A connected world is a better world.

Inside Google
Google's Americas Operations president shares insights on mobile "micro-moments"

At the Speed of Life
How innovations in mobility are rapidly changing education, healthcare and relief aid

Ava DuVernay
The award-winning writer and director discusses how digital filmmaking is changing our world

COVER STORY:
NONSTOP DUBAI
The economic magic behind its magnificent rise
Ready when you are.

Get access whenever you want. Explore the digital side of Access. Sign up for email alerts and get updates and additional features designed to help you stay on top of our connected world. Find out more at fedex.com/access.
FedEx was built on the idea of access — that connections make the world a better place. That’s why, 10 years ago, we created the Access program to share stories about the people, places and things defining global opportunity and connectivity. A lot has changed in a decade. The iPhone hadn’t yet been introduced and apps didn’t exist. Ride-sharing wasn’t an idea beyond the basic carpool, much less a multi-billion-dollar industry. The potential of Dubai, our cover story, as a dominant commercial and financial crossroads was just beginning to be realized.

With this 10th anniversary issue of Access, we celebrate the innate desire of people to transform their lives by connecting through travel, trade, and technology. The exchange of goods and ideas is a powerful force that has sparked transformational innovation in this century and throughout history.

FedEx believes that connecting the world also comes with responsibilities. As we enable the spirit of entrepreneurs everywhere, we also recognize the imperative for continued commitment to the world’s resources. At FedEx, we are vigilant about making transportation more sustainable, including substantive investments in clean fuel. We support making our communities safer and stronger. We partner with our customers, large and small, on streamlined solutions that allow them to participate efficiently in the global economy.

Take time to explore this year’s Access 25 list. Mobility is a megatrend that is supercharging the changes of the past 10 years and igniting opportunities that will shape our lives through the next decade. You’ll find that mobility is not only fueling a more prosperous and innovative world, it’s also creating a more caring one.
Consider this: More than 200 million Americans own a smartphone today — twice as many as just five years ago. Worldwide, smartphone numbers are set to reach 2 billion this year and an astounding 6 billion by 2020. The mobile economy is on pace to reach $2 trillion globally by 2017.

For many businesses, mobile has become the primary touch point with customers. But take a look through a wider lens, and it’s clear the mobile economy exists within a larger and much broader development in global business: a revolution in mobility in general.

Mobility includes digital-mobile technology, of course, but also all of the transformational personal, logistical and social changes critical to e-commerce. Food is more mobile. Biomedicine is more mobile. Electronic banking has made global capital more mobile. Innovation itself is more mobile.
And that’s a good thing, because mobility is truly reshaping the globe. This year’s FedEx Access 25 digs into three ways that’s happening.

First, we look at how mobility is empowering people as consumers and as part of a global workforce. We tapped Margo Georgiadis, Google’s president of Americas Operations, for her insights into how companies are really upping their mobile-commerce game. Our conversation (page 6) delves into how consumers are now engaging in literally thousands of “micro-moments” rather than longer digital sessions — and how companies need to win at these micro-moments to succeed in winning consumers’ minds, hearts and dollars.

Next, we examine how mobility is reshaping the globe by fueling innovation. A particularly fascinating example of this comes from Google and Levi’s (page 15), who are collaborating on smart clothing. That’s right, they’re working to turn your jeans into an interactive device. Cars are getting smarter, too, with General Motors, Ford and Apple (page 24) all working on connected cars that help drivers find parking spots and nearby restaurants and retailers — and send alerts when parts need fixing or replacing.

Finally, we’ll look at mobility as an agent for societal change. Digital entities such as Mxit, for instance, are bringing education to kids in remote parts of South Africa (page 29). Through Mxit’s social media platform, schoolchildren can access learning aids and content, counselor support and online debate clubs. In a similar way, mobile technology is helping farmers throughout the developing world overcome barriers to markets, infrastructure and information. One app, called iCow, assists Kenyan farmers in monitoring their herds (page 30).

Take a few minutes to enjoy this issue of Access. Which, by the way, is available in a mobile-friendly format at fedex.com/access.
MOBILITY IS EMPOWERING INDIVIDUALS AS CONSUMERS AND AS PART OF A GLOBAL WORKFORCE

ANYTIME, ANYWHERE commerce is a given in today’s world. Businesses are launched in an iPad tap. Supply chains are powered by just-in-time deliveries. An increasingly mobile workforce offices anywhere — nearly a third using three or more devices.

Google launched this Wi-Fi test balloon and 29 others high into the skies over Canterbury, New Zealand.
A WHOLE NEW ALTITUDE
Wi-Fi in the sky? It’s here.

PEOPLE WANT TO BE CONNECTED. But that’s a challenge in parts of the world where internet service is thwarted by a lack of fiber, towers and other infrastructure. That’s not stopping companies from finding creative solutions in the form of drones and balloons that remain in an area to stream Wi-Fi signals. Google and Facebook are already testing drones. (Facebook’s is solar-powered and wider than a 747.) And Tesla/SpaceX founder Elon Musk has asked the federal government for permission to use a fleet of 4,000 tiny satellites to beam internet service from outer space.

Many hurdles remain, from maintaining steady connections to government regulations — not to mention keeping these digital flying objects from being shot down. Still, this promises to help connect millions around the globe.

USING GIGANTIC BALLOONS, GOOGLE’S “PROJECT LOON” AIMS TO STREAM WI-FI FROM THE STRATOSPHERE TO REMOTE PARTS OF THE WORLD.
Margo Georgiadis has a unique perspective on the evolution of mobile commerce. As president of Americas Operations at Google, she leads the company’s commercial initiatives in the U.S., Canada and Latin America. And in the last few years, those projects have increasingly focused on mobile applications, particularly mobile commerce — or m-commerce, as it’s often termed.

ACCESS: What role will m-commerce play in the web’s future?

M.G.: We’re in the early days of m-commerce — both in terms of purchasing online and with mobile as a form of payment in stores. But both areas are growing. Smartphones are rapidly gaining share of online shopping, growing by more than 60 percent in the last year. The most recent estimates from Forrester note that mobile transactions will reach 54 percent of online annual sales — a staggering $293 billion — by 2018.

M-commerce is also gaining attention in stores as well. A Google Consumer Survey found that 40 percent of respondents would be likely to use their smartphones to pay in stores during the 2015 holiday season. The next generation of shoppers has been using smartphones since kindergarten. I wouldn’t be surprised to see mobile as a major driver of both online and store commerce within a few years.

ACCESS: You’ve spoken about what Google calls “micro-moments.” What is a micro-moment, and how does it fit into a consumer’s buying journey?

M.G.: The rise of mobile is completely reshaping the consumer journey. Rather than engaging in a series of longer digital sessions, consumers are engaging in thousands of micro-moments in which they turn to the nearest device to learn something, do something, watch something or buy something. These micro-moments are increasingly the new battleground for consumers’ hearts, minds and dollars. Furthermore, consumer expectations are higher than ever during these moments. They expect things right — and right away. For businesses, that means you have to win the micro-moment to succeed.

Our micro-moments research found that 82 percent of smartphone users turn to their device to help them make a product decision. “Showrooming” [searching via phones for a place to buy products online at a cheaper price] has been a buzzword in the industry, but a Deloitte study found that consumers who use their mobile devices while in-store are actually 27 percent more likely to convert.

Mobile is giving users the confidence to make more informed purchases. Whether it’s searching for “best running shoes” or checking tomorrow’s weather, each mobile touch point is an opportunity to inspire and influence consumers. And as consumers’ decisions are happening faster than ever, brands will have to adapt with the right content, product and purchasing options to stay in step.

ACCESS: What do businesses need to know to evolve with the m-commerce revolution?

M.G.: The big question businesses are trying to answer right now is how to make all their customer touch points — across the web, mobile web, in-app and in-store — work together. How can they create the seamless experience consumers increasingly expect?

Sephora is a great example of a company getting this right. Its executive team noticed how often customers would stand in store aisles looking up something on their phones. Worried that customers were showrooming, they talked to them to find out more. Sephora learned that customers were actually looking up product reviews or trying to remember what they bought last time! So the company revamped its app and mobile website to answer those questions. This is exactly the type of thinking that will serve businesses well as m-commerce takes off — start with the user and provide unified, channel-agnostic experiences.

Many businesses are missing how critical mobile is to omnichannel shopping. An eMarketer study found that 72 percent of shoppers use smartphones to research, but only 23 percent use them to buy. Digital is the influence channel. As shoppers use phones to decide what and where they will buy, businesses will win or lose on digital — not at the storefront.

ACCESS: Do you think what’s happening on the web is a source of opportunity for communities that previously may have lacked access to global commerce?

M.G.: Absolutely. One of the most exciting things about digital is that it gives any business — from multinational retailers to small businesses — a global platform. One of my favorite examples is a family-run, Italian furniture company called Berto that started in the 1970s. When it decided to go digital, it ran Google ads, started a YouTube channel and a blog. The result is that the company grew fivefold and now sells furniture to customers around the world!

We’ll only see these stories multiply, especially with the promise of mobile bringing so many more people around the world online.

ACCESS: What relationship do you see between sources of digital connectivity such as Google and sources of connectivity like transportation or logistics networks?

M.G.: When Larry Page and Sergey Brin founded Google, they set out its mission to “organize the world’s information and make it universally accessible and useful.” That doesn’t necessarily stop where the digital world ends. In fact, a lot of our products help bridge the digital and physical worlds. For example, Google Street View collections make places such as the Great Barrier Reef or the British Museum viewable for people on the other side of the world. Or our Waze app makes sure I find the fastest route through Bay Area traffic to get to the office! That said, the core of our business at Google is very much about services anchored in digital.

For the complete interview, go to fedex.com/access.
The big question businesses are trying to answer right now is how to make all their customer touch points — across the web, mobile web, in-app and in-store — work together.

— Margo Georgiadis, President, Americas Operations, Google
Thanks to the growth of worldwide supplier networks, supply chains have expanded in size and complexity. One result: Managing them demands a multilayered skill set, one that blends fluencies in technology, logistics, data analysis, customs and international law — as well as the critical ability to determine when suppliers might be cutting corners.

Demand for such specialists is growing. But the supply isn’t keeping up. On top of that, approximately 30 percent of today’s global supply chain industry talent base is nearing retirement age.

One outcome: Professionals with the right mix of expertise will have plenty of job options — and offers — to choose from.
THE PERFECT FIT

FedEx customer Christy Ng has tapped local artisans and the power of online customization to build a global brand from scratch.

Six years ago, Christy Ng was a pharmaceutical rep with a daydream of creating her own shoe company. Today, the 27-year-old Malaysian entrepreneur oversees a shoe and apparel business that’s emerging as a global brand.

What happened? It started with a social media post. Shortly after taking the pharmaceutical job in 2010, she uploaded a handful of her shoe designs to Facebook. The response was swift and overwhelming — people wanted to buy the shoes. That was the spark Ng needed. She used her savings to launch an e-commerce site and recruited local artisans to create her products.

Individualized options for a mass audience

Several factors have since helped drive the company’s growth. E-commerce has been critical, allowing ChristyNg.com to reach customers as far away as the U.S. Another significant element is the company’s “3D Shoe Engine.” That allows you to customize shoes, choosing style, color, and accessory options and viewing your creations and revisions from all angles.

The concept isn’t necessarily new. For instance, Nike has offered an online customization option since 2012. And venture capital has been flowing to startups that offer, for example, personalized fabrics and home goods.

But company size is a critical difference. Ng has 12 full-time employees, including seven shoe artisans. The nimble operation can turn projects around quickly, sending shoes in as little as two to five business days, no matter where you are in the world.

To get products to customers, Ng turned to FedEx. She uses FedEx® packaging that works well for the fashion industry and relies on FedEx International Economy® service for less urgent shipments.

The next goal: Expand cross-border e-commerce sales. She’s aware of the challenges — how to stay agile in the face of increased global demand, grow without sacrificing customer loyalty and move goods across global borders, to name a few. “There are so many different customs procedures in each country, especially in terms of product classification and taxes,” says Ng. “FedEx helps me clear products through customs quickly and with minimum cost.

“I’d always wanted to be a shoe designer, but I never imagined my dream could materialize,” she adds. “When we started seeing people from other countries ordering from our website, we knew we were onto something. We identified an unmet demand in the global shoe marketplace and acted quickly to fulfill it.”
Gen Y’s 77 million members are on the march to metro centers around the U.S.

IT’S A FACT: U.S. millennials are spurning the suburbs and exurbs for urban living. And it’s happening in places you might not expect: Salt Lake City, Houston, Nashville, and even economically challenged cities such as Detroit and Buffalo.

What’s behind the trend? Lower costs of living offer one reason. Millennials’ ambivalence about car ownership — driven in part by the emergence of Uber, Lyft and the like — provides another. What lies ahead? Millennials may vacate cities to raise their kids. Or they may not. Whatever the outcome, this much is certain: The trend is fueling economic growth and urban revitalization — and also pushing metro areas to rethink approaches to development. Miami, San Antonio, Phoenix and other cities have embraced initiatives to create walkable neighborhoods in the last few years.

The percentage of U.S. millennials who prefer to live in urban, mixed-use communities.

SOURCE: Nielsen

62%
Instant Gratification
Always-on shoppers are reshaping the retail landscape.

Overnight delivery has been a business industry staple for more than 40 years. E-commerce is well into its second decade and is now a trillion-dollar global industry. Combine those two with the ever-growing dominance of mobile devices, and you have an emerging customer requirement: the ability to order anything, at any time, from anywhere — and have it delivered as quickly as possible. Short on groceries for dinner? Need new duds for an evening gala? A few clicks on your smartphone or tablet, and the items can be at your doorstep fast, sometimes in an hour or less.

There are many ways companies are delivering on this need for speed. Luxury online retailer Net-a-Porter has built up a fleet of 50 vans that deliver within hours to customers in New York, London and Hong Kong. Retailers such as Costco and Target have tapped delivery app Instacart, which works a lot like Uber and charges a premium often amounting to 30 percent or more. Others are opting for courier services such as FedEx SameDay® City, which delivers in 23 major U.S. markets.

Of all rapid-delivery items, the one getting the most buzz lately: cups of coffee. Late last year, Starbucks began a very limited “Green Apron Delivery” service (for workers in New York’s Empire State Building, where Starbucks has a café), with baristas fulfilling coffee and food orders in 30 minutes or less. Around the same time, Starbucks also debuted a broader delivery service in Seattle through a partnership with food delivery upstart Postmates. Even Dunkin’ Donuts is getting in on the java action, using delivery startup DoorDash in cities such as Chicago, Dallas and LA.

Don’t expect the I-want-what-I-want-when-I-want-it mentality to fade away. Google, for example, plans to add a “buy” button directly to its search results. And it’s safe to say that retail brands, delivery companies and suppliers will continue to re-engineer their processes for maximum efficiency along every link of the supply chain.

Of all rapid-delivery items, the one getting the most buzz lately: cups of coffee.
NEW IDEAS extend beyond e-commerce, bringing big changes to nearly every industry. From fashion and healthcare to robotics and aid relief, innovating in an untethered world is leaving few stones unturned.

FedEx customer Purfresh has developed technology that lets customers monitor and adjust temperature, relative humidity and other environmental conditions for perishable cargo.
SENSORS ATTACHED TO GOODS AND EQUIPMENT ARE GIVING BUSINESSES NEW VISIBILITY INTO THEIR OWN SUPPLY CHAIN.

WHEN IT COMES TO THE INTERNET OF THINGS (IOT), much of the news is about smart ovens and connected washing machines. But the IoT is also a promising tool to monitor the flow of components and finished goods as they snake through supply chains.

For manufacturers, digital connectivity between the internet and sensors attached to goods and equipment can provide data on inventory, including where components are in the delivery process. Inventory management could become a machine-to-machine transaction, based on shop-floor data. For logistics firms, real-time data streams from in-transit items, vehicles and drivers will help boost service and efficiency by connecting trucks with return loads, for instance. The result: Faster, more accurate decisions all along the supply chains, potentially changing how warehousing and logistics are set up and accomplished.
5G: HOW FAR AWAY IS THE NEW FAST?  
*Progress continues to accelerate on the next-generation wireless network.*

As we push the Internet to carry more and more data, we need more powerful wireless networks. Much of the world remains wirelessly connected via 3G and 4G cellular technology, but a number of telecoms are already laying the groundwork for 5G.

It’s not hard to see why: 5G promises speeds up to 40 times faster than 4G — and a more profoundly interconnected world. For example, it could enable near-instant machine-to-machine communication, thus rendering new efficiencies in logistics, facility management, manufacturing, residential controls and infrastructure (detecting leaks in city water pipes, for instance). And that’s just a short list.

While 5G remains in its infancy, providers are moving at warp speed in China, the U.K. and numerous locations around the U.S. And South Korea has plans to build a fully operational 5G network by 2018, in time for the Winter Olympics in PyeongChang.

---

6 SECONDS 7 MINUTES 60 MINUTES

The time it takes to download an 8GB high-definition movie using 5G, 4G and 3G.
WORKING THOSE CONNECTIONS

Noted digital researcher Charlene Li says connectivity can make a profound impact on organizational culture and performance.

WHAT’S YOUR CONNECTED QUOTIENT? That question has been on Charlene Li’s mind of late. Li, a New York Times best-selling author and founder of Altimeter, a Prophet company (a San Francisco research and consulting firm), has a hypothesis: “Employees perform at higher levels if they’re better connected with each other.”

Li adds that the process often starts at the top. “When Ginni Rometty became IBM’s CEO, she made a warm, thoughtful video about the type of company she wanted IBM to become. She invited people to contact her via the video’s comments section. And then she followed up with all of them. She’s kept it up, too, regularly participating on intranet discussion boards and online forums. It’s working. Employees feel connected to her, and it’s helping change IBM’s culture.”

To read more of our interview with Charlene Li, go to fedex.com/access.

Will wearable computers take off? Apple Watches and Google Glass are two recent experiments in that direction. Now Google and Levi’s are collaborating on a different approach — smart clothing. The tech giant and the iconic clothing brand are working on a conductive yarn with woven-in chips and sensors that could turn your daily denim into an interactive device. Imagine swiping your hand over your jeans to silence a phone. Or tapping your jacket sleeve to play an MP3 tune or podcast. Though the idea is still under development, clothes could soon communicate more than personal style.
Since the 1970s, the Middle Eastern city has built itself into a center of global commerce and connections — an exhilarating example of mobility. And that building process shows no signs of slowing down.

by GENE REBECK
photography by STEVE COOK
DUBAI IS A PLACE OF SURPRISES. No matter whether you’re a first-time visitor or someone who visits on a regular basis, it’s impossible not to be astonished by the sense of perpetual renewal and warp-speed development. The last decade has seen a flurry of wildly ambitious building projects, many raising the bar on world records. The 163-story Burj Khalifa is the world’s tallest building. The Palm Jumeirah, which stretches more than a mile into the Persian Gulf and houses upscale hotels and resorts on its 17 palm frond–shaped extensions, claims the title of world’s largest artificial archipelago. And the opening of Ski Dubai, a 240,000-square-foot ski resort located inside a shopping mall, generated not only a world record, but also a generous amount of jaw-dropping buzz.
In most cities, the momentum would have subsided a bit by now. But there’s no slowing Dubai down. Work is progressing rapidly on the Dubai Water Canal, a waterway curving through the heart of the city-state, with private marinas, shopping centers and luxury residences lining its banks. A project called Mall of the World is poised to become not only the world’s largest shopping center, but the world’s largest indoor theme park and world’s largest network of temperature-controlled streets (four miles of them). The city-state also has plans to build the world’s tallest twin towers, an underwater hotel and a $1 billion, full-scale replica of the Taj Mahal.

“As soon as you arrive, you can tell Dubai was largely built as a global connecting point and that strategic planning early on has paid off,” says Don Colleran, Executive Vice President, Global Sales and Solutions, FedEx Services. “Its airport is now the busiest in the world for international passenger traffic, and it’s in the top 10 for cargo. There’s remarkable energy at every turn.”

LOCATION AND LOGISTICS

Dubai is both a city and one of the seven emirates that make up the federation known as the United Arab Emirates (UAE), which was formed in 1971. It’s also one of the Middle East’s most cosmopolitan places. Thanks largely to its booming economy, more than 80 percent of its 2.4 million residents are expatriates, and a great many of them are involved in the development of Dubai’s economy. But while its skyscrapers and artificial islands make the international headlines, the emirate has also invested in less flashy, but no less important, projects. In particular, the ruling Al Maktoum family has capitalized on the city-state’s strategic location on the Persian

1971

Six emirates come together to form the United Arab Emirates (UAE). One of those emirates is Dubai. A seventh, Ras al-Khaimah, joined the UAE the next year.

2001

Expansion begins on Dubai’s deep-water port, Jebel Ali, the Middle East’s largest port and a Free Economic Zone (FEZ) where foreign firms and corporations operate under the specific framework of regulations.

2002
Gulf, which makes Dubai a natural logistics hub that can connect East and West by sea or air.  
Case in point: Dubai is less than an eight-hour flight from two-thirds of the world’s population. With that in mind, Al Maktoum International, the smaller of its two airports, is in the midst of a $32 billion expansion that will link it with Dubai International, currently the world’s third-busiest airport. Once that project is complete, Al Maktoum International will be able to accommodate 16 million tons of cargo per year, up from 1 million tons right now. That will help solidify the emirate as a logistics center. (As it is, Dubai International is already the world’s sixth-biggest air cargo hub.)

Then there’s Jebel Ali, Dubai’s deep-water port. Jebel Ali is the world’s largest man-made harbor and the busiest port in the Middle East. It’s been steadily expanding since 2001, and if the current pace continues, it will become the world’s biggest container port by 2030. “The activity in and around Jebel Ali is exhilarating,” Colleran says. “The port’s size and scale make total sense considering Dubai’s geographic position and how perfectly it links European, Asian and African markets.”

FREE ECONOMIC ZONES AND FREE TRADE
The Jebel Ali port is significant for another reason: constructed in the late 1970s and opened in 1979, it is the Middle East’s first Free Economic Zone (FEZ) and is now the largest FEZ in the world. FEZs have proven themselves as robust tools for encouraging foreign investment and fueling economic growth. In a nutshell, FEZs allow foreign firms and corporations to operate under a special tax, customs and imports regime, and are governed by their own framework of regulations.

There are now 22 FEZs in Dubai. A look at one of them, Dubai Healthcare City, showcases how the value of this commitment to open trade can pay long-term, even unexpected, benefits. It was originally envisioned in part as a medical tourism destination, a place for wealthy patients to fly in for first-class healthcare treatment. Since its founding in 2002, however, Healthcare City
has evolved into a world-class center for healthcare, medical education and research, pharmaceuticals, medical equipment, wellness, and allied support. It boasts an impressive lineup of firms, including Johnson & Johnson, Merck and AstraZeneca. Its more than 140 medical facilities employ thousands of professionals. And last year it solidified its standing in the global healthcare community by signing a deal to establish the Harvard Medical School Center for Global Health Delivery–Dubai in the United Arab Emirates. The center will focus on health challenges throughout Dubai and the region.

CONNECTIONS FOR TOMORROW
Dubai is now in the early stages of its Surface Transport Master Plan, a multi-decade initiative that will build new connections within the city-state. The plan calls for new roads, highways and mass-transit options, including the expansion of the Dubai Metro, which is already the world’s longest driverless train system.

One impetus for the project is Dubai’s hosting of the World Expo in 2020. The six-month-long exhibition of global trade, innovation and products is expected to draw millions of visitors. But another factor is fueling the initiative: By some estimates, Dubai’s population will swell by more than 1 million people within the next five years. That’s a staggering increase, particularly when you contrast to its population of 300,000 in 1971, when the UAE was formed. Building the infrastructure that will ensure mobility for that boom is critical to Dubai’s future.

In a sense, however, it’s also the natural consequence of far-sighted economic planning. While other Gulf states are dealing with slower economic growth, thanks to the worldwide drop in oil prices, Dubai continues to boom — and there’s no sign it will come to a stop anytime soon. “Dubai’s growth and innovation show what the power of connections can achieve,” Colleran says. “Every time I travel here, I’m amazed — new hotels, new highways, new arts districts. It’s truly remarkable how Dubai keeps reinventing itself.”

Dubai will host the next World Expo, a six-month-long exhibition of global trade that counts sustainability, mobility and opportunity among its main themes.

How much the 2020 World Expo is projected to inject into the Dubai economy.
Dubai’s Formula for Economic Growth

By DAVID ROSS, President, Middle East, Indian Subcontinent and Africa (MEISA), FedEx Express

WHEN YOU THINK OF DUBAI, you probably imagine a vibrant, international business hub suddenly springing out of the desert sand like a city in a futuristic movie. This is largely true — and the city certainly has enough construction cranes on the horizon to prove it.

At the same time, Dubai has an ancient history as a trading center. Even today you can still get a glimpse of the city’s economic roots by paying a visit to the old souks (markets), which are located where Dubai Creek meets Port Rashid along the coast. This is where Dubai first welcomed outside trading partners en masse, beginning with camel trading, pearling, fishing and eventually gold re-exporting in the 20th century. This sort of trading activity is still going on today, as boats and merchants exchange goods and services along the banks of the creek, and tourists shop for spices and gold jewelry.

Not only does this cultural and economic activity visibly represent Dubai’s powerful role as a bridge between East and West, but it also gives us a glimpse into exactly how Dubai has transformed into a global business superpower:

OPEN BORDERS. Dubai first began luring new businesses to its port, fostering economic vibrancy and creating jobs, when it opened its borders in the 1980s. Outside trading partners have long been attracted to Dubai’s low barriers to market entry.

WORLD-CLASS INFRASTRUCTURE. Dubai’s world-class marine port has only been strengthened by the addition of a world-class modern airport, making the city-state a premier logistics hub for the region.

ECONOMIC DIVERSIFICATION. As recently as 1990, oil made up nearly 25 percent of Dubai’s GDP. Since then, Dubai’s leaders have wisely invested in capital projects and policies that have broadly and purposefully diversified the region’s economy.

Dubai is one of the world’s most stunning economic successes, and a new chapter is being written nearly every day. It’s a story that any city can learn a lot from.

WATCH: Want more Dubai? Explore the souks and other sights with Raj Subramaniam at fedex.com/access.
Hyper-precise technology is charting a new course for global crisis relief and prevention.

DIGITAL CONNECTIONS ARE OFFERING NEW WAYS FOR EMERGENCY WORKERS TO RESPOND to natural disasters and outbreaks of disease. Take geographic information system (GIS) mapping. According to *National Geographic*, it took less than 48 hours after the May 2015 Nepal earthquake for a global network of GIS-equipped volunteers to provide precise directions to relief workers on the ground. Later last year, the South Korean government used mapping technology to quickly locate, quarantine and treat individuals suspected of being infected with Middle East Respiratory Syndrome (MERS). The decisive action has been credited with thwarting a MERS pandemic in Seoul — and helping calm residents’ fears about the virus.

One of the most innovative users of GIS mapping is California-based Direct Relief. The medical philanthropy nonprofit maps and visualizes channels of aid and medical material distribution. Its goal: Provide relief workers with what the company terms an “understanding of specific conditions to aid in disaster preparedness and for transparency and accountability” to donors. It’s an example of how digital technology can help make disaster-relief agencies more effective for both the people they serve and those who donate.

*Source: National Geographic*
Access to healthcare in rural and outlying areas is in critical condition around the world. Modern healthcare advances are often unavailable to people who lack the ability to get to large urban centers. The problem is particularly acute among children under the age of 5 — UNICEF estimates that 29,000 die every day, often from preventable causes.

One answer has emerged in the form of mobile clinics that deliver health professionals to remote areas, allowing them to treat illnesses and conditions before they become worse (and more costly to treat). There are hundreds of such initiatives on the move around the world. Perhaps the most ambitious is the U.S. Doctors in Africa project, which is five years into a project to send 200 mobile health clinics and 2,000 nurses and doctors to sub-Saharan African communities.
HIGH-TECH HEALTHCARE

Coming soon to a clinic near you: A convergence of digital sensors, big-data analytics and cloud computing that will change healthcare forever.

IMAGINE A BIOCHEMICAL SENSOR that can be implanted in cancerous tissue to help clinicians monitor and adjust treatments. Or an ingestible sensor that monitors when a patient has taken his or her medication. Or sensors that mimic nerve patterns, allowing a human brain to manipulate a prosthetic limb. All three are in various stages of development. Combine those technologies with big-data analytics, the Internet of Things and cloud computing, and you have a true prescription for change. Physicians can combine the sensor feedback with massive data sets and predictive analytics to test drug combinations, track brain waves in real time and diagnose everything from migraines to malaria with pinpoint accuracy.

In short, sensors are driving healthcare to the cusp of considerable change — with potentially radical implications for improved quality of care and cost savings.

GENERAL MOTORS NOW OFFERS WIRELESS CONNECTIVITY THAT TURNS CARS INTO ON-THE-MOVE WI-FI HOTSPOTS.

While self-driving automobiles offer wild promise for the future, digitally connected cars are already a reality. General Motors now offers wireless connectivity that turns cars into on-the-move Wi-Fi hotspots, providing traffic information, route maps and more. Ford’s OpenXC platform allows mobile devices to read and translate data from a car’s internal network, allowing developers to customize smartphone apps for individual autos.

And this is only the start. Connected cars could help drivers find parking spots and nearby restaurants and retailers. Automakers could send software updates wirelessly, and alert car owners when parts need to be fixed or replaced. And the competitive auto landscape will certainly shift, with software firms and telecom providers motoring into the mix. Could Apple’s long-rumored car be part of that? The latest projections call for it to be released in 2019.

A lymph node cell, ready for its close-up — thanks to biochemical sensors that let medical teams monitor and treat diseases such as cancer.
BLENDING HUMAN CAPABILITIES WITH ROBOTIC COMPONENTS HAS BEEN THE STUFF OF SCI-FI. Now, science fiction has become science fact. Lockheed Martin, for instance, has created the HULC, a battery-powered exoskeleton that allows soldiers to haul 200 pounds of gear at speeds of up to 10 miles per hour. A company called Ekso Bionics offers a variation on the HULC that lets paralyzed people get up and move. And numerous enterprises are working on 3-D-printed robotic limbs for war victims.

The technology is also emerging in industrial applications. In Germany, Audi is using the Chairless Chair, a wearable carbon-fiber apparatus that allows assembly line workers to rest their leg muscles. And Daewoo shipyard employees in Korea now sport exoskeletons that allow them to carry and manipulate 60-pound pieces of metal as though they were balsa wood.

$2.1 BILLION

Global exoskeletons’ market worth by 2021.

SOURCE: RNR Market Research
MOBILITY IS DRIVING SOCIETAL CHANGE

MORE MOBILITY MEANS MORE OPPORTUNITY the world over. There’s still plenty of work ahead, but improvements in access to resources for education, agriculture, and even filmmaking are rewriting the stories of today’s society for the better.
Boosters believe that the region around the Great Lakes — which contains 21 percent of the world’s fresh water — could become a “Water Belt.”

SMART DRINKING: RENEWABLE WATER

The California drought is just one example of a global shortage that’s prompting new approaches to water acquisition, conservation and usage. California has more than a dozen new desalination plants in the works, for instance. A Bill Gates–touted device called the Omni Processor converts human waste into drinking water, much like Singapore’s toilet-to-tap reclamation program, which has been converting sewage into potable water since 2003.

Access to fresh water could also provide an economic lift to areas such as the U.S. Midwest. Boosters believe that the region around the Great Lakes — which contains 21 percent of the world’s fresh water — could become a “Water Belt.” Many of the region’s cities (such as Cleveland, Detroit and Milwaukee) have been struggling to shake off their Rust Belt status. The Great Lakes could lure new residents and businesses needing access to an abundant water supply.

750 million

The number of people around the world who lack access to safe water.

SOURCE: World Health Organization

Sleeping Bear Dunes National Seashore stretches along 35 miles of Lake Michigan’s eastern coastline. The residents of nearby Traverse City, Michigan, are among the millions of people in Michigan, Indiana, Illinois and Wisconsin who get their drinking water directly from the lake.

Bill Gates (on right) drinks water that’s been converted from sewage, part of an effort he hopes will help the developing world.
ROAD WORK AHEAD: ADDRESSING WORLDWIDE INFRASTRUCTURE FATIGUE

IN THE U.S., YOU SEE IT EVERYWHERE. Crumbling bridges. Failing sewer and water systems. Railroad bottlenecks caused by neglected tracks and century-old tunnels. But that public awareness is matched by an unwillingness to spend the billions needed to make repairs and reconstructions.

It’s not just a problem in the U.S. By some estimates, current global spending on public infrastructure is equivalent to 1995 levels.

Trade will continue to globalize. But if nations don’t begin to boost spending, particularly on transport, that trade and the prosperity it brings could become stuck in traffic.
In the developing world, smart innovations are rewriting the textbook for access to schooling.

Kids want to learn. But in many parts of the world, the challenge of simply getting to school can all but crush that desire.

Now, in parts of Africa, digital entities are bringing the school to the kids. One example is Mxit, a South African social media network that’s employing its 10-million-user platform to reach schoolchildren. Mxit connects users with Nokia’s MoMaths, a mobile phone–based math teaching tool that can be used in or out of school environments. Mxit has also teamed with UNICEF and the South African Department of Basic Education to create a virtual school called Ukufunda, which gives children access to learning aids and content, counselor support, and even online debate clubs. And since many South Africans don’t have smartphones, Mxit makes Ukufunda available via the 2G (non-smartphone) network.

The number of people age 15 to 24 in the developing world who have not completed primary school.

SOURCE: UNESCO

Air travel is poised to create soaring aircraft demand over the next 20 years.

Thanks in part to the rise of a new middle class in China, India and other emerging nations, we’re in the middle of one of the biggest economic transformations the world has ever seen. One telling example: Global airlines are hurriedly writing orders for new planes that will allow them to accommodate the travel ambitions of the new consuming class. According to Airbus, passenger traffic from Asia will climb 5.8 percent annually between now and 2034. And it’s not only people who’ll be filling the skies — Boeing forecasts that air cargo will grow by nearly 5 percent each year over the same time frame.
AFRICA CONTAINS 25 PERCENT OF THE WORLD’S ARABLE LAND, but its farmers raise only about 10 percent of the world’s food. Barriers to markets, infrastructure and information have prevented the continent from fulfilling its vast agricultural potential, a situation that’s common throughout many parts of the developing world.

Mobile technology could help knock down those barriers. For example, Kenyan cattle farmers can access an app called iCow to help them monitor their herds. Ethiopia, Tanzania, and other nations have developed mobile messaging services to provide farmers with data on crop disease, fertilization techniques, weather conditions, market prices and more.

These and similar developments could help unlock considerable economic potential. Consulting firm McKinsey & Company has determined that agricultural development is twice as effective as foreign aid as a tool for reducing poverty.

The amount human food production will need to increase by 2050 to meet rising demand.

SOURCE: U.N.
**BATTERY WARS**

*A host of companies are competing to transform our approach to power.*

First it was electric cars. Then space flight and satellite Wi-Fi. Now Elon Musk wants to light up your home with green energy. The key component in that strategy: the Tesla Powerwall, a lithium-ion battery that will allow people to collect, use and store solar energy.

But this time Musk has plenty of power-hungry competitors with innovative and lower-cost products, including Eos Energy Storage, Aquion Energy and Alevo. Those names might not be familiar, but perhaps you’ve heard of another, Apple, which was granted a portable fuel cell patent in 2015.

So what might these batteries provide? Visionaries see new types of electricity distribution and use, including microgrids and smartgrids, that would allow small clusters of businesses and homeowners to generate and share their own electricity, while cutting dependence on fossil fuels.

The interest is there: Tesla’s Powerwall is sold out through 2016. Utilities might fight these new types of energy storage sources, should their price come down enough to make them widely attractive. Or they might find ways to incorporate the storage sources into their own grids, potentially saving money for both utilities and consumers.

---

**MEGA-CORRIDORS: MASSIVE PATHWAYS TO DEVELOPMENT AND TRADE ACCESS**

As it continues to urbanize and build its consumer economies, the developing world is creating distinctive types of infrastructure. The most remarkable projects are mega-corridors — massive undertakings that link two or more megacities or regions. These are often transport-oriented developments designed to build and fortify trade connections — and stimulate new growth.

The $46 billion China-Pakistan Economic Corridor offers a cross-border example. It will physically link the two countries via a 2,000-mile network of pipelines, roads and railways, and is expected to stimulate new mega-corridor networks across Asia. China also plans to build similar connections to other Asian markets in Asia and even to Europe. Meanwhile, several countries are expanding airports or building new ones. Two examples: the new $13 billion Beijing Daxing International Airport and the $32 billion expansion of Al Maktoum International Airport in Dubai that will allow it to accommodate more than 220 million passengers per year.
Once upon a time, your best shot at making it big as a filmmaker came if you had connections with the establishment. How times have changed. New formats and forums have made room for more players — and, for that matter, viewers. Among the biggest fans and advocates of this new landscape is award-winning writer, director (Selma, 2014), and filmmaker Ava DuVernay. Her film-distribution collective, ARRAY, releases works by women and people of color and distributes them via theaters and streaming platforms. The connections she’s creating are providing opportunities for people around the world — empowering societal change along the way.

ACCESS: You worked in marketing and public relations before moving into filmmaking. What prompted the switch to film?

AVA DUVERNAY: I was a publicist for other filmmakers — I always was a film geek. I thought I would be in that job forever because I loved it so much. But being on those sets and watching filmmakers in action demystified the process for me. It also made me think: “If they can do it, I can do it.”

ACCESS: What gives film its unique ability to connect people across cultures?

A.D.: It allows you to transport yourself into the life of another person. Another era. A completely different place than where you are at the moment. It’s not something we can touch, and yet it’s something that we ingest. It becomes a part of us, a part of our DNA. So I try to make films that actually stick to your ribs. Because the best films attach themselves to who we are in some way.

ACCESS: Your distribution collaborative, ARRAY, is dedicated to amplifying the films of women and people of color around the world. Why is that mission so vital right now?

A.D.: We distribute films by people of color and women filmmakers. We distribute films that the studios won’t distribute. We find places to screen the films that cannot get into theaters. This is what I could do to change something I thought was wrong.

But what’s wrong in your neighborhood? What’s wrong in your school? What’s wrong in your city? When we see something wrong, what do we do? Do we try to fix it? Or do we continue to shuffle along with the status quo? In a larger context, ARRAY is standing up and saying, “I recognize this as something that is not right, and we’ll do what we can to right a wrong.”

ACCESS: ARRAY has already made a deal to provide content for Netflix. How are digital platforms changing the way audiences connect to film?

A.D.: You have a number of exciting companies that are allowing more voices to be heard. I think it’s fantastic.

When you think of even five years ago, our behavior as people who love film and TV was completely different. If I wanted to see Scandal, I’d better be home at 9 p.m. and turn on ABC. Now I can binge it over the weekend. Or I’m going to save three episodes and watch with my girlfriends. Or I’m going to watch it in the middle of the night or early in the morning. That behavior is all because of digital. It’s changing who we are, the way we behave. Who thought of binge-watching before? I’m just going to sit there and watch six hours of that? Really? Yes, I am. And I’m going to enjoy it.

It’s changing our culture, and I think it’s an exciting time, both by means of access and by the way we enjoy. And so, yes, we’re thrilled to be able to provide digital platforms with access to our films — and to receive access to our audiences through our films.
“IT’S CHANGING OUR CULTURE, AND ... WE’RE THRILLED TO BE ABLE TO PROVIDE DIGITAL PLATFORMS WITH ACCESS TO OUR FILMS — AND TO RECEIVE ACCESS TO OUR AUDIENCES THROUGH OUR FILMS.”

— Ava DuVernay
Move your ideas into the fast lane.

Speed to market. Just one of the ways we help accelerate connections between businesses and customers around the world. Your great ideas should always get the green light. Find out more at fedex.com/access.