are in the position to give gift baskets made up of luxury organic goods.

Because of China's large market of consumers and an increasing demand for organics, 51 foreign firms have entered the market to compete and/or partner with Chinese retailers. Through high-end supermarkets, organic specialty stores or online shops, these companies sell primarily gourmet dairy, wine, infant food, olive oil and grain products.

Challenges for the Organics Market

Despite the clear growth in China in recent years, the organics market still faces a number of challenges in the areas of consumer confidence, logistical distribution, support and government policy.

Youting Zhang of Organics and Beyond, an organic retailer in Beijing, said consumer trust is the greatest challenge to the growth of the organic market in China. Because of intentional mislabeling of products as "organic" and the prevalence of fake goods on the market, consumers are more skeptical. They are less willing to pay a premium price for organic fruits and vegetables they fear are fake. This skepticism and distrust have forced organic-food producers to mark their products as "regular" versus "organic" to avoid excess amounts of inventory. In 2013, of the ¥80 billion (US$12.5 billion) in organic products produced in China, only ¥25 billion (US$3.9 million) were sold as such. This is problematic because it puts pressure on organic food companies' profit margins and is detrimental to the entire industry's growth.

On sites such as Taobao, an eBay-style online marketplace for private buyers and sellers, there is a lack of trust regarding the legitimacy of organic-labeled products. Customers are reluctant to purchase these goods without verified information, particularly in the aftermath of the slew of food-safety scandals. Unethical practices on the part of retailers who intentionally mislabel products dampen both domestic and international demand for Chinese organic products. Foreign importers are loath to take the risk. According to the U.S. Department of Agriculture's Global Agricultural Information Network, many American grocery chains have stopped carrying certain products from China labeled as organic.

Because of the Chinese population's distrust of domestic organic labels, competition has emerged in the form of *daigou*, a method of paying either a family member or other Chinese national living or traveling abroad to purchase goods in bulk to bring home. It has become one of the main channels for Chinese consumers to buy high-end goods at substantial savings (e.g., luxury handbags generally priced 30% higher in mainland China) and also avoid perceived quality gaps. In general, Chinese consumers prefer to buy imported products, even if not organic, over domestic organic products. Thus, daigou poses a significant challenge to local retailers in the Chinese market.

With the existing demand, organic retailers are facing challenges with distribution and delivery. One new sales channel that has seen significant growth despite still comprising a small percentage of the market is e-commerce. Online retailers such as Yihaodian, Tmall and Taobao are offering fresh organic produce online for delivery. Their challenge, however, lies in the relatively high logistical costs and spoilage rates on the road to delivery. According to the Organic Trade Association's market report, Yihaodian — 51% of which is owned by Wal-Mart — is setting up a proprietary last-mile delivery system. Another player, Shunfeng First Choice, which belongs to delivery company Shunfeng Express, delivers products to customers directly from the farms, offering a more efficient and cost-effective system.

On the policy front, Zhang noted that a challenge for Chinese companies exporting products or foreign companies entering the Chinese organic market is the lack of multilateral recognition of certification requirements. The Food and Drug Administration in the U.S. does not recognize Chinese organic labels, and vice versa. Any foreign company or product entering either market must go through independent Chinese certification processes. As expected, these processes can be costly, lengthy and complicated (multiparty), which deters foreign firms from entering China. According to a 2011 report by the International Trade Centre, the Chinese government is in negotiations with the European Union, the U.S., Canada, Japan, Australia and Thailand regarding regulatory recognition. It is unclear when or if these negotiations will result in any international cooperation.

According to Bugang Wu, a specialist at the U.S. Agricultural Trade Office in Beijing, the Chinese government is more concerned about food security for its population of 1.4 billion than about promoting organic products. Wang Shiyan, the Chinese vice-minister of land and resources, stated that 3.3 million hectares of land, about the size of Belgium, are too polluted to farm as a result of increasing pollution and urbanization policies. There are a limited number of farms that can be converted from conventional to organic, preserving valuable arable land for high-quantity-production farming techniques. Farmers are not incentivized to convert, partly because of the low demand for organic products and partly because conversion processes for farms are lengthy, taking up to three years to complete. Farmers who choose to convert must pass through several harvests to rid the soil of pesticides and chemical components. By law, even planting in previously uncultivated earth requires one year of soil purification. While the actual certification process is only a few months, many farmers cannot afford the years of lost income. The production of organic goods has been and will be limited because of this lack of dedicated soil.

Because of the many challenges facing the Chinese organics industry, projections for its future growth are modest.

Opportunities and the Future

Because of the many challenges facing the Chinese organics industry, projections for its future growth are modest. By 2020, only another estimated 0.25% to 0.55% of the country's arable land will be converted to organic agricultural production, bringing the total organic land percentage to between 1.2% and 1.5%. Market share of organic foods is forecast to reach only 1% to 3% of China's total food consumption, compared with the U.S., where similar sales already accounted for 5% of the market in 2014. China's organic-product exports in 2020 are expected to comprise only 1% to 1.5% of the global total.

The modest growth forecasts for the Chinese organics industry illustrate the obstacles companies face there. However, those that can overcome the impediments have a significant business opportunity. With the high barrier to entry and a low competitive landscape, organic food companies that are successful can capture a large share of the industry and the vast majority of its overall growth. A prime example of such a company is Organic and Beyond. Established in 2007, it is a Chinese online distributor of home-delivered organic foods. Its product offerings range from produce and seafood to processed foods, such as chocolates and special-occasion Chinese mooncakes. The company uses a subscription-based model and distributes to over 200,000 families across six of China's major cities. Although still young, it reported annual revenues of ¥200 million (US$30 million) in 2012. It is currently planning to expand beyond online distribution to provide on-demand organic meals targeted at urban office workers.

Several factors have helped Organic and Beyond deal with many of the challenges common in the Chinese organics industry. The company benefits not only from a first-mover's advantage but also from a network of organic food and agriculture experts and an "all-in" business model that supports organic-food initiatives outside its core business. This leads to name recognition in the industry and helps win government-approved contracts and certifications.

When Organic and Beyond was founded, there were fewer than 2,400 organic food products available in China. Hence, this company was one of the first in the country to own organic agricultural land and to offer home delivery of organic foods. Its founder, Xiangdong Zhang, has focused his business on building trust in the brand among Chinese consumers. To achieve this goal, he employs a team of industry experts, including Youting Zhang, who holds a master's degree in organics, and Jianwei Zhang, who holds a Ph.D. from China Agricultural University. The company is also supported by an advisory group of academics and professors in agricultural fields. Cited in many consumer-facing marketing materials, this network of experts builds consumer trust by elevating Organic and Beyond's legitimacy.

Further enhancing its image, the company participates in activities outside the home-delivery arena. It hosts consumer visits to its organic farms and offers informational sessions at local companies in order to educate young professionals. It also publishes numerous reports on the organics industry and participates in many industry conferences and forums each year. By establishing itself as a leader in the industry, its "all-in" business model raises consumer awareness and trust.

Organic and Beyond's network and name recognition have another major advantage: It is successfully leveraging these aspects to win joint-venture contracts with foreign suppliers. In addition to the academic experts, its advisory group includes members from state departments and government committees. In a relationship-driven country such as China, these government ties undoubtedly help Organic and Beyond not only to certify its own products but also to import products from abroad. Crabs from Alaska, chocolates from Switzerland and beef from Australia are just some of the examples of the organic or free-range items the company offers. Many of the package labels for these products feature both the original retailer's brand and the Organic and Beyond name. For example, the Swiss chocolate line it offers, Cavell, is stamped with the logos of both companies. For foreign companies, a joint-venture with Organic and Beyond provides access to the Chinese market with few of the bureaucratic and administrative hassles of obtaining government certifications. For Organic and Beyond, the joint ventures enable the company to maintain control of and market power in the Chinese sector.

It is very difficult for organic food companies without a track record to enter China's market. The challenges of the industry are clear. The industry is small, and issues in consumer trust, distribution, sales and government policy result in subdued forecasts for future growth. However, the strong barriers to entry also give market power to firms that succeed in the sector. For the handful of companies that can understand both the Chinese consumer well enough to build the right brand and form the right relationships with industry influencers, the organics sector is an ample business opportunity and is one of the ways to enjoy the fruits of the Chinese market.

This article was written by Maggie Diehl, Yue Li and Emily Tung, members of the Lauder Class of 2017.

The Social, Political and Economic Impact of Chai in India

Chai, a beverage with a popularity that has spread far beyond its home base of India, is steeped in the psyche of the subcontinent. But with trendy coffee shops drawing more affluent, younger Indian citizens, will chai become a poor man's refreshment?

During the 2014 election, the Indian people had two distinct choices from a class perspective. The Congress Party's Rahul Gandhi, representing the old guard and India's elite political class, hoped to extend his family's dynastic political dominance to a fourth generation. And the Bharatiya Janata Party's Narendra Modi, sensing a shift in the nation's psyche toward sympathy with the lower-and middle-class frustrations, wisely presented himself as an aam admi, or common man, in sharp contrast with Gandhi's privileged background. Modi's tool of choice to craft his aam-admi identity before the Indian people, which arguably shaped the result of the largest election ever held in the country, was chai.

Modi used his humble beginnings of vending chai, or Indian spiced tea, at train stations to cement his proletarian image. Indeed, chai, one of the most popular beverages consumed across India, has come to symbolize the common man. Not only does it occupy a very real and significant space in people's daily lives, but it has also woven its way into India's social fabric.

Chai's Many Meanings

To illustrate, consider the following scenarios in which chai plays a prominent role with varying degrees of social significance. A boy, Kushal, and a girl, Mamta, along with their families, are meeting for the first time in a formal and arranged setting; marriage is on everyone's mind. Perhaps this meeting has been set up by a chacha (uncle) or a meddling aunt. Or the couple may have decided to cement their relationship with their parents' blessings. Regardless, the significance of this encounter is huge. It could mean the marriage of not just two individuals but also two families for the rest of time.

If Mamta welcomes the guests with a good cup of tea, all is well. She has passed the first of many tests. If the chai is subpar, however, no matter what happens next, the encounter will be colored by the taste of the disappointing beverage. Without chai, such occasions would be incomplete. In this situation it serves as both a social test and a social lubricant. It signals to the drinker that the maker is well-versed in the art and likely will be equally adept in fulfilling the other responsibilities in marriage. Many destinies are written in this one cup.

Imagine that Mamta's proper cup of tea leads to a successful wedding arrangement. She now goes shopping for her wedding trousseau. The moment a shopkeeper discovers she is bridal shopping, she and her companions will be ushered into a special section of the store for, well, special treatment. Once she begins to look at lehengas (a type of outfit consisting of a skirt, blouse and scarf) and tries them on, the shopkeeper will begin to gauge her taste.

> Not only does chai occupy a very real and significant space in people's daily lives, but it has also woven its way into India's social fabric.

As the bride likes one outfit and rejects another, her budget will become clear to seasoned shopkeepers. If she is deemed serious enough, she and her party will be asked the big question, "Will you have chai?" Here the chai is an investment in creating a deeper relationship. If the customer has invested in the shopping experience, shopkeepers likewise invest in the customer by offering a cup of tea, knowing she will stay at the very least until she has finished drinking it. This not only buys the shopkeeper time to show customers more items but also to make them feel indebted — that leaving without making a purchase would now be awkward at best and rude at worst. Chai is a symbol of the shopkeepers' investment in the customer and invokes reciprocity.

Yet another example of chai in a social setting, and perhaps the most common, is during work breaks. Employees can drink it at their desks or at a stall. They can have it alone or use the time to gossip and catch up. The tea break and tea stall serve as the equivalent to the water cooler of the American work culture, while providing a beverage that is more flavorful and energizing. In this scenario, chai is a reprieve and a chance to refresh oneself before the midday meal or before heading home. It's a promise that life will be better in that moment the beverage is consumed, even if it isn't otherwise.

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Chai's Introduction to India

With its tantalizing aroma, delicious flavor and symbolic place in society, chai has become — and likely will continue to be — a central part of the Indian psyche. The pervasive habit of tea drinking in India, characterized by the frequent daily consumption of small cups of the milky and cloyingly sweet beverage augmented with ginger or cardamom, has promulgated the misconception that tea has had been around on the subcontinent for a long time. To understand its origin in India, one must first know that it was not introduced to the subcontinent until the period of British rule.

Acquired in the late 17th century from the Dutch and Portuguese, the upper-class British custom of tea drinking gradually trickled down to the lower classes and became a national habit within a century. This growth in the consumption of tea was partly facilitated by the gradual decline in the price of tea due to heavy imports from China. The East India Company, which had already begun to wield its hegemonic influence over India by the middle of the 18th century, dominated the trade of tea. The company would pay for Chinese tea using opium that was grown in northeast India. Despite these arrangements, the British could not but help feel nervous about the perceived monopoly that China seemed to enjoy over the production of the company's most prized commodity and the daily beverage that had now become such a part and parcel of being British.

Some East India Company officials soon realized that the tea plant Camellia sinensis could be cultivated in British-controlled India and began experiments with smuggled plants around 1774, albeit in vain. In 1823, growing on the forested hills of Assam, a plant reminiscent of tea was found and christened the Camellia assamica. Soon after, the company sent a consignment of a handful of chests of this tea and put them up for sale in London in 1839. The auction led to a tea rush. The next half century saw acres of forest being replaced with millions of seedlings of this new tea plant. By 1888, the amount of tea exported from India to the United Kingdom surpassed exports from China. By the 20th century, tea from China was eventually priced out of the U.K market.

The tea produced in India was primarily exported to the West, although a small portion of the production was auctioned off in the markets of Calcutta to a small native community that consisted of the Anglophile elite and babus who worked for British firms and were slowly developing a taste for this 'foreign' beverage consumed by the colonial masters.

The tea industry was fraught with several challenges, including unpredictable London auction prices and the complications of long-distance transportation. These factors prompted officials to introduce Indians to tea and perhaps unlock a major market in the subcontinent itself. Although the idea that what was considered a base and uncivilized society by the British would actually be able to enjoy such a cultured drink was initially ridiculed, market surveys met with moderate success. The effort was eventually deemed unfruitful in 1904, with a final verdict that there was no conclusive evidence that India would be a promising market for the crop.

In fact, tea growers voluntarily paid a tax to the Tea Cess Committee (TCC), which was tasked with finding new markets for tea. The TCC had begun organizing promotional activities in the United States and Australia to uncover potential markets but had not been as successful. The market for tea in India also remained largely elusive as its perception remained negative, especially during the independence struggle when tea as a "foreign" commodity was considered to be painted with the blood of the peasants and laborers exploited by the British colonial regime. Long-held cultural preferences for other beverages also played a part in keeping the popularity of tea in check.

Winning over the Indian Consumer

During the first 30 years of the 20th century, tea advertisers primarily targeted British residents of India and the Anglophone elite, although the TCC did make feeble and infrequent attempts to create a demand for the product among Indians by giving away samples of prepared tea and selling cheap, bite-sized packets of leaf fragments or broken tea that would provide a taste to the wider audience. By 1930, over 90% of the crop was still exported to the British, and only an extremely small number of the local populace had ever tasted tea.

As a result of the Great Depression, international tea prices dropped sharply even in the face of record production, and by 1935 tea plantation owners found themselves with more than 100 million pounds of unsold surplus. Finally acknowledging the opportunity of more than nearly 350 million people at home, the TCC transformed itself into the Indian Tea Market Expansion Board (ITMEB) and was given a larger budget. The ITMEB then conducted an elaborate marketing campaign following a methodology similar to what had previously failed. A vast group of tea evangelists were tasked to give away millions of cups of tea and sell an equal number of "pice packets." The campaign featured colorful signs in local languages produced by commercial artists and enamel placards posted in railway stations and markets, paternalistically instructing readers about the correct British method for preparing tea. All these campaigns had the singular aim of trying to persuade the average Indian to take up the habit.

While some experts claim that such tea campaigns during the 1930s managed to win over the hearts of the subcontinent, in 1947 over 70% of India's tea crop was still exported and the per capita consumption remained a meager 0.4 pound per year. It could be argued that despite more than 50 years of sporadic efforts, an ingenious advertising strategy and creative campaign signs, the majority of Indians had never tried — or possibly never even heard of — the crop or the beverage.

The newly reconstituted ITMEB, or Tea Board, persisted with its campaign into the 1960s, using a cartoon mascot as a spokesman. The various strategies to dispense free cups of tea or sell "pice packets" to entice consumers gave way to private enterprise, and the Tea Board spent its budget primarily on efforts to increase India's waning market share in the global tea trade.

> The economic politics of chai may be seen as a metaphor for the cultural politics of India itself.

What is also remarkable is the persistent effort to educate Indian consumers in how to make tea correctly in the "civilized" British manner. The method maximized the amount of leaves required, thereby helping to increase tea revenues. By contrast, the Indian technique was starkly different and often incorporated far more milk than was desired by British tastes. If the Indian tea drinker had access to milk, the tendency was for water to be entirely eliminated and milk to comprise more than half of the beverage. The Indian preparation also encouraged the mixing of spices, such as shredded ginger or crushed cardamom, in line with the Indian food aesthetic of strong aromas, colors and flavors.

The use of Scottish crush-tear-curl machines was instrumental in driving tea prices to affordable levels and catalyzing a massive growth in consumption by the general Indian public. The machines, particularly the sliding-block variety designed by Indian engineers in Calcutta, revolutionized the tea-manufacturing process in the 1960s to 1980s by allowing for "continuous manufacture," a practice that dramatically reduced the need for human labor in factories. The economies of scale achieved caused the per-unit price of prepared chai to drop sharply and effectively doubled the "cuppage" from 250-300 to 500-600 cups per kilo of dry tea. With this proletarianization of tea consumption, the domestic market accounted for more than three-quarters of India's tea crop of more than 1.8 billion pounds per year by the end of the 20th century.

The practice of drinking chai continues to evolve in modern India. Interestingly, this evolution reflects two broader flashpoints in the country's culture and politics: the question of national identity in a highly regionalized society, and globalization and its impact on the widening gap between the elite and the masses. The economic politics of chai may be seen as a metaphor for the cultural politics of India itself.

Anekta Mein Ekta: The Identities of Chai

Commonly compared to the European Union, India's states are akin to countries in their different cultures and, most importantly, in their fiercely distinct identities. Since the country attained independence in 1947, its leaders have confronted the challenge of forging political and cultural bonds within this colorful melee. Chai is no exception to this rhetoric of unity. Today, the saga of chai and national identity continues, but the current chapter revolves around the struggle to establish national brand recognition while also creating different blends to satisfy regional tastes.

While sharing this same goal, multinational companies and regional players in the tea industry have opposing capabilities: the former hold brand recognition but do not resonate as regionally emblematic, while the latter have loyalty within pockets but little national brand awareness. As such, both are reorganizing and campaigning. Multinational companies are attempting to appeal to specific regional audiences, as seen in Hindustan Unilever Limited's new reorganization into "clusters" that customize mass-market products specifically for each region. Meanwhile, regional players are attempting to expand nationally, with tactics such as vending machines in offices and branded tea lounges. Both groups appear to be using the same rhetoric employed by politicians for decades — of anekta mein ekta, or "unity in diversity." The saying is exemplified in an ad by the regional Gujarati company Wagh Bakri, which uses the slogan along with the image of individuals from multiple states all drinking the same chai. Such marketing only reinforces the close links between chai and the question of regional versus national identity.

India and Bharat: Coffee, Chai and Class

While coffee itself is not a new phenomenon in India, having been consumed for decades particularly in South India, the entrance of Western-style coffeehouses is a fairly recent trend. Domestic chains such as Café Coffee Day battle with international behemoths Costa Coffee and Starbucks for their share of the upper- and middle-class customers now trying their menus. But interestingly, these shops may represent a culture more than a drink. As Rajini Vaidyanathan relates in a February 9, 2012, BBC Magazine article, "India's coffee culture has changed the way young Indians socialize." These cafes provide a socially acceptable and attractive space for individuals to mingle, linger and interact across genders and ethnicities, often away from censoring parental eyes. Yet this revolution is limited by virtue of its cost. A cup of roadside chai may be had for as little as Rs.5 (US$0.08), compared with the flavored and frappéd drinks of the coffeehouses, which cost Rs.100 (US$1.54) or more.

The country's two most common names are often used to describe its socioeconomic divide, with the Anglicized "India" denoting the upwardly mobile and urban classes and the Sanskrit Bharat standing for the rural and uneducated poor. Coffee and chai arguably reflect that separation, with many citing globalization's impact — as represented by coffeehouses — being limited to the elite of "India," pulling them socially and culturally even further from the masses of Bharat, who outnumber the elite by far but are unable to afford such luxury. While much ink has been expended on analyzing the coffeehouses' future in the supposed land of tea, the question may not be whether coffee will shift Indian beverage preferences at a national level but rather what impact its social significance has accrued.

The future of chai is murkier in terms of social significance than it is economically because the tea market as a whole is unlikely to collapse, given its accelerating exports. What will chai signify in the coming years? Will it remain a national symbol or become an emblem of the working class and the poor? Much will depend on tea companies' responses to these new developments among the young and the success of their rebranding attempts.

This article was written by Neha Goel, Manu Mohan, Nidhi Shah and Aroon Vijaykar, members of the Lauder Class of 2017.

Entrepreneurship and the *Custo Brasil*

A plethora of great enterprise ideas are generated in Brazil, but many rarely see the light of day because of what is known as the *custo Brasil* — or the cost of doing business.

While economic opportunities in Brazil are plentiful, the reality of being an entrepreneur is difficult due to the country's poor infrastructure, lack of funding, complex bureaucracy and limited talent pool. These challenges comprise what the Brazilian media and business community call the *custo Brasil*, or the cost of doing business in Brazil. Those who have the patience and resilience to ride the rising but bumpy road of Brazilian growth may be able to capitalize on the huge opportunity, but they must first overcome these major obstacles.

With a population of over 200 million and a gross domestic product of over R5.5 trillion (US$2.4 trillion) as of 2014, Brazil is one of the world's largest economies. This represents a huge opportunity for Brazilian entrepreneurs to take advantage of untapped markets, a large consumer base and a dynamic economy.

The Brazilian tech sector is a great example of the scope of the opportunity. Despite the lack of a robust telecommunications infrastructure, Internet penetration is 50% and growing rapidly, and it serves as a strong foundation for Internet-based startups. Likewise, credit card penetration, a key driver of digital commerce, is 69%. The United States has similar penetration (81% Internet and 71% credit card) but with exponentially more entrepreneurs and established companies competing to provide services through these channels.

Relatively speaking, Brazil also has a high penetration of mobile phones and smartphones, with an average of 2.4 SIM cards per capita and a penetration of 23% for smartphones. As Alejandro Vázquez of Nuvem Shop, an e-commerce platform, explains, "Smartphone penetration is really high in Brazil. There is a huge opportunity in mobile business of all kinds."

In addition to growing underlying drivers, Brazil also has a large consumer base, much of which is young and open to technology. For example, the country's wealthiest "Class A and Class B" have approximately 70 million people, greater than the entire population of Canada. Brazilians tend to embrace technology, especially because 34% of the population is between the ages of 20 and 40, compared with 27% in the U.S. Brazil ranks high in web and social-media usage, with Facebook penetration at 35%, compared with 5% in India.

> From overcrowded roads and ports to antiquated and wasteful networks of water and electricity distribution, Brazil is infamous for its insufficient infrastructure.

Innovation and the Global Outlook

Despite the many opportunities, real innovation in Brazil has been limited. Until now, entrepreneurship has been dominated by copycat startups that replicate proven models from more developed markets. Vázquez notes, "There is almost no real innovation coming out of Brazil. It's hard to get funding here for ideas not already validated in the U.S. or Europe."

Copycats do not always work, especially when the company fails to adapt the business model to meet the needs of its Brazilian customers. "It's important to learn from existing models, but not copy them directly," Vázquez said. "You have to think about your customers in Brazil and the problems in Brazil…. That's the hardest challenge: understanding what you have to copy and what you have to do differently."

Even when true innovation occurs, many Brazilian startups look abroad to expand their business. For some founders, Brazil is a place to start and to identify a unique solution before finding customers abroad who see the value of their product. This trend may be influenced by the sophistication of customers abroad, the economic conditions in Brazil or other factors.

This is what is happening at BovControl, a promising startup that leverages existing implant technology to provide farmers with data on their cattle through an app. Its founders are increasing their focus on the U.S. and Chinese markets because of the higher quality of established bovine-tracking technology, cattle farmers' readiness to use new technology and the greater opportunities in those markets. As Danilo Leão, CEO and founder, explains, "Our main goal in the short term is to have relevance in the U.S. and then move to Asia. China is having big problems with traceability. One retailer had a huge problem, which led to a loss of $1.5 billion worth of beef." As one of the world's largest exporters of beef, Brazil is still the primary market for BovControl, but the company has other markets competing for its attention.

> Many Brazilian employees see large and stable companies as a safer bet and are not swayed by the exciting environments typically associated with startups in the U.S.

In some cases, the global outlook is at the peril of Brazilian interests. At SensorBox, an Espirito Santo-based startup that builds and sells telemetric monitoring equipment for large telecom companies and commercial and residential buildings, the founders are shifting their focus to Europe and America. There, clients are more willing to invest in technology that can reduce energy costs significantly. In Brazil, companies are accustomed to broken infrastructure, and high electricity costs are the status quo. A product that could monitor energy usage and potentially reduce costs is perceived as an incremental investment. This is exacerbated by difficult economic conditions in Brazil, making technology investments even tougher to execute.

The Problem of Poor Infrastructure

From overcrowded roads and ports to antiquated and wasteful networks of water and electricity distribution, Brazil is infamous for its insufficient infrastructure. Despite substantial web and mobile penetration, the dearth of reliable Internet and telecom infrastructure limits the number of consumers that Internet and mobile-based startups can reach. Even in metropolitan cities such as São Paulo, startups cannot rely on consistent Internet connections even in their own offices, which impacts productivity and the functionality of their sites and apps.

Brazil also suffers from transportation-related infrastructure issues that impair logistics and shipping. These problems limit growth in e-commerce, the most significant industry within the sphere of tech entrepreneurship. In many cases, Brazilian carriers are unable to conduct timely and cost-efficient deliveries. This results in a much higher rate of late or damaged deliveries, or packages that are lost altogether. As Vázquez explains, "Shipping and logistics is a great issue, especially for e-commerce. Right now, Correios is the only carrier that reaches the whole country, and it's very inconsistent."

Virtual infrastructure, including the financial and educational systems, is also impacted in Brazil. Opening bank accounts and moving money internationally is difficult, especially for entrepreneurs who receive investment funds. "The financial system infrastructure is a complete joke," Vazquez said. "Everything is difficult when it comes to banking and moving money around internationally for a business. Fraud is also a huge problem for online businesses."

Limited Funding Hampers Growth

Brazilian venture capital is nascent and still has a limited number of players devoted to the region. Angel and seed investment opportunities exist, but venture capital is quite limited beyond that. Vázquez explained that local investors are eager to invest seed capital in great teams with great products because so few exist.

However, even after rounds of early funding, it is much harder to find investors willing and able to write checks large enough to drive significant growth. In Brazil, there are few venture capital firms with sufficient funds to make more than a Series A investment. Most Series B+ investments in startups come from foreign firms, but such opportunities are limited because foreign investors are often skeptical of Brazil given the complexity of doing business there.

Entrepreneurs also have difficulty finding what is known in the industry as “smart money,” that is, investors who can provide expertise and guidance. Most Brazilian investors have made their money through traditional businesses and lack the experience required to guide tech startups. Local investors are typically more risk-averse and generally seek to collect returns early. They may prioritize margins before the top line has already developed. In contrast, Silicon Valley investors are more used to growth paths that prioritize developing a client base at scale before collecting returns or even monetizing the business. The Brazilian investor’s focus on early profitability often limits the startup’s ability to scale rapidly, if at all.

According to BovControl’s Leão, “Fundraising is an entrepreneur’s top concern; if you want to be competitive worldwide you need funds. Considering the limited funds in countries like Brazil, local funding is not enough. You can get the confidence of local investors to raise a seed round locally, but you cannot rely on those VCs in the longer term *only*. It is important to have other options abroad, as the local market is scarce. So, it is a matter of building relationships worldwide for future rounds of investments.”

Nevertheless, there are some reasons to be optimistic about funding opportunities in Brazil. Many projects, run by either the government or private companies, aim to provide entrepreneurs with small funding opportunities. For example, over the past few years there have been attempts to build the local ecosystem by creating incubators or accelerators. These initiatives have facilitated the creation of a number of companies, even though none are yet clear successes.

One example is the government’s Financing Agency for Projects & Studies (FINEP), which launched a significant project to support startups. This project will disburse around R255,000 (US$65,000) to startups focused on innovation. FINEP expects to help 10,000 innovative companies over four years, generating 10 new jobs for each new company.

On the private front, some pioneers are bridging the gap between Brazilian entrepreneurs and experts abroad. Brazil Innovators, for example, was established in 2009 to connect Brazilian entrepreneurs with investors in Silicon Valley. Bedy Yang, its founder, has now moved on to lead 500 Startups, an accelerator program with a focus on Brazil and Latin America. This initiative offers four-month programs in San Francisco and Mountain View, California, and in Mexico City.

There is evidence that funding challenges are slowly being addressed. Venture capitalists also see the opportunities in Brazil and know they must have a presence there if they want to be relevant in emerging markets. For example, RedPoint e.Ventures, Monashees, Kaszek Ventures and Rocket Internet are raising funds and attracting co-investments from other emerging markets and the U.S., helping to boost Brazil’s profile in the world of global venture capital.

Bureaucratic limitations affect companies in real ways. It takes, on average, 119 days and 13 bureaucratic procedures to start a business in Brazil.

Stifling Bureaucracy

Bureaucracy is part of *custo Brasil* and hits entrepreneurs especially hard. According to the World Bank, Brazil ranks 126th of 183 countries in terms of ease in starting a business, despite the country’s enormous growth over the past decade.

Bureaucratic limitations affect companies in real ways. It takes, on average, 119 days and 13 bureaucratic procedures to start a business in Brazil. Construction permits take an average 469 days and 17 procedures to be approved. The tax system is so complex and demanding that most businesses opt to hide cash earnings from the government.

Some entrepreneurs are moving their businesses elsewhere to avoid the Brazilian bureaucracy. For example, after increasing interactions with American venture capital funds, BovControl's Leão was contacted by a lawyer, who, along with others, persuaded him to move half of his operations and the company's legal entity to the U.S. The most convincing aspect was the opportunity for Leão to leverage Silicon Valley's existing entrepreneurial infrastructure. "To create the U.S. entity, it took three weeks. It took six more months to connect the entities in Brazil. It was terrible," he said.

If Leão wants to leverage and close an investment quickly in the U.S., he can finish with a piece of paper while the momentum is there. He explains, "In Brazil, if you want to make a new investment, you have to get signatures from all of the old investors, discuss everything with everyone's lawyers, who all make money by protecting their clients beyond what is needed and create more trouble. It's not collaborative if you don't have everybody looking in the same direction."

Due to the country's lack of entrepreneurial infrastructure and its unavoidable bureaucracy, Brazil loses out on the opportunity to profit from a company that is increasing its user base by 9.5% each week.

SensorBox experienced Brazilian bureaucracy when it tried to get funding for two years from the Brazilian Development Bank's (BNDES) fund for entrepreneurs, which offers low-interest loans to startups and growing businesses. Because the company's highly engineered product contained one imported component not made in Brazil, it could not qualify for a loan. SensorBox's leaders were baffled, given that this particular component was not manufactured by any company in Brazil.

These types of limitations were factors in SensorBox's ultimate decision to self-fund the entire business. Not only was finding real funding an issue, but Carlos Sacinelli and the other co-founders believed only they should have the autonomy to make large-scale transformations to the company. This proved to be the right decision. With PetroBras and other large Brazilian companies as key clients, SensorBox's client base crashed in 2015 amid the economic crisis and corruption scandals. With contracts being canceled and sales opportunities disappearing, the company decided to shift its entire direction toward product reinvention and away from commercialization. It anticipates that a new product that doesn't just monitor but helps to reduce energy usage will shake up the market once conditions ameliorate.

Was Brazilian bureaucracy a hidden lifesaver for Sensorbox? It's too early to tell, but it certainly influenced key decisions and encouraged the company to be autonomous. On a larger scale, Brazilian bureaucracy is limiting the entrepreneurial environment to those who have the rare ability to self-fund.

Talent and Employment

According to Jonathan Ortsman, president of the Public Forum Institute, in 2011 small- and medium–size enterprises were responsible for 96% of the jobs in Brazil and comprised 98% of all companies in the country. "We can see the increase of attendance at the Global Entrepreneurship week from 1.5 million people in 2008 to 5.3 million in 2009 as a huge sign of the rise of entrepreneurship," he said.

Indeed, in a country where about 34% of the population is between 20 and 40 years of age, the rise is expected. But the difficulties in funding and navigating the bureaucratic maze limit the entrepreneurial mindset in Brazil. As a result, strong entrepreneurial talent is lacking, especially when compared to what is available in the U.S. Highly successful American entrepreneurs such as Bill Gates, Steve Jobs, Mark Zuckerberg and Jack Dorsey are cited as models in the U.S. Apart from Mike Krieger, the Brazilian-born cofounder of Instagram, and a handful of others, Brazil still lacks major success stories. It is harder, therefore, for a young generation to find a national "hero" with whom it can identify.

The lack of an entrepreneurial mindset can be traced back, in part, to a lack of entrepreneurship-focused education. According to Sensorbox's Sacinelli, the lack of such academic programs contributes to the "recalcitrant" and "hidden" entrepreneurial profile, which he finds common in Brazil. For him, this is a stark contrast to the American startup environment, which is open, courageous and ready to take risks.

For those who overcome the inadequate infrastructure, lack of funding and complex bureaucracy, talent recruitment is the next challenge. Many Brazilian employees see large and stable companies as a safer bet and are not swayed by the exciting environments typically associated with startups in the U.S. In particular, entrepreneurs find it harder to attract good talent without strong funding, as most potential employees prefer salaries over equity. According to Rafael Souza Da Silva, of The Next Player, a startup creating a platform for young athletes to sign up and receive crowdfunding to attend trials for professional football teams, "it is extremely difficult to find resources because Brazilians prefer to work for great companies, even if the situation is slowly changing."

BovControl's Leão adds, "High–impact, fast-growing companies need people [who] can understand a compensation model with equity. In Brazil, the employees are looking for a salary, not equity, which is very hard to pay as an entrepreneur. Corporations like Microsoft will win over talented candidates, who are more interested in short-term benefits. That's part of the culture here that's very hard to change, and that's why we are looking for people outside of Brazil. We opened two positions in the U.S., received lots of CVs, good qualification[s] and good people, just hired one person who will volunteer for one month. She's so excited that she's leaving her other startup, will receive less in the short-term and offered to volunteer in the first month. That kind of thing in Brazil will never happen."

A relatively slower working culture contributes to the challenge. SensorBox's Sacinelli explains, "In the U.S., people will work 20 hours per day to get things done and help the company outside of their regular responsibilities. In Brazil, you can find people like this, but the obstacles are bigger. For example, it's difficult to find partners and providers that understand what a startup is, and how helping in this phase of maturity can turn a good idea into a million-dollar business."

Finally, Brazilian labor laws are generally disadvantageous to employers, making it difficult to fire someone and requiring high wages that may not be in line with market value. Health insurance, meals, transportation and contributions to social security increase the cost of an employee and thus discourage hiring. A vicious cycle begins in which management feels compelled to ask more of its employees, who in turn feel less motivated to work for the startup, given they could earn more and work less in a larger structure. French entrepreneurs, who deal with similar labor laws, have generally addressed this challenge by hiring interns for periods of three to six months. Unfortunately, this cannot be applied in Brazil, where interns can work only six hours a day.

Looking Toward the Future

The opportunities in Brazil are enormous. A large population embracing new technologies and the high penetration of web and Internet-based channels open significant possibilities for innovation. Indeed, within the most promising agricultural sector in the world, a company such as BovControl could help reinvent the way cattle farmers produce and distribute their products. SensorBox could help revolutionize the way energy is monitored. The Next Player could help children in rural areas start professional sports careers. These companies and entrepreneurs represent Brazil's "belief bubble," a space that is hard to get into but extremely promising once inside.

There are significant barriers, however, limiting the potential for entrepreneurs to start, scale and profit from their businesses in Brazil and, as SensorBox's Sacinelli puts it, "the problems are real."

Successful entrepreneurs will be able to realize the market opportunity if they are able to overcome these challenges. Those who can navigate the complexities of the entrepreneurial environment will have a strong advantage in a space where domestic and foreign competition is relatively limited. While the fundamentals are strong and entrepreneurship is a very promising area for Brazil, much patience and passion will be needed to achieve success.

This article was written by Xavier Argente, Claudel Kamgang, Jay T. Lanners, Jr., and Yann Manibog, members of the Lauder Class of 2017.

A Nation Apart: The Development of Private Equity in Japan

While Japan has long been a global economic powerhouse, private equity investment in the country accounts for a fraction of its transactions. The reasons are rooted in Japan's rich cultural heritage and more recent financial troubles. But attitudes are changing, and Western-style private equity is beginning to bloom.

Private equity investment has been a mainstay of the American economy since the end of World War II. The junk-bond boom of the 1980s and the dot-com bubble of the late 1990s fueled an industry that is often characterized by the media as ruthless and predatory. American private equity firms are well capitalized and regularly execute transactions in the tens of billions of dollars.

> The Japanese have long placed the needs of other company stakeholders above returns to shareholders.

The private equity industry in Japan, in contrast, is still in its infancy. Its first dedicated fund was formed in 1997. Today, industry activity continues to trail behind that found in other economies in terms of transaction size, volume and fundraising benchmarks. According to an article written by Kosaku Narioka, published in the The Wall Street Journal on November 10, 2014, Japan has raised only ¥630 billion (US$5.3 billion), or 1% of the world's total private equity market, despite being the world's third-largest economy.

This low level of investment activity is rooted in managers' unwillingness to execute mergers and acquisitions (M&A) due to a risk-averse culture and negative perceptions of private equity. However, recent demographic shifts and international competition are forcing managers to reconsider their strategies, opening the door for infusions of private equity capital and management expertise.

Japanese Perceptions of Money and Risk: A Cultural Heritage

Culturally, the Japanese identify money as spiritually unclean, a precept that originates from the Edo period from 1603 to 1868. On the basis of the Confucian values that came to Japan by way of China, the Tokugawa government of that era enforced a tiered social order that placed merchants at the bottom of society because they produced wealth without creating anything of tangible value.

While this formal hierarchy was abolished long ago, these traditional values are still recognized by many modern-day Japanese, and anything perceived as financial engineering with the objective of profiting at another's expense is frowned upon. Private equity investment is often interpreted in this way because investors are willing to fire unnecessary employees or discontinue underperforming business operations to attain financial gain.

The cultural traditions of Japan and the real estate catastrophe that followed the country's economic downturn in the 1990s have broadly impacted Japanese decision-making in the face of uncertainty. Japanese managers are largely unwilling to engage in risky M&A transactions, preferring instead to stay the course. Would-be sellers view offers that do arise with suspicion: Is this buyer going to fire all of my employees for personal gain?

The effect of these attitudes on Japan appear in a wide range of economic indicators. As disclosed in the 2015 Flow of Funds report compiled by the Bank of Japan, Japanese households currently hold 51.7% of their assets in liquid currency and deposits, which contrasts sharply with the

13.3% of the United States. Stock ownership is similarly disparate. Only 10.8% of Japanese assets are invested in shares and equities, compared with 34.3% in the United States. Based on the 2014 investment banking league tables published by Thomson Reuters and nominal GDP data published by the IMF for 2014, investment banking fee revenue represents only .09% percent of the Japanese economy, compared with .28% of the U.S. economy.

Japanese investors are wary of not only investments in private equity, but also of liquid, publicly traded equity. The pervasive aversion to risk in modern Japanese society is rooted in the burst of the Japanese bubble in the early 1990s. Heavy speculation in real estate, fueled by a loose monetary policy and distorted incentives provided by the legal system, led to all-time record-high levels of the Nikkei 225 index. The crash resulted in the destruction of ¥2 quadrillion ($18 trillion) in wealth, leading to economic stagnation that continues to this day as part of what is termed the Lost Two Decades.

The pervasiveness of Japanese risk aversion is difficult to overstate. A December 6, 2012, article by Bloomberg notes that while Japan's population is less than half that of the U.S., the Japanese spend almost as much as Americans do on life insurance policies. Because of the financial complexity and illiquidity of private equity investments, these policies are often perceived as high risk by Japanese institutional investors.

A Renewed Focus on Corporate Governance and Shareholder Value

The Japanese have long placed the needs of other company stakeholders above returns to shareholders. After World War II, a system of lifelong employment became widespread, whereby employees gained seniority within a company as they aged. Firing employees was both legally complicated and socially taboo. Consequently, the boards of directors of many companies became populated with executives who were promoted through this system.

While this served the Japanese economy well during the post-war miracle, it has had a detrimental effect on corporate governance. Japanese companies have the lowest average governance ranking within developed markets, and only 11% of Japanese boards have female members, as noted in an April 10, 2015, article by Bloomberg Intelligence analyst Gregory Elders.

In a June 6, 2015, article, The Economist reported that only 274 of approximately 40,000 directorships are held by non-Japanese citizens. This leads to boards that largely affirm management decisions, suffer from groupthink and maintain an insular mindset that limits growth, inhibits capital efficiency and detracts from shareholder value. This poor corporate governance and the low return on equity within Japanese firms have long been decried by foreign investors.

More recently, among Prime Minister Shinzo Abe's attempts to stimulate the Japanese economy and attract foreign investment, a number of structural reforms have been passed that target corporate-governance practices. A governance code introduced in June 2015 requires a minimum of one independent director, while the country's financial regulatory authority has joined the Tokyo Stock Exchange in calling for a minimum of two.

Japanese investors are wary of not only investments in private equity, but also of liquid, publicly traded equity.

Firms that do not meet these requirements are required to provide public explanations for their inability to do so — an embarrassment that no public-relations department wants to face. The JPX-Nikkei 400 stock index, introduced in 2014, tracks only companies that rank among the top 400 on the Tokyo Stock Exchange, based on profitability and corporate-governance metrics.

Another key element of corporate-governance reform has been a push to reduce the cross-shareholding arrangement between Japanese banks and their clients. This practice dates back to the post-World War II economic expansion, when Japanese industries used cross-shareholding to form organizations called keiretsu, which insulated their businesses from foreign investment, stock-market fluctuations and periods of slow business.

While Japanese banks have continued to reduce their cross-shareholdings since 2002, ¥15 trillion (US$130 billion) of market value remains tied up in these investments. In addition to the pressures from corporate-governance reform, financial institutions face strict new capital requirements under the upcoming Basel III standards, which will classify these holdings as risky assets. The reduction in cross-shareholdings has increased both the percentage of shares owned by foreign investors and the pressure on Japanese firms to improve their governance practices and return on investment.

> While the sluggish Japanese economy has been a burden for many, the emerging private equity market has created pockets of opportunity for firms that are poised and ready to take action.

These shifts in the Japanese market have had a significant impact on the attitudes toward investors by companies, which feel increasing pressure to use ¥227 trillion ($1.9 trillion) in cash holdings effectively or disburse it to shareholders who can redeploy this capital more efficiently. According to a survey of Japanese CEOs, published by Nikkei in 2014, 46.6% are preparing to pursue, proactively pursuing or are in negotiations for an M&A transaction, compared with 31.0% three years earlier. This increased willingness to execute M&A has been a significant boon for the private equity industry, which closed a record ¥2 trillion ($18 billion) in exits during 2014. This change in behavior is also expected to lead to an increased number of corporate divestitures in future periods.

The Future of Private Equity in Japan

Despite the speed bumps ahead for the Japanese economy, there are a number of opportunities that may pave the road for increased private equity activity going forward. The succession of family-owned businesses, for example, has proved beneficial to private equity funds that find themselves in the right place at the right time.

Many of Japan's 3 million family-owned businesses trace their origins to the period of record economic growth the country experienced after World War II. Driven by cultural attitudes that value tradition and family lineage, management of most of these businesses was passed on to second-generation owners. However, demographic and cultural shifts are increasingly complicating the transition from the second generation to the third. First, the country's fertility rates, which rank among the lowest in the world, result in fewer candidates for succession. Second, Japanese youth's recent recognition of Western values, such as independence and individualism, lead many potential successors to follow their passions elsewhere. Narioka's article notes that about 60% of the 34,000 family-owned companies managed by owners ages 60-64, and more than 50% of 31,000 such businesses with owners ages 65-69, have no successor.

In addition, the Japanese tax code is causing more family-owned businesses to question their succession plans. As Bloomberg Business reported in an October 29, 2014, article, Japan ranks behind only France as having the highest inheritance tax rate in the world — at 55% — and recently decreased the total value of exempt estates from approximately ¥55 million (US$460,000) to ¥33 million (US$280,000). As a result, private equity firms are gaining traction as a viable succession option in Japan. In the Japan Buy-out Market Review, the Japan Buy-Out Research Institute Corporation reports that founder successions represented nearly 50% of all buyout transactions executed in the country in 2014. Nevertheless, the cultural hurdles remain high.

Another silver lining to the economic challenges facing Japanese firms is the expected boom in the health care and pharmaceutical space. In 2014, one in every four Japanese citizens was above 65, a problem that will inevitably put a strain on drug manufacturers, hospitals, long-term care facilities and other institutions. The problem is exacerbated by the Japanese government's reluctance to allocate more money to address the problems of an aging society.

In 2005, Japan changed the law regarding pharmaceutical manufacturing to allow pharmacy drug holders to outsource 100% of drug manufacturing. Despite this obvious cost-cutting opportunity, only 8% of the current drug manufacturing is outsourced, compared to the global market average of 18%. Seeking to capitalize on this opportunity, Baring Private Equity Asia acquired Bushu Pharmaceuticals, Japan's leading contract pharmaceutical manufacturer, for ¥77 billion ($668 million). The deal was the largest acquisition in the health care sector in Japan in 2014. Baring Private Equity Asia aims to promote outsourcing in Japan to lower the overall cost of pharmaceuticals.

Another problem associated with the aging society in Japan is the shortage of senior care facilities. According to Bloomberg, more than 400,000 people are on the waiting list for a nursing bed in Japan, a problem which comes in large part from younger generations of Japanese eschewing traditional values that stress the obligations children have to their parents. In 2014, Asia Investment Partners (AIP) collaborated with the Japanese government and various financial institutions such as Daiwa Securities Group to launch Japan's first health care real estate investment trust (REIT) on the Tokyo Stock Exchange. According to CEO Barry Hirschfeld, the fund has been used to build a next-generation senior housing facility that is also providing a nice return for AIP's investors.

While the sluggish Japanese economy has been a burden for many, the emerging private equity market has created pockets of opportunity for firms such as Baring and AIP that are ready to take action. After a long history of resistance to private equity funds in Japan, it seems that the winds of change are finally starting to blow in the East.

This article was written by Eric Detweiler, Paul Moss and Ruiheng Wang, members of the Lauder Class of 2017.

Breakfast in China: How 1.4 Billion People Start Their Day

For 1.4 billion Chinese, the foods that fuel the day are markedly different than what is eaten for breakfast in the United States. However, there is evidence that suggests these preferences are slowly morphing.

Nearly 40 years after China initiated reforms and opened its doors to the rest of the world, the influences of Western cuisine have become clearly visible. In Shanghai's trendy French Concession area, it may be easier to a find a glass of Riesling than a cup of Longjing tea. In Beijing's Sanlitun Village, venues offering Euro-American pub food have begun to outnumber Chinese restaurants. Fried-chicken giant KFC now has over 4,800 restaurants in mainland China, spread across more than 1,000 cities.

Anyone who has taken a morning walk down the street of a bustling Chinese city can attest that Chinese breakfast preferences are very different from Americans.

Even in a rapidly modernizing China, however, some things remain sacred. Chinese breakfast — the way more than 1.4 billion people start their day — has remained largely immune to Western influence. Twelve hours before Americans sit down to their cereal, toast and eggs every morning, the Chinese tuck in to breakfast foods like *zhou* (hot rice porridge), *baozi* (steamed buns) and *youtiao* (fried dough sticks). Why are breakfast habits on each side of the Pacific Ocean so different? Through interviews with experts, analyses of survey data from breakfast eaters in both countries and research into the origins of culinary practices, this article highlights the key historical and cultural factors that lead people in China and the U.S. to start their day as they do.

What's for Breakfast and Why?

It is, of course, difficult — if not impossible — to conduct an exact comparison of American and Chinese breakfast preferences, given the degrees to which they vary across respective regional, age and demographic groups. However, responses to survey questions and the authors' own experiences suggest clear distinctions between what constitutes "traditional" breakfast foods in both countries.

According to a survey conducted by ABC News in 2013, the most common breakfast foods consumed in the U.S. were (in order of popularity): coffee, cold cereal, juice, milk, bread, eggs, fruit, hot cereal tea and breakfast sandwiches. Anyone who has taken a morning walk down the street of a bustling Chinese city can attest that Chinese breakfast preferences are very different. As *Financial Times* reporter Patti Waldmeir puts it, "even the most Westernized Shanghainese queue up [every morning] before bamboo towers of steamed buns, spitting woks of crispy bottomed dumplings and steaming vats of rice gruel, to eat food that proudly declares its Chineseness." Coffee drinkers, while certainly present in China, are still dwarfed in number by drinkers of hot *dou jiang* (soymilk), sold in small plastic pouches on nearly every street corner. Western cereals like Corn Flakes, while eaten on occasion in China, are hardly considered a "go-to" breakfast food the way a hot bowl of *huntun* (wonton) soup, a steamed *mantou* bun or a fried *jianbing* (egg pancake) are. What accounts for this difference?

One reason may be historical agricultural practices. Traditionally, the vast majority of Chinese farms produced only crops and vegetables, such as rice, wheat, sorghum and soybeans. Livestock production, which was far more land- and cost-intensive, was found less often. This trend held true during more recent history, such as the Mao Zedong era, when periods of famine and food scarcity were common. As a result, carbohydrates and vegetables have historically comprised the bulk of Chinese meals, while meat has been consumed in smaller quantities and mostly for special occasions. Although meat is widely available today and no longer cost-prohibitive for most Chinese, a large segment of China's aging population comprises older adults who lived through those times of scarcity and continue to eat variations of the carbohydrate-heavy meals they ate during their younger years. This may explain why foods like *zhou*, *baozi* and *youtiao* remain so popular.

In comparison, over the last several decades in the U.S., breakfast habits have been far more reactive to developments in nutritional research. As the International Food Information Council (IFIC) Foundation notes, from 1965 to the early 1990s, American breakfast habits gradually shifted from higher-fat foods such as eggs and meat to lower-fat foods such as cereals and breads as research showed certain types of fats may be linked to heart disease. More recently, consumption of foods such as eggs is once again on the rise as a result of newer research suggesting certain types of cholesterol may be healthier than originally thought and touting the muscle-building benefits of increased protein intake.

The Chinese have conducted nutritional studies and launched many initiatives of their own. China's National Health and Family Planning Commission recently introduced the National Program for Food and Nutrition (2014-2020), which aims to modernize how the Chinese think about nutrition and to provide guidelines on food consumption. Such efforts, however, rarely seem to impact the dietary habits of China's general public. According to a recent study of consumers in Chengdu, even though the majority of respondents indicated they wanted to purchase foods with good nutritional content, 85% stated they could not make sense of the nutritional information on product labels.

Nutrition expert Judy Yang, currently a technical director at NutraSweet in Beijing, agrees, "While many Chinese understand the importance of nutritional values in breakfast, they lack the knowledge and ability to choose from food items that are actually healthy." As a result, many Chinese focus more on the taste of food and how filling it is and less on the nutritional value and composition of the ingredients. A recent survey of predominantly young Chinese breakfast eaters found that a combined 44% cited food's flavor, color, scent or how filling it is as the most important criteria for choosing their breakfast. This suggests that the basis for breakfast-food selection in China may be less scientific and linked more strongly to historical and cultural factors. Or as Waldmeir put it, "at its best, breakfast is not just food, it is more like love."

Carbohydrates and vegetables have historically comprised the bulk of Chinese meals, while meat has been consumed in smaller quantities and mostly for special occasions.

Origins of the Chinese Breakfast

This Chinese breakfast "love story" started long ago. Many of the breakfast foods commonly eaten in China today can be traced back to early Chinese civilization. *Zhou*, a breakfast staple across China, has been eaten for thousands of years. The mythical Yellow Emperor is believed to have mentioned millet *zhou* during his reign in the 28th century BCE.

Youtiao, a fried dough stick that often accompanies *zhou*, has been eaten in China since the 11th century Song Dynasty. The Cantonese name, which translates to "oil-fried devil," is a reference to Chancellor Qin Hui, who along with his wife betrayed the Song Dynasty's General Yue Fei. The twisted dough stick's shape is said to represent the couple, with two long pieces joined at the "hip," fried in symbolic punishment for their treachery.

Other typical Chinese breakfast items are based on recipes that were introduced — or influenced — by foreign cultures. The Jurchen, Mongolians and Manchus all brought their respective culinary traditions as they entered China. This helped to shape what the Chinese thought of as their own indigenous cuisine. Johann Adam Schall von Bell, a Jesuit missionary who introduced many mathematical and astronomical ideas to the Qing Dynasty court, also served his friends a wafer-like pancake, or *gaufrette*, in the 17th century. Similar pancakes remain a common breakfast street food across China.

Historically, Chinese breakfast in rural areas had little variety, often consisting of the same dishes served at other meals throughout the day. In cities, however, a greater diversity of people and cultures, as well as relatively higher economic prosperity, led to a greater variety in breakfast choices. Early accounts of life in Hang*zhou* during the Southern Song dynasty, prior to the Mongol invasion, describe an array of breakfast choices, including “fried tripe, pieces of mutton or goose, soups of various kinds, hot pancakes, steamed pancakes and iced cakes.”

> China may be in the early stages of a gradual shift from breakfasts high in carbohydrates, fats and sodium to early-day meals with more balanced nutritional content.

This urban-rural disparity in breakfast food variety and nutritional content continues to this day, largely a result of China’s massive urban-rural wealth gap. In her book “Changing Rice Bowl,” Elizabeth Leppman studies this nutritional discrepancy by surveying urban and rural residents of Liaoning Province about their dietary preferences. According to Leppman, while the consumption of meat, eggs and dairy products in cities has increased dramatically in recent years, the costs of these products have restricted consumption in relatively poorer rural areas. As a result, protein deficiency still constitutes a serious problem in parts of China.

Origins of the American Breakfast

The origins of the traditional American breakfast are similarly rooted in early U.S. history. Corn was a Native American staple food, knowledge of which was passed along to the early European settlers who incorporated it into their breakfast diet. Those same settlers soon began turning ground cornmeal into baked and fried cornbread, johnnycakes and hush puppies, dishes that would later become associated with the American South’s working class. The practice of curing meat was also shared by the Native Americans, and these meats became an important feature of the early American breakfast.

Even breakfast cereal, the invention of which many incorrectly associate with the increased popularity of products such as Wheaties in the mid-20th century, has relatively deep roots. According to Heather Arndt Anderson, author of “Breakfast: A History,” cereal was created in the late 19th century as part of a backlash against the then-current trend of beginning the day with large servings of meat and other rich foods. In 1894, John Harvey Kellogg invented the flaked breakfast cereal, which became a hit at his health resort in Battle Creek, Michigan. He soon patented his cereals and began producing them under the Kellogg’s brand name, but this did little to stop his chief competitor, C.W. Post, from founding Post Cereals, which offered similar products.

During World War II, egg and meat rationing led to the introduction and popularity of easy-to-make breakfast alternatives such as Bisquick, Cream of Wheat and Quaker Oats. The rise of feminism in the 1960s resulted in popular ready-made, prepackaged breakfast foods such as Pop-Tarts (introduced in 1964), which allowed mothers to spend less time in the kitchen. During this same period, the U.S. introduced federal-level nutrition programs such as the School Breakfast Program and Child Nutrition Act of 1966. These new guidelines led to the definition of a “balanced breakfast” and helped parents determine what to feed their children in the morning. During the 1970s and 1980s, the declining price of microwave ovens led to a surge in the popularity of frozen breakfast foods, while fast-food restaurants began to market items such as the Egg McMuffin.

Today, increasingly health-conscious American consumers have begun to reject processed breakfasts in favor of fresh fruits, vegetables and whole-grain cereals. The IFIC’s 2014 Food and Health Survey determined that 71% of Americans consider “healthfulness” a key factor when selecting food, up 13 percentage points since 2006. Updated federal guidelines for healthy eating reflect these changing standards. In 2012, with the support of first lady Michelle Obama, the Nutrition Standards for School Meals were revised to include more fresh fruits and vegetables in children's diets and to minimize consumption of heavily processed foods.

The Future of the Chinese Breakfast

Consistent with nutrition experts' claims that the Chinese have started to pay more attention to their diets, Chinese survey respondents indicated that nutritional content is a major consideration when choosing breakfast. Many Chinese now consider milk, yogurt, fruit and boiled eggs as healthy breakfast options, which may indicate that the Chinese view protein and vitamin content as important considerations. Indeed, China may be in the early stages of a gradual shift from breakfasts high in carbohydrates, fats and sodium to early-day meals with more balanced nutritional content.

Younger adult Chinese also indicate that they value convenience when choosing what to eat for breakfast. Morning is a busy time, which distinguishes breakfast from the typically social activities of lunch and dinner in China. Nearly 40% of those surveyed indicated that they use their phones while eating breakfast.

This convergence of the perceived health value of certain Western foods and the demand for convenience may lead one to assume that Western-style offerings at major American breakfast establishments in China, such as McDonald's and KFC, are becoming more popular. In reality, this may not be the case. According to an October 2012 article in The Economist and findings from research firm Mintel, only 21% of the Chinese populace eats Western fast food in the morning, a stark contrast with the booming popularity of those restaurants' lunch and dinner offerings. Although most Western fast-food chains have introduced Chinese breakfast options to their menus, these adjustments may not be enough. The popularity of local fast-food chains and shops serving a Chinese-style breakfast still far outweighs that of Western chains. So, while more Chinese people may consider traditional Western foods to be healthy, the overall penetration of Western dishes into the Chinese diet remains low.

It is unclear just how much this will change over time. While more Chinese eat Western breakfast foods than a generation ago, survey data suggest that this trend may not be driven solely by the changing preferences of young people. Instead, China's breakfast tastes across age groups appear to be evolving, and while some Western breakfast items will become more popular, the new Chinese breakfast will more likely resemble a hybrid between the Chinese and Western styles, but with a higher nutritional value.

This article was written by Jon Delikat, Shu Liu, Daniel Odette, and James Randall, members of the Lauder Class of 2017.

Le Gaspillage Alimentaire: Stopping Food Waste in Europe

France is trying to tackle one of the most pervasive problems faced by industrialized nations — food waste.

About one-third of the food produced in the world is lost or wasted, according to the European Environment Agency. In France, the rate of food waste has doubled since 1974, far outpacing the population growth during the same time period.

The scope of the problem can be illuminated through a few key government-published figures: One-third of the food produced and purchased in France is wasted before reaching the dinner table. Thirty-seven kilograms of food are lost each second. For every 20 kilograms of food that is thrown away, 7 kilograms are still consumable. From a financial perspective, food waste in France results in the yearly squandering of 100 to 160 euros per person, or 12 to 20 billion euros nationwide.

While food waste certainly represents a missed opportunity to feed the hungry, it also results in the unnecessary exhaustion of land, energy and labor resources.

While food waste certainly represents a missed opportunity to feed the hungry, it also results in the unnecessary exhaustion of land, energy and labor resources. There are myriad challenges for countries struggling to develop strategies to address food waste, but France is poised to lead the way through the combined efforts of the government, nongovernmental organizations, industry players and individual activists. A recently enacted law aimed at curbing food waste, tougher industry standards and a national campaign to change the culture and thinking around food waste are helping France tackle the problem and allowing it to serve as an example for others.

Working Together

To address the problem, it is important to first understand the underlying economic and aesthetic reasons for food waste. Fruits and vegetables viewed as sub-par due to size requirements, bruising or other deformities, or arbitrary expiration dates, account for much of the food left by the wayside.

According to anti-waste activist and former agribusiness scientist Marie Bondroit, supermarkets routinely reject produce items that are not of a minimum size or have external marks, rendering them “unattractive” and leading farmers to leave these otherwise perfectly edible pieces of food in the fields. In addition, many consumers rely on expiration dates to guide their purchases. Yet experts say that food-processing centers often set these dates arbitrarily, for example, affixing expiration dates two weeks apart on crates of food leaving the factory only a day apart.

In response to this colossal challenge, French NGOs, government representatives and activists are working to raise awareness and reduce waste at every level of the supply chain. Headlines around the world praised the unanimous passage on May 22, 2015, of a sweeping French law designed to stop food waste. Popularly known as the Derambarsh law — after its largest proponent, Arash Derambarsh, a municipal council member in the Paris suburb of Courbevoie — it prohibits supermarkets from throwing away edible food. This practice has drawn considerable attention because many large chains usually pour bleach on discarded goods to dissuade homeless and hungry Parisians from scavenging through the stores’ dumpsters. The law formally takes effect June 30, 2016, allowing supermarkets a year to prepare.

Beyond the government edict, the French state has also attempted to influence the public to reduce waste by means of subtle public-information campaigns. Advertisements showing a deformed potato with the saying "my beauty is on the inside" are designed to discourage people from discarding food based on the item's external appearance because aesthetics often have no impact on the food's nutritional value, ripeness or taste.

Politicians' pursuit of legitimacy on this issue illustrates just how important it has become in France. While Derambarsh has been the subject of flattering media portrayals, activists privately express their concern that he is taking credit for a movement that goes beyond his contributions. Instead, they point to Guillaume Garot, a socialist and member of the National Assembly, as the movement's true leader. Garot is frequently present at anti-food-waste rallies and coordinates directly with activists. "Garot said that he needs our help in terms of logistics and distributing food," Bondroit said.

Activists and Social Entrepreneurs Lead the Charge

Even before the recent surge in government activism against food waste, nonprofit organizations and social entrepreneurs had successfully sought solutions. Antoine Delauney, founder of DiscoSoupe, recounts the origin of his unique organization: "It started as a joke. In 2011, a friend and I went to a rally in favor of slow foods and against processed foods in Berlin. Some attendees wanted to take discarded potatoes and make soup. We started peeling the potatoes and playing music while making soup."

From that experience, Delauney expanded a one-time cook-off into an international movement. He founded DiscoSoupe out of MakeSense, a social entrepreneurship incubator in Paris, in March 2012. DiscoSoupe provides tools to local activists to organize independent cook-offs using nearly discarded, but still healthy and edible, ingredients to feed those in need. Living up to the disco element of its name, each event is accompanied by music from local DJs or bands.

DiscoSoupe events are now held in 60 cities spanning six countries. In France, up to 20 cities have hosted simultaneous cook-offs. Brazil is the movement's second-largest country, thanks to the time Delauney spent there to implement the program with local leaders.

DiscoSoupe is not alone in its fight against food waste. Members of guerilla group Gars'pilleurs (the Looter Guys) rummage through supermarket waste bins and redistribute food for free on the street the following day. YesFoodCan is another French venture that is borrowing innovative ideas from the emerging world to try to solve food-waste problems in Europe.

> Given the lack of clarity about how disposed food will find its way to the end users, it is a real concern that, in the interest of keeping down costs, supermarkets will view food banks as recipients of their garbage.

Co-founder Florian Hug-Fouché traveled across 20 African countries in one year, documenting examples of low-tech solutions to limit spoilage and other common causes of food waste. He said he thinks "Western countries could benefit from 'reverse innovation.' The Canari Frigo, is a low-cost, low-energy Burkinabe product to keep food and medications cold, drawing on traditional technologies of clay pots." Indeed, emerging markets' need to leapfrog through development has provided numerous such examples of cunning innovation that Hug-Fouché documents on YesFoodCan's blog.

Curiously, each of these nonprofits presents its mission in terms of reducing waste rather than feeding the hungry. The groups' leaders specify that, based on their experience, participants are more likely to feel motivated to respond to the problem of food waste when it is viewed as an economic issue, which they have the power to solve, and not as a social issue that dwarfs their ability to contribute individually.

Are Chefs the Answer?

Throughout history, France has been viewed as the center of haute culture, a reference point for luxury and fine living. It has also served as the Michelin Star of sorts in the culinary world, defined by richness, precision and grandeur. However, French cuisine is in transition. There is a renewed focus on fresh, organic, local food as chefs hope to take advantage of the terroir, or the land, and its bounties, thus reducing waste.

This movement has reached not only individual grocery shoppers, but also younger chefs and fledgling restaurants, leading them to change their menus and operations. Chef William Groult of the Alain Ducasse Cooking School in Paris says some chefs have moved toward a smaller fixed menu dedicated to freshness to meet both social demands and reduce costs. He noted one chef he had worked under who provided only one garbage can in the kitchen and required all the staff to show their waste to him prior to throwing it in the trash. He could then ensure that all the salvageable ingredients were reused.

> The government still has much work to do. It must listen to various constituents and promulgate policies that do not simply shift the burden of food waste from one actor to another.

Beyond the kitchen, restaurants are working to change public opinion regarding the level of waste, the utility of various animal parts and the value of take-away meals. For example, Groult notes that an eco-friendly restaurant in the U.K. gathers the food left behind by individual diners and weighs what remains on the table. By providing diners with a visual of the level of waste, restaurants may also encourage these customers to take leftovers home. Although the "doggy-bag" was once taboo in France, more and more diners at chic Parisian restaurants, cognizant of their capacity to reduce food waste, are becoming comfortable asking to have their leftovers wrapped up and taken home.

Finally, along with efforts to return to the terroir, a movement that encourages individual consumers to cook more for themselves has taken hold. In line with this is an effort to educate individual consumers about the uses of various animal and plant parts. These concepts of "nose-to-tail cooking" and "root-to-stalk cooking" prompt home cooks and restaurants to employ more than just the center cut when cooking a pig, for example. When combined with legal and regulatory changes, these cultural shifts can have a major impact.

Industry and Commercial Opportunities

The sheer number of industry players affected by the Derambarsh law offers some perspective on the extent of its implications. The supply chain goes from the farms to the supermarket chains and, finally, to the food banks. Three players dominate the supermarket industry in France: Carrefour, Auchan and Casino. Historically, they have been among the largest wasters of food, disposing of 20 kilograms per day per store with over 7,000 supermarkets in France.

While the Derambarsh law, as currently written, targets the reduction of food waste at supermarkets, it does not directly address the role of the farms in the supply chain. Some experts are concerned that by not considering the relationship between farms and supermarkets, the regulation misses the opportunity to make a substantive difference in reducing overall waste. The negotiation power that supermarkets have over farms allows them to adjust their orders on a daily basis. By not having adequate visibility, farms often overproduce, which results in considerable waste from the outset.

Another concern is that the law may just shift responsibility from the supermarkets to the food banks. It does not address who is responsible for delivering the food nor does it offer support to food banks for dealing with this new abundance. Food banks rely on volunteers to sort and distribute food, and volunteers are in short supply.

Given the lack of clarity about how disposed food will find its way to the end users, it is a real concern that, in the interest of keeping down costs, supermarkets will view food banks as recipients of their garbage. Marie Bondroit notes "There are perverse incentives. You cannot just treat food banks like waste bins."

The Derambarsh law and similar efforts to reduce food waste have sparked an entirely new industry. Delauney and his colleagues at MakeSense work to bring entrepreneurial ideas with a socially conscious goal to fruition. One such success story is Re-Belle, a jam producer that uses 100% unsold fruits that are discarded by supermarkets. The company's name is a play on words, connoting both the rebellious nature of social entrepreneurship and re-beautification, as belle means beautiful in French.

One area of untapped potential to come from the law will be refrigerated transportation. Le Chainon Manquant and A.N.D.E.S. already have service lines with a similar offering specifically for discarded food. As the law continues to take shape, many are eagerly waiting to see what new business ventures it will produce.

Is a Solution in Sight?

While different communities in the French food-production space – the government, NGOs, restaurants, supermarkets, farms and consumers – may disagree on how best to reduce waste, experts agree unanimously that the heightened public discourse surrounding the issue is a positive step toward solving the problem. The government still has much work to do. It must listen to various constituents and promulgate policies that do not simply shift the burden of food waste from one actor to another.

NGOs must translate their social activism into sustainable entrepreneurial methods that can support themselves and ensure the lasting impact of socially conscious consumption habits. Restaurants must view this as not simply a social problem, but also an economic one, ensuring that resources are not wasted in pursuit of food that never reaches the diner's plate. Supermarkets and farms must come together to implement more sensible standards on, first, what produce items are deemed worthy of store shelves and, second, not leaving any viable products on the field.

Finally, consumers must demand more of all the actors in the value chain and seek greater social responsibility and higher-quality food.

France has been at the helm of the fight against food waste. As other developed and developing countries follow suit, it should not rest on its laurels but must continue to push for a more equitable and economical solution to food waste.

This article was written by Max Ducharme, Stephen Snyder and Sophie Thompson, members of the Lauder Class of 2017.

Female Entrepreneurship in China: Women Hold up Half the Sky

China's communist ideology assigns equal status to men and women in society, which boosts women in business. But Chinese women still have a long way to go.

"Women hold up half the sky." — Mao Zedong, former Chairman of the Communist Party of China

One of Mao Zedong's many legacies is the affirmation that women and men share equal status in society. Under his leadership as founder of the People's Republic of China, women were strongly encouraged to enter the workforce and take jobs that were traditionally held by men. Today, while preferential bias toward having sons in order to preserve the family name still persists in many Chinese families, women in China arguably experience less inequality than those in many other developed countries. China boasts one of the highest numbers of female billionaires in the world and, according to a survey by the U.S. audit, tax and advisory firm Grant Thornton, China is one of the highest-ranked countries in terms of the proportion of women in senior management roles (38% compared with 24% in the United States).

Women in China arguably experience less inequality than those in many other developed countries. China boasts one of the highest numbers of female billionaires in the world.

One glaring omission, however, is a lack of institutional legislation on gender discrimination in employment and labor practices, which has led to frequent reports of discrimination in hiring decisions as well as sexual harassment in the workplace. This perhaps explains in part the growing trend among highly educated women in China to forsake the beaten path of climbing the corporate ladder in exchange for the road less taken, the wild world of entrepreneurship.

Female Expatriates as Entrepreneurs in China

In 1978, the Chinese government began the "reform-and-opening-up" movement. For the first time in decades, China welcomed foreign investment, foreign businesses and foreigners themselves. Since then, expatriates from all over the world have immigrated to China to start new lives, build careers and raise families. A number of these expatriates are women who have become a new generation of entrepreneurs there.

Even though women in China still face overt gender biases in their daily lives, female expatriates are often held to a different standard and treated more respectfully than native women. For example, Chinese women who have chosen to pursue a career rather than get married and have children are asked about their marriage plans and if they would like to be introduced to single men. They are subjected to the expectations of their families to marry and settle down as soon as possible. Female expatriates are less likely to be asked such questions.

Both foreigners and locals who have been educated abroad often enjoy preferential treatment at home. If these women make nontraditional choices, their decisions are not scrutinized as much as they are for local women who are born, raised and educated in China. This double standard, for better or for worse, serves to remove some societal pressures from female expatriates who start businesses in China.

Several female expatriates have also turned their gender into strengths that benefit their businesses. Stacy Palestrant is the founder of Elite Scholars of China, an educational consultancy that helps Chinese high-school students apply to the best colleges in the U.S. She noted that because she is female, she is able to be more maternal with her students, a role that her husband and company co-founder, Tomer Rothschild, would not be able to fill as easily. Also, she serves as a strong female role model for her female students. In their local schools, these students often hear, "Girls can't study math," and similarly discouraging remarks that lead them to question themselves, especially as they soon must decide what to study in college. Palestrant serves as an advocate and role model, showing them what a strong woman can do and accomplish in the world.

Many female expatriates have also turned their foreignness into an asset. Because Palestrant has gone through the college application process in the U.S. and knows how the system works, she is uniquely positioned to be a successful college consultant in China, where more and more families are choosing to send their children abroad each year to be educated. Randi Miller, an attorney who specializes in international business law and another female expatriate from the U.S., indicated that because of her law background and former connections in the U.S., she can serve as a liaison between China and the rest of the world and is uniquely positioned to find projects that would interest Chinese investors.

Foreign women also find that raising a family while running a business in China is much more affordable than it would be in the U.S. and many other developed countries. Palestrant has had the same Chinese ayi, or nanny, for seven years. This ayi has been with her family through the birth of both of her children and the founding of her business. Equivalent child care in the U.S. would be prohibitively expensive, and neither Palestrant's parents nor in-laws could be expected to move to China to help take care of the children. Because she has someone she can trust to look after her children and do the housework, she has more time and energy to dedicate to her business.

While many female expatriates have successfully started businesses in China, many elements of traditional Chinese society still pose barriers. While looking for funding for her information technology business, Wharton graduate Loretta Evans found that Chinese venture capital firms are male-dominated and not used to having female entrepreneurs come to them asking for funding. In their minds, "their picture of success is not a woman," she said. Rather than focusing on the value of her business, they make value judgments based solely on her gender. Evans has found fundraising in China as a female entrepreneur to be extremely difficult, although perhaps no more so than it would have been in the U.S.

Another factor standing in the way of expatriate female entrepreneurs is the concept of guanxi, or relationships, in China. To gain access to the right people, formal introductions by a mutual acquaintance are expected and frequently mandatory. Miller said male expatriates have an advantage because the Chinese women they marry have such connections. However, marriages between female expatriates and male locals are far less common, so these women must work extra hard to make these key connections.

> One glaring omission, however, is a lack of institutional legislation on gender discrimination in employment and labor practices.

Local Women as Entrepreneurs in China

In addition to the elements that make China an attractive environment for foreign female entrepreneurs, a number of cultural and historical factors make China a surprisingly supportive environment for native female entrepreneurs. Enacted in 1980 – and amended in 2015 – the One Child Policy had significant effects on China's population structure in terms of its age distribution and gender ratio. Certainly, the cultural preference for boys has also led to a marked imbalance in the gender makeup of the Chinese population.

At the same time, perhaps counterintuitively, the policy may have had an equalizing effect on the education of both male and female children. With only one child to raise, Chinese parents invest significant resources in the education and upbringing of that child, regardless of gender. Over the course of building her company, Palestrant noted that Chinese parents have equally high expectations of their children, whether male or female, and devote as many resources as they can to their children's education. In the absence of this policy, parents might have invested more to educate their sons, leading to an imbalance in the educational levels of boys and girls.

Apart from the equalizing effects of the One Child Policy, China's social and cultural contexts over the last 50 years have led to an environment in which women are expected and encouraged to work outside the home. Mei Zhang, founder of the boutique travel firm WildChina, noted that one of the legacies of the Cultural Revolution has been an outward avowal of and belief in the equality of the sexes. Indeed, the Cultural Revolution affirmed the equality of women, who were assigned roles and jobs similar to their male counterparts within their work units.

China's social and cultural contexts over the last 50 years have led to an environment in which women are expected and encouraged to work outside the home.

Research has indicated that such a policy of "equality" has imposed a significantly greater burden on Chinese women, as they are expected not only to take on a full-time job but also to take care of household duties upon returning home. At the same time, this period of intensive, state-mandated female participation in the workforce has rapidly lowered social barriers for women who wish to enter the labor market or to become entrepreneurs. Four decades after the end of the Cultural Revolution, women in contemporary China are fully expected to enter the workforce.

Complementing the relatively low social expectations for women to stay at home has been the role of family ties in alleviating the burden of motherhood. While foreign female entrepreneurs cited the affordability of household help, local female entrepreneurs repeatedly emphasized the role of familial support in allowing them the time and flexibility to focus on their businesses. The cultural focus on the tight-knit cohesion of the extended family means there is an expectation that grandparents will often step in to aid in the care and rearing of children while the young parents continue to focus on their careers or work. For local female entrepreneurs, this has given them significant freedom to devote their time and resources to developing their businesses.

At the same time, however, social and structural issues continue to affect China's climate for the emergence of female entrepreneurs. With respect to access to the financial and legal services necessary for setting up a business, female entrepreneurs have encountered varying levels of professionalism and discrimination. Some entrepreneurs, including Zhang, believe female entrepreneurs in China encounter the same scrutiny as their counterparts do in the U.S., for example, having to face similar but perhaps subconscious biases that women are more emotional in running their businesses. However, other female entrepreneurs believe the absence of discussions about women in the workplace has led to an environment that allows for inappropriate personal questions. Lilian Li, founder of an online dessert shop, noted that it would not be uncommon for potential investors to ask bluntly about pregnancy or marriage plans.

Furthermore, most of the female entrepreneurs interviewed acknowledged that many of the social and cultural benefits they were able to enjoy in setting up their businesses were limited to only a small segment of the population. Zhang noted that it was still often only women in the educated elite who had the ability to determine whether and when to have children. Chen Hua, founder of the online social media platform Jiecao, indicated that she was lucky to have grown up in a family of intellectuals who encouraged her to pursue her interests in education and entrepreneurship. Less well-to-do families still do not have the ability to encourage such freedom for their children.

Longstanding Obstacles in the Workplace for Chinese Women

While China has come a long way in terms of promoting gender equality, there is still much room for improvement. Most notably, Chinese state-owned enterprises and local businesses should adopt a strict and intolerant stance toward discriminatory practices in the workplace and more closely monitor gender ratios within their organizations and in senior management roles. It does not have to be an act of charity. Studies have shown a clear correlation between team performance and gender diversity within a team. Furthermore, promoting a more equal workplace will prevent a brain drain of female talent from local Chinese companies and state-owned enterprises to entrepreneurship or foreign multinational corporations that employ strict anti-discrimination policies in the workplace.

From the novice who bootstrapped her own online dessert shop to the accomplished veteran who now owns a globally recognized travel brand, female entrepreneurs in China share a common vision — to succeed on their own merit. They want to be viewed through a gender-blind lens rather than receive preferential treatment. While Chairman Mao's slogan was clearly uttered with good intentions, by extension it takes as a given that men are already doing their part to "hold up half the sky." Perhaps this assumption should be questioned. Society would undisputedly be better off if women's contributions and their value in the workplace are also taken as a given.

This article was written by Victoria Rui Cheng, Naga Tan, and Wilson Wong, members of the Lauder Class of 2017.

The State of the Arts: Realities and Implications of France's Cultural Subsidy System

To protect the importance of the arts in society, France supports cultural activities through a system of government subsidies aimed at making them universally accessible. However, the performing-arts industry remains closed, elitist and costly. By not adapting its subsidy system, France risks a deterioration in the quality of the country's arts programming.

In many countries, the performing arts represent a leisure activity, a pastime or an upper-class luxury. In France, the arts are an integral part of society. Indeed, the French constitution lists culture as an essential right guaranteed by law: "The nation guarantees equal access for children and adults to education, professional training and culture." Unlike other countries that allow the arts to occupy a peripheral role, France makes art and culture a central part of daily life.

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To protect the importance of the arts in society, France supports cultural activities through a system of government subsidies aimed at making them universally accessible. Despite this lofty goal, reality paints a different picture. An economic and social examination of the performing-arts industry reveals the current subsidy system is inherently flawed. Rather than increasing accessibility to cultural activities, it renders the performing-arts industry costly, inaccessible and elitist.

What exactly are the "performing arts" in France? *Spectacles vivants,* which translates to "live spectacles," describes any performance that takes place in front of a live audience, including theater, opera, dance and music. More than 5,000 such productions each year employ more than 130,000 professional artists, a number that has grown by 50% over the past 15 years. It is an industry of public interest and growth, occupying a visible and important role in French society.

The government's subsidization of cultural activities reflects an underlying belief in the perceived social and economic benefits of the arts. In theory, nations that support the arts reap the advantages of greater peace, liberty and improved international relations, as well as economic gains such as direct profits, increased tourism and the attraction of wealthy visitors.

In terms of the potential impact on society, the arts provide a safe outlet for expressing opinions and releasing tensions. In a state that values free speech, they represent an intrinsic aspect of freedom of expression. Finally, the arts serve as a gateway to communicating with other parts of the globe. Partaking in the cultural activities of another country is a means of understanding that nation's people.

Building on these social benefits, the arts also provide a nation with several economic benefits. The most obvious of these is the profit accrued by cultural industries. Beyond direct profits, there is also a vast network of indirect profit through tourism. Artistic exhibitions attract tourists who, in turn, promote growth in the related industries of food, lodging and transportation. Finally, the arts play a role in attracting and retaining the interest of wealthy visitors — an upper class with disposable income to spend on local goods and services. So, supporting the arts can lead to long-term economic growth.

The Economics of France's Subsidy System

In France, the performing arts are subsidized heavily by the state in order to promote social and economic benefits. However, there is a sharp distinction between theater that is subsidized by the state (*théâtre publique)* and theater that is not (*théâtre privé)*. The two-tiered financing system is as much a product of the country's pre-revolutionary history as it is a result of the current attitudes toward cultural accessibility. Under the Old Regime, the state had an effective monopoly over the theater. A production involving dialogue between two or more actors could not be staged without the monarch's consent. Theater was an elite institution that served to glorify France's highest cultural and political ideals. More popular forms of entertainment — one-man shows, marionettes, pantomimes, etc. – were largely free of state control. These *divertissements* kept the masses entertained while posing no real threat to the monarch's authority. As a result of these parallel histories, in France today one would be hard-pressed to find a private theater staging a production of Molière. Likewise, Broadway-style musical productions, with their commercial soundtracks and big-name pop stars, rarely attract state funding.

The system of public funding for the performing arts in France is complex, with various funds allocated at the national, regional and local levels. At the national level, budgetary support is distributed through the Ministry of Culture. From a budget of nearly €7 billion (US$ 7.5 billion) in 2015, €668 million (US$ 717.6 million) was earmarked to support the creation, production and distribution of the arts. This constituted about a quarter of the public funding for the performing arts in France, with the rest coming from regional and local governments. In addition to direct budgetary support, the state also subsidizes employment. An actor in France is considered a salaried worker entitled to generous social protections such as unemployment insurance (*l'assurance de chômage).* To collect these benefits, they must work a minimum of 507 hours every 10.5 months — about 48 hours each month during the eligibility window.

Direct budgetary support for the performing arts, combined with a generous unemployment insurance structure, makes state support for the arts a costly affair. A 2003 Senate report found that ticket prices for performances at the national theaters ranged from €8 (US$8.59) to €16 (US$17.19), with the state contributing an average of €85 (US$91.31) per ticket sold. Isabelle Barbéris and Martial Poirson, professors at Paris Diderot University and University Paris 8-Vincennes-Saint Denis, respectively, estimated that public subsidies for the performing arts at all levels of government amounted to €21 billion (US$22.6 billion) in 2009 — a staggering amount in relation to other developed countries such as the United States, where the budget for the National Endowment for the Arts is $150 million. Ticket receipts in France amounted to a mere 20% of their global costs. The remaining 80% of these costs were covered by the state.

Public support for theater in France is likely to become costlier still. The performing arts suffer from cost disease, an economic phenomenon in which labor costs tend to outpace productivity growth, diminishing the overall quality and quantity of output. In most industries, technological progress makes workers more productive, leading to higher profits and salaries. However, this is not the case with the performing arts. It still takes an actor the same amount of time to perform a Shakespearean production, regardless of how technologically advanced the lighting or sound systems are. The production still requires the same number of cast members, who are limited in the number of performances they can physically present in a single day. Yet wages have certainly increased — an actor today enjoys a higher standard of living compared with counterparts from 400 years ago. Cost disease can be used to explain the tension today in France between grand ideas of French cultural exceptionalism (*l'exception culturelle française*) and budgetary realities, which begs the question of whether the benefits of these subsidies justify their ever-growing costs.

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Subsidies Render Performances Less Accessible

A proponent of the subsidy model may argue that government support makes the arts more accessible to the general public. However, this is not the case. The performing-arts industry remains closed, elitist and costly. According to Keti Irubetagoyena, a French theatre producer and artistic director, "the public in France is very varied. You must know that already in France, theater, for example the kind you can see at the 'in' festival in Avignon, it's very elitist, more and more so."

By attempting to make the performing arts more accessible to the public, the state in fact makes them less so. Attendance continues to rely on the educated strata of French society — the intellectual viewers who would be likely to attend regardless of the existence of subsidies. In France, more than 50% of those in the most educated quartile have attended a performing-arts show in the past 12 months. This suggests that members of the most educated segment of French society are likely to go to the theater whether it is subsidized or not.

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The Private-patron Model as a Possible Solution

Many performing-arts institutions in the U.S. regularly tap into a network of loyal donors for financial support. This difference underscores an important cultural divide between the two countries. In the U.S., cultural institutions such as music halls and performing-arts centers list their donors in their programs and often display large plaques of acknowledgement in prominent locations. This type of attribution does not exist in France. For example, at the Paris Opera House a single small plaque in the main lobby is dedicated to *l'Association pour le Rayonnement de l'Opera national de Paris* (AROP), an organization that collects funds from private donors on behalf of the opera. Cultural institutions in the U.S. raise funds overtly with events such as benefit dinners and awareness campaigns; the French system does not encourage this.

However, there is hope for the patron model in France. According to a 2010 study by Excel and OpinionWay, a Paris-based marketing institute, 21% of participants stated they would donate to a cultural institution. This figure was 3% higher for participants age 60 or older. More than 30% of the respondents also indicated they would be likely to donate to save a cultural work that inspired them.

The patron model has been successful in the artistic domain in recent years. In 2010, the Louvre launched a public-donation campaign to acquire "The Three Graces," a Renaissance painting by German artist Lucas Cranach that is considered a national treasure in France. The Louvre had only three-quarters of the funds necessary for its acquisition. Thanks to 7,200 private donors and 10 companies, the museum was able to complete the $5.2 million purchase.

Even though this was a painting rather than a performance, and not every work is considered a national treasure, this early success was encouraging and points to the potential for the patron model in France. With broad support, private donors reinvigorate the arts with a new sense of prestige and perpetuate them as something special and desirable.

An added benefit of this model is that private donors are a more flexible funding source. Depending on their needs, cultural institutions can call on them more readily and more frequently. The Metropolitan Opera in New York, for example, projects live performances in movie theatres across the globe to increase publicity and expand its audience. In doing so, it is able to tap into an enormous source for potential funding.

The Way Forward

By not adapting the subsidy system, France risks a deterioration in the quality of the performing arts. If shows become increasingly inaccessible, alienated audiences may turn to other forms of art instead, including those from cultures outside France. The government must alter the current system to avoid this scenario. If the subsidies were removed entirely, the system would collapse or private donors would have to step up to provide the totality of funding. These options are not mutually exclusive, and a transformed model that incorporates both, such as that in place in the U.S., may be an optimal solution.

This does not mean, however, that the arts must be profitable — only that the arts industry ought to be structured in a way that makes it accessible to everyone. Removing or supplementing the subsidy model would be one way to ensure this.

When asked what she would change about the performing-arts industry in France, Irubetagoyena noted "that the door that opens for young artists is very small" and that breaking into the industry is difficult. In order to receive a subsidy, a performer must have worked in the industry, but with decreasing subsidies available, access to work becomes more and more competitive. As such, the current model discourages, rather than encourages, the proliferation of performing-arts shows and is not sustainable over the long term.

Adapting the system by opening it up to private donors would increase the number of shows being mounted, thereby opening the industry to more performers. This does not mean subsidies ought to be canceled completely, but rather that private donors should be included in the mix.

France's performing-arts industry is fated to decline under the current subsidy system. As noted above, this system imposes negative effects on the economy and society. Rather than reducing costs and facilitating access, it increases costs and limits access — paradoxically hindering attainment of its key objectives.

Given these economic and social issues, an evolution of France's current cultural-funding system is unequivocally necessary. Is France ready for a private-patron model like that of the U.S.? Is there a new funding model that could surpass both the private-patron and public-subsidy systems? Much like a theatrical production, the success of any future funding system will depend on not only the decisions of key actors but also the interest and support of the public.

This article was written by Joelle Birge, Chris Jones and Allegra Richards, members of the Lauder Class of 2017.

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