



Simply amazing.



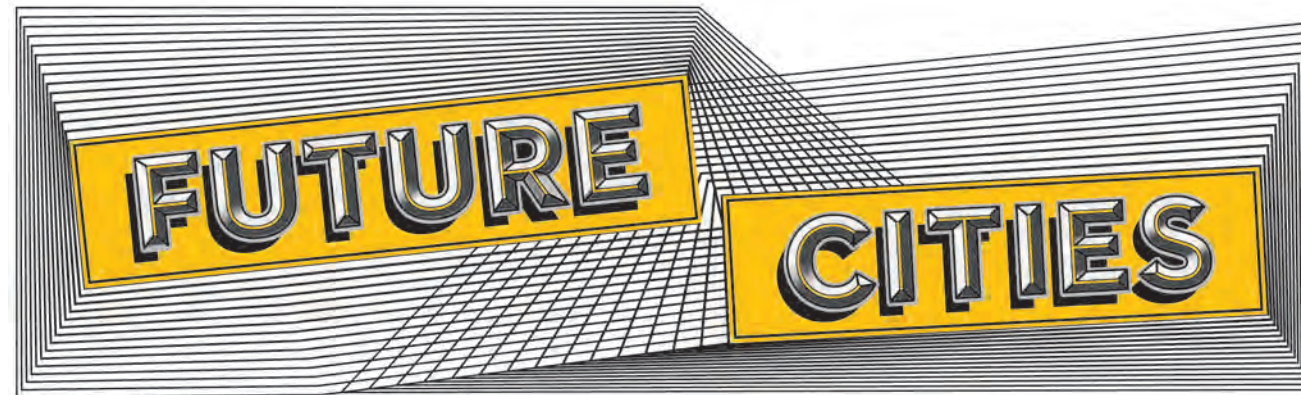
New Nissan LEAF

NISSAN INTELLIGENT MOBILITY

Model may vary by region. CO₂ emissions: 0 g/km (only referred to driving phase); energy consumptions 15 kWh/100 km.*
*Homologation in progress.



Innovation that excites



THE IRRESISTIBLE RISE OF URBANIZATION

As world leaders gathered in Manhattan in September for the 72nd General Assembly of the United Nations, with the headlines dominated

“Breakthrough innovation holds the potential to launch us into a new economic order.”
Lise Kingo, CEO and Executive Director of the United Nations Global Compact

by geopolitical crises, extremism and environmental catastrophes, a few miles across the East River engineers were hard at work on the sort of practical innovation that could transform 21st century urban living.

At Marcus Garvey Village, a low-income community in Brooklyn-Queens, electricians have built New York's first digitalized microgrid, complete with solar photovoltaic

panels, a fuel cell and even lithium-ion batteries for energy storage. Installed and managed by Demand Energy, a unit of energy multinational Enel, the grid provides residents of 625 apartments with lower costs and cleaner electricity, while reducing the demand on the local utility and pointing the way toward full energy self-sufficiency for urban communities.

“We need to rethink cities for a new sustainable future,” says Francesco Starace, CEO of Enel. “In a huge, energy-intensive city such as New York, where demand for energy is rising all the time, we have to use new technologies to manage energy production and demand more intelligently, more efficiently and more sustainably.”

For Starace, the key to that more sustainable future lies in urban energy networks that are characterized by two-way distribution grids, in which households not only consume electricity but also produce it from renewable distributed energy systems and deliver it to the grid

through storage and electric vehicles. In partnership with Nissan, Enel has emerged as a world leader in vehicle-to-grid (V2G) technology.

Enel's strategy of developing innovative, digital services to make cities smarter and more sustainable is shared by increasing numbers of leading multinationals in cities around the world. With the global urban population growing at breakneck pace—from 34% in 1960 to 54% in 2016,

“Energy utilities are uniquely positioned to help address some of the world's biggest challenges.”
Francesco Starace, CEO, Enel

according to the World Bank—cities are not only huge markets in their own right but are also key to meeting the U.N.'s Sustainable Development Goals for 2030.

“Rapid urbanization is an excellent opportunity for public-private partnerships to direct investments towards creating more sustainable cities,” says Lise Kingo, CEO and executive director of the United Nations Global Compact.

Michael Bloomberg, the former mayor of New York who now heads the board of the 40 Cities Climate Leadership Group (C40), says that compared to the federal government in Washington, “America's cities are

more nimble, more pragmatic, more responsive to public concerns, and more open to experimentation.”

“About two of three Americans live in cities,” Bloomberg adds. “All of those factors make cities ideal change agents. To the extent that we are making any progress as a nation, cities are driving it.”

It is not only in the U.S. that cities and their private sector partners have moved to the frontline of innovation and



sustainable development. In Barcelona, car manufacturer SEAT is tapping into one of Europe's most powerful supercomputers to help plan the way for a new era in urban mobility. This week, the company will be presenting its vision of future city transport at the Smart City Expo. In the world of work, global software companies such as Citrix are using breakthroughs in connectivity and Cloud computing to transform city workspaces. Meanwhile, authorities in Dubai have put digitalization, innovation and connectivity at the heart of their ambition for making the fast-growing metropolis the happiest in the world. ■



Two out of three Americans live in cities



REALITY GOES DIGITAL

We have seen the future of work, and it is Pokémon Go.

In recent years, virtual, augmented and mixed reality—the kind of experiences Pokémon Go was built around—captured imaginations and shaped trends. Now they're poised to become mainstays of everyday reality.

If pursuing Pokémon seems frivolous, how about repairing an engine where you can see both specs and real-time sensor data superimposed on every part under the hood? Inspecting the fit of a new pipe on an oil rig as part of a global team where none of you are actually on the platform? Seeing how that new couch would fit in your living room before you've bought it?

These new versions of reality allow you to blend the physical and virtual world, and can even let you become more productive in places where you're not physically present. Virtual reality headsets like the HTC Vive, augmented reality-capable devices such as the new Apple iPhone and the mixed reality Microsoft HoloLens all hint at the kinds of experiences that will soon become commonplace.

It takes a lot of processing power to make this happen but the new realities also generate a lot of productivity power. Enough to transform our notions of the workplace, and work itself. And just in time: by 2025, more than half of the workforce will be remote, working anywhere, from anywhere.

I can't promise stardust or lucky eggs in the future of work. But I guarantee that it's going to be fun. ■

Christian Reilly
VP and CTO, Citrix Systems

THE CITY IN THE NET

As massive two-way flows of electrons and data, of electricity and information, reshape whole industries and transform contemporary society, energy companies are preparing to change the face of urban living in the 21st century. Cities around the world are already reaping the benefits of the rapid convergence of communications technologies and electricity grids, paving the way for energy services that are cheaper, greener and more intelligent.

"After many years of talking about smart cities, the concept is actually starting to have a meaning,"

“Boundaries between business models are getting blurred.”

Francesco Venturini,
Head of Global E-Solutions,
Enel

says Francesco Venturini, head of the new global e-solutions business line at Italian energy company Enel. The unit is using new, mainly digital technologies to develop innovative services for energy consumers in homes, industries, cars and cities.

"The boundaries between telecom and energy grids and business models are becoming blurred," Venturini says. "Energy is not going to be generated and consumed in the same way anymore: to integrate photovoltaic panels on the roof and electric vehicles in the garage, there needs to be a lot more intelligence in the grid. This is finally powering the emergence of truly smart cities."

Two separate trends are driving the transformation of the energy industry. First, the digital revolution is giving energy companies and their consumers an unprecedented level of information, insight and control over electricity usage.



Enel's vehicle-to-grid technology for smart cities

"Digital convergence and digitization make it possible to collect and analyze data," says Livio Gallo, head of Enel's global infrastructure and networks business line. "With this complete picture, we can improve the efficiency and quality of energy distribution and design innovative, added-value services."

The most visible of these new services is the so-called smart meter. In its home market of Italy, Enel is currently working to install around 41 million second-generation meters, a program that is currently keeping a pace of around 7,000 meters installed per day. Households equipped with the devices are able to collect data from the meter and identify inefficiencies in how they use energy and change their consumption accordingly.

At the same time, by digitizing its grids and installing remote sensors and smart meters, Enel is able to continuously monitor network performance in real-time and to predict possible problems before they escalate. The company can now carry out maintenance works to avoid that any defect deteriorates into a larger fault of the grid.

The second factor driving the transformation of the energy sector is the arrival of renewable power. In this area too, Enel's investments in digitization and smart grids are paving the way for a new era of urban innovation, an era characterized by renewable distributed generation

systems, electric vehicles and domestic energy storage.

"One reason why we need more flexible grids is to integrate renewable energy generation and storage technologies," Gallo says.

In response to the rise of renewable energy, companies have to reinvent their grids, Venturini says. "Renewables have completely changed the way energy is generated," he explains. "The main issue now is how this energy is distributed and consumed. Renewables are an unstoppable trend, but need different solutions to be managed."

Before long, Venturini forecasts, smart technologies will enable urban households to store their own renewable energy output and send it back to the grid, or to feed

“We see the grid as an enabler of new services.”

Livio Gallo,
Head of Global Infrastructure
and Networks, Enel

the grid directly with the batteries of their electric vehicles. "In the future, the world of energy will be based mainly on software," he says. "Thanks to digitization, smart grids and renewables, we will be able to create an ecosystem in which our customers see energy as an added-value service." ■

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PROJECT DIRECTION: **SIAN GODDARD**
WRITING: **MARK BERESFORD**
EDITING: **CARMEN MOURA**
DESIGN: **ANTONIO CAPARRÓS**



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ON THE ROAD TO INTELLIGENT MOBILITY

According to Carlos Ghosn, chairman of Nissan Motor Co., Ltd. and one of the global automotive industry's best known visionaries, the industry will see more change in the next 10 years than in the last 50.

Recent events bear out that prediction: just in the last months of 2017, the pace of change has been breathtaking, with both the British and the French governments committing to phasing out the sale of cars fueled by diesel and gasoline by as early as 2040. Even sooner than that, cities such as



The new Nissan Leaf

Oslo, Madrid, Paris and London are considering partial or even total bans on diesel-powered vehicles in their city centers, as policymakers begin to rethink the role of cars in

the urban mobility of tomorrow.

At that same time, the rise of artificial intelligence and the Internet of Things is set to transform the driving experience

and challenge the traditional business models of automotive manufacturers.

Ghosn has not hesitated to pick up the gauntlet of this multiple challenge to how cars are powered, how they are driven, and how they integrate into society. With its Intelligent Mobility strategy, Nissan aims to respond to each of these seismic shifts in the automotive industry, take advantage of the opportunities of cutting-edge technologies, and emerge as a world leader in this new era for urban mobility. ■

MORE ENJOYABLE DRIVING EXPERIENCES

Can you introduce us to Nissan Intelligent Mobility?

There are three pillars to Nissan Intelligent Mobility. Firstly, Nissan Intelligent Driving, which creates more confidence for our customers.

vehicles our partners for more than just mobility, also connecting customers to infrastructure and to social networks.

Whereas many others in the industry use technology to remove people from the driving experience, Nissan's approach is to use technology to make people and cars true partners in this journey.

to reducing costs and enhancing performance of our EV products.

How does Nissan intend to maintain its leadership of an increasingly competitive EV market?

Having sold nearly 300,000 Nissan LEAFs since 2010, we are proud to be the world's EV leader. Nissan believes that EVs should be available at mass-market prices. This September, we took our leadership in EVs to the next level by unveiling the all-new Nissan LEAF, which will be the icon of Nissan Intelligent Mobility.

With so much experience and knowledge in the EV space, we have no intention of relinquishing our advantage in electrification.

Autonomous drive technology makes our customers safer while at the same time making their drive less stressful by removing the more tedious and mundane parts of driving. In 2018, we expect to launch a "multiple-lane control" feature that autonomously negotiates hazards and changes lanes during highway driving.

How do you think Intelligent Mobility can improve the quality of life in cities?

Nissan Intelligent Mobility is intended to be our comprehensive vision for moving people to a better world through a safer, more sustainable, and more exciting kind of mobility. Each of the three pillars seeks to harness an emerging automotive technology to improve the quality of life for our customers but also for the cities where they live and work. So by implementing all three of these pillars together as part of a comprehensive vision for the future of mobility, Nissan believes that we will make urban mobility more sustainable but also more exciting for everyone. ■

“We develop technology for the sake of making our customers' lives better.”

Daniele Schillaci, EVP Global Marketing and Sales, Nissan Motor Company, Ltd.



What is Nissan doing to reduce the cost of EVs and enhance their performance?

EV technology is core to our global product portfolio. We intend to be aggressive in its deployment, and believe that within the next decade we will be in a position to turn some of our core models into EVs. We also believe that the synergies created through our Alliance partnerships will be key

What autonomous driving technologies are included in the new Nissan LEAF?

The all-new Nissan LEAF contains ProPILOT, which is our breakthrough autonomous drive technology. ProPILOT allows for single-lane autonomous driving on the highway. We launched ProPILOT first in Japan last year. The demand has been very strong because it clearly meets our customers' needs in Japan.



Citrix lets people work whenever, wherever. For Red Bull Racing, that means accessing large files at the track, analyzing telemetry data in near real-time and making key decisions from anywhere. This is how the future works.

www.TheNewMobileWorkforce.com



CREATED IN BARCELONA

Alejandro Mesonero has a theory about why so much of the art and design of modern Barcelona, from the anarchic architectural masterpieces of Anton Gaudí to the abstract shapes and signs painted by Joan Miró, is characterized by bright colors, sharp lines and an all-pervading impression of vibrancy and energy.

“It is the light,” SEAT’s award-winning head of design says. “There is a wonderful strong light in Barcelona. It shows up every detail and makes things look sharper and well defined. That’s also why all of our own designs and cars have sharp lines and such a sophisticated sculpture.”

SEAT tests all the products of Mesonero’s studio in Barcelona’s strong, hard light, exposing any blurred lines and edges, making

“Barcelona is one of the most important technological hubs in Europe.”

Alejandro Mesonero, Director of Design, SEAT

sure that designers maintain the precise, clear-cut styling that is one of the main hallmarks



The Ibiza in Port Vell, Barcelona

of the Spanish carmaker’s design language.

It is not only the light of Barcelona that helps shape the vehicles that Mesonero’s team produces. “For any kind of creative activity, it is important to be in a place where you can absorb your surroundings,” he says. “We are a little bit like sponges. As designers, we need to be in a place that can give us a lot of input constantly, whether that is the arts, the lifestyle or the way people behave.

“Barcelona has amazing architecture, colors and vibrancy. The people here have an enjoyment of life that seems to flow out of them and inspires creativity. It increases my desire to make things that have style and value.

Barcelona, a research center that is dedicated to developing high technology services for a new era of connected cars and urban mobility. More than 20 people are already working at the site, located at Barcelona Tech City, and the facility’s workforce of engineers, developers and data scientists will expand to 50 in the coming years.

Mesonero says that electrification, connected cars and eventually autonomous driving will have a massive impact on car design. To prepare for this impact, last year SEAT opened a digital design lab which already employs more than

“In Barcelona, innovation, progress and development find their ultimate expression.”

Luca de Meo, President, SEAT

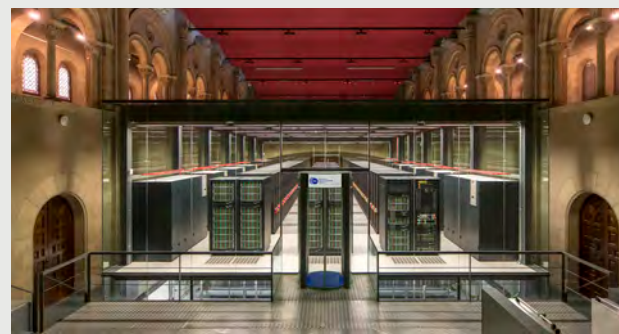
30 people. “The interior design of cars is going to be completely transformed,” Mesonero predicts. “We are completely changing the way in which we conceive cars. For our designers in Barcelona, it’s like starting again with a huge blank sheet of paper. It’s incredibly exciting.” ■

And when I see the architecture of Gaudí, I get inspired by the sense that it really is possible to do something different.”

Home to a fast-growing community of technology start-ups, Barcelona is also on the frontline of the digital revolution that is changing the shape of cars forever. With a customer base that is almost 10 years younger than the European average, SEAT is emerging as a leader in automotive connectivity and is creating an entire digital ecosystem for its vehicles, consisting of services such as predictive navigation, voice service, mobile payment, car sharing and smart parking.

In April this year, the carmaker opened SEAT Metropolis:Lab

Valero, the director of the BSC. “Our aim is to develop a new series of chips for the next generation of cars.” ■



BARCELONA’S SUPERCOMPUTER

As a new chapter opens in the history of the car, a chapter that will be dominated by artificial intelligence, connectivity, and autonomous driving, the pressure is on the world’s automotive companies to become masters not only of car design but also of software and information communications technology.

To position itself for this new era, SEAT has developed

close ties with the Barcelona Supercomputing Center (BSC), home to MareNostrum 4, the third most powerful supercomputer in Europe. Housed in a former chapel at the Polytechnic University of Catalonia, MareNostrum 4 is able to perform more than eleven thousand trillion operations per second. By harnessing this massive computer power to process traffic data from the roads of Barcelona, SEAT and the BSC are able to accurately simulate real-world driving conditions in a

BIOMETHANE FUELS THE FUTURE OF AGROINDUSTRY

With the proportion of the world’s population who live in cities already standing at 54%, and according to the U.N. set to grow to 66% by 2050, the global agricultural industry faces a massive challenge in feeding billions of city dwellers in a way that is environmentally and economically sustainable.

Pressure on farmers is coming from two different sources, says Richard Tobin, CEO of equipment manufacturer CNH Industrial. “On the one hand there is government regulation in the shape of CO₂ reduction targets, while on the other hand grocery stores and food producers are putting the same kind of pressure on their own supply chains to reduce their emissions.”



“When running on biomethane, CO₂ emissions are reduced to virtually zero.”

Richard Tobin, CEO, CNH Industrial

To help farmers respond to these trends, in recent years CNH Industrial has focused its research and development spending on agricultural equipment that is powered not by diesel but by various forms of gas. The company’s FPT Industrial brand has developed industrial engines running on Compressed Natural Gas (CNG) and Liquefied Natural Gas (LNG) which are currently used in thousands of public buses



The New Holland methane-powered concept tractor

and trucks across Europe and beyond.

As the leading company in its sector for the seventh consecutive year, according to the Dow Jones Sustainability Index, CNH Industrial takes its responsibility to the environment and people seriously, and recognizes that doing so is good for business.

In August this year, the company took its expertise in gas-powered engines in a bold new direction that could transform the way in which farmers consume energy. Its New Holland Agriculture brand unveiled an innovative concept tractor powered entirely by biomethane, a fuel that is produced from a farmer’s own crops and from agricultural waste, alongside waste from supermarkets and the food industry. “As biomethane combustion produces almost no CO₂, use of the technology results in an 80% reduction in polluting emissions,” Tobin explains. “As well as reducing greenhouse gas directly from tractors, the use of biomethane could revolutionize the economics of farming.”

Because biomethane is produced from raw materials already possessed by farmers, farms can eliminate their dependence on acquiring fuels from third parties and reduce their exposure to fluctuating oil prices. Furthermore,

loop where the farmer is energy efficient generating all of his own power using the waste products of the farm itself.”

As well as the innovations contained in its powertrain, the New Holland concept vehicle also incorporates “precision farming” technologies, enabling it to steer itself along rows in the field, and elements of autonomous technology, such as the automatic detection of obstacles. In 10 years, Tobin predicts, tractors may not even need to have a driver at all, using precision farming techniques to operate day and night.

In order to achieve the emissions targets set in the Paris Agreement, Tobin says the agricultural sector will need to deploy a combination of alternative fuels, autonomous driving and artificial intelligence: “With these technologies we have the opportunity to open up new horizons for future farming.” ■

POLE POSITION

In 2017, it seems that not a month has gone by without a major European car manufacturer declaring its intention to go all-electric. At the premium end of the market, China’s Thunder Power looks like beating all of these established giants to the punch, with plans to start mass production of a range of sporty, high-performance models in its home country by as early as 2019. Production for the European market will begin from a new plant in Barcelona in 2020.

With mainly Italian engineering and design, Thunder Power’s vehicles combine cool, sleek looks inspired by the calm and simplicity of

Zen philosophy with state-of-the-art technological innovations: at 650 kilometers (403 miles), the company’s cars can achieve the greatest range in their category.

“We can offer vehicles that in terms of performance are every bit as good as traditional cars with combustion engines,” says Christopher Nicholl, marketing director at Thunder Power. “We will soon be ready to produce a fast and good-looking sports car that delivers an authentic, truly exciting driving experience.” ■



REDEFINING THE WAY YOU WORK

Ever since the emergence of the Internet and the cellular phone, there has been a palpable tension between employees eager to exercise their new-found ability to work remotely and at any time, and managers insistent on monitoring their workers and controlling their daily output.

In tomorrow's cities, where high-speed connectivity will be ubiquitous and billions of devices connected to the Internet of Things (IoT), that tension will all but disappear and a new, more productive workspace will

emerge, believes Christian Reilly, VP and CTO at software company Citrix Systems.

Once the connectivity challenge is overcome, the key to achieving this vision, Reilly says, will be a combination of ensuring security and improving performance. On the security side, with the number of applications and IoT-connected sensors already mushrooming in today's smart cities, firewalls are now largely obsolete. An alternative approach is taking shape, using artificial intelligence to model a user's behavior and



The Smart Dubai office has a virtual receptionist and writable walls

detect anomalies. When it comes to performance, Reilly says, companies need to use powerful analytic tools to ensure that the secure digital workspace provides the end-user with the best possible

experience for the device and network they are using. "The core of Citrix's mission is to achieve the very best user experience with the right amount of security," Reilly says. ■

A NEW MIX FOR THE WORKSPACE

How do you see the workspace of the future evolving alongside the city of the future?

If you look at workforce demographic projections going into 2020 and beyond, there are some suggestions that 45% of the workforce of every company will be remote. At Citrix, we coined the phrase: "Work is a verb, not a noun." It means that we do not go to work but we do



Christian Reilly, VP and CTO, Citrix Systems

work. That enables everybody to work from anywhere securely. Companies need to completely buy into the fact that remote working and distributed working is not a privilege but something that needs to be done because of the way the fabric of life is evolving. There is an element of trust involved, and very few companies have actually cracked that.

From a connected city perspective, this puts a great deal of pressure on basic availability of network connectivity. There are going to have to be some extremely interesting investments in core infrastructure. Things like 5G are going to be the next huge technologies that promise great connectivity at extremely fast speeds. As ubiquitous connectivity grows in capacity and pervasiveness, there should really be no difference between working from any physical location and accessing a virtual workspace.

“There is no longer a defined balance between work and life.”

Christian Reilly, VP and CTO, Citrix Systems

How are customers responding to your vision of the workspace of the future?

The core selling point of Citrix is that we enable customers to bring all of their applications and data into a single place that the user accesses. We call this the Secure Digital Workspace. We are making it easier for the IT department to secure and operate these digital workspaces, and for the end users to be able to consume them from any device on any network while guaranteeing the performance and also the security. It is really a win-win on both sides. Our customers love this idea of the secure digital workspace, because it is easy to implement and easy to understand, and because it offers so much from a productivity perspective.

How will new technologies impact the digital workspace?

In the consumer world we are now seeing more wearable devices and voice integration, plus virtual reality, augmented reality, and mixed reality, blending the physical world with the real world. These devices and applications could change the way we work forever. ■



IMPROVING THE PRESENT
BUILDING THE FUTURE

As the seven-time Industry Leader in the Annual Dow Jones Sustainability Index and one of the 24 most sustainable companies in the world, CNH Industrial recognizes that being a global frontrunner in capital goods carries great responsibilities.

We are highly responsive to the world's environmental and social megatrends, translating them into core strategies that feed and drive our commitment and performance, creating long-term value.

Our responsibilities do not stop at the factory gate, and we have made great efforts across the 180 markets in which we operate to be proactive when it comes to the broader global issues surrounding sustainability.

www.cnhindustrial.com/sustainability



THE PERFECT RECIPE

Today's environmental and societal challenges make us all responsible for improving our world, an all-encompassing obligation which applies to countries, companies and individuals.

The UN Sustainable Development Goals (SDGs) guide us through tackling the most pressing global problems, setting 17 goals, each with their own targets, to be reached by 2030.

Integrating these goals into corporate strategy can be an overwhelming challenge, but as such it can open up valuable opportunities, like creating new jobs, unlocking new markets and maximizing shareholder value. SDGs are not just a catchword and their integration is a no-brainer.

Here's my suggested recipe to integrate SDGs while capitalizing on the opportunities that come along with it:

1/ Start with a huge source of **Inspiration** by adopting SDGs as a corporate mantra; 2/ Add a strong sense of **Commitment** by nominating your CEO as chief SDGs officer; 3/ Combine a strong focus on **SDG Implementation** by adopting one or more of the goals, setting quantitative targets, with a detailed roadmap and milestones.

Business commitment is crucial to tackling the challenges we face and successfully reaching the 17 SDGs by 2030.

Yet to ensure collective wellbeing and a better tomorrow, we must act today. ■

Ernesto Ciorra
Head of Innovation and Sustainability, Enel

AN INTELLIGENT INTERACTIVE VOICE SERVICE

For millions of people around the world, the calm and measured tones of Amazon Alexa have become an indispensable part of everyday life. Since its launch in 2014, the intelligent personal assistant has ushered in a new era of voice-controlled convenience, with Alexa users able to browse the Web, play music, listen to weather forecasts and even control smart home apps such as lights and thermostats, all with voice commands alone. Now, thanks to

SEAT, car drivers in Europe can enjoy the full benefit of Alexa's seemingly endless expertise, even while on the road.

"The trend in voice-activated services is growing and for this reason we want to make it available to our customers," says SEAT president Luca de Meo.

SEAT is the first car manufacturer in Europe to integrate Alexa into its models, enabling drivers to manage their personal schedule, find their favorite songs, locate points of interest, listen to news or manage



their smart home appliances. "Integrating Amazon Alexa in our range represents a great boost to SEAT's digital ecosystem and connectivity and certainly contributes to positioning the brand as a front-runner in connected vehicles in Europe,"

de Meo says. The interactive voice service developed by Amazon will be available in English and in German on SEAT's Ateca and Leon models at the end of 2017 and on the carmaker's Arona, Ibiza and large SUV models in 2018. ■

CAN WE AFFORD TO LIVE FOREVER?

At the same time as urbanization poses new demands on city governments to deliver a new generation of innovative services, another demographic mega-trend is beginning to transform health care delivery.

According to the U.N., the fastest growing segment of the global population is represented by people aged 60 and over—their number is expected to more than double by 2050 and to more than triple by 2100, rising from 962 million in 2017 to 2.1 billion in 2050 and 3.1 billion in 2100. This ageing of the population is already exerting extreme pressure on health care systems around the world. In response, the medical sector is turning to digital technologies to reduce

costs and re-think the way that health care is provided.

"It is almost inconceivable that we could deal with these large populations of aging people the same way as we did before," says Dr. Jan Kimpen, chief medical officer at health technology company Philips.

"Costs have reached the maximum level that countries can afford to spend on health care. We have to transform and reinvent medicine, using digital capabilities and connectivity to treat patients with the highest quality of care."

In Arizona, Philips is engaged in a ground-breaking partnership with a health provider that offers a window into a radically different future for the health care industry. Working with Banner Health, Philips is using digital technologies to help treat elderly patients not in hospitals but in their

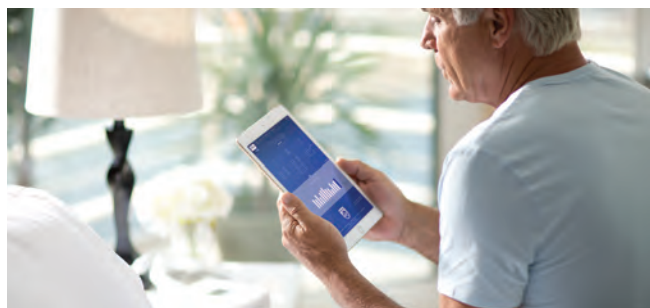
own homes. The system is built around remotely monitoring these patients, keeping them in constant contact with carers, using two-way video via tablets and smart devices for monitoring weight, blood pressure and other key indicators

“Digital technology is improving health care and increasing life expectancy around the world.”

Dr. Jan Kimpen,
Chief Medical Officer,
Philips

remotely. These innovations have not only improved the health of the patients, with emergency room visits cut by half, but have slashed the costs of healthcare by 34%.

"We strongly believe that bringing these new possibilities to bear will have a positive effect on the cost of health care, as well as helping to detect deterioration of health earlier," van Kimpen says. "At the same time, digital solutions can help patients take ownership of their own health, keep control of their lives, and stay independent and close to their families, friends and loved ones at home." ■



Connected sleep solutions can improve preventative health care



THE MOST INTELLIGENT CITY ON EARTH

Few cities have enjoyed the benefits of globalization and information communications technology as much as Dubai, which in the last 20 years has positioned itself as one of the world's leading hubs for trade, transport, media and financial services.

Dubai is now emerging as a flagbearer for a new trend in the global economy, a trend which places the concepts of happiness and well-being at the heart of economic and technological development.

"The strategy we are following in transforming Dubai into a smart city prioritizes happiness over technology," says Dr. Aisha Bin Bishr, director general of the Smart Dubai Office (SDO). "Our mission is to create happiness by embracing technology innovation."

The SDO was founded in 2014 with the express aim of turning Dubai into the happiest city on earth, in accordance with the vision of Sheikh Mohammed bin Rashid Al Maktoum, Vice President and Prime Minister of United Arab Emirates and Ruler of Dubai. Since then, the SDO has unveiled a series

“We are fuelling the transformation of Dubai with data.”

Younus Al Nasser,
CEO, Dubai Data
Establishment

of initiatives in areas such as Smart Environment, Smart Governance and Smart Mobility, all of which are designed to make tangible improvements to the quality of life and improve the well-being of



Dubai embraces technology and innovation

residents and visitors. "We want to make sure that people have the best possible experience in Dubai, whether they are tourists, long-term residents or business owners—the happiest experience," Dr. Bin Bishr says.

With partners in the private sector and in government, the SDO has rolled out a range of initiatives that include smart parking and waste disposal services, charging points for electric cars, unified online health records, and mobile apps which allow residents to pay city bills and fines on their smartphones.

While all of these innovations aim to advance Sheikh Mohammed's Happiness Agenda, perhaps the SDO's flagship initiative is the Happiness Meter, a near-ubiquitous touchpoint which allows people to rank their satisfaction with services across the public and private sectors. It has turned Dubai into the world's first city to measure the happiness of its residents, visitors and tourists on a daily and interactive basis. Aggregating the ratings from all the meters last year gave Dubai an overall 'happiness score' of 90%. "Our target is to

achieve a happiness score of 95% in 2021," Dr Bin Bishr says.

As part of its drive to increase happiness, Dubai is also championing cutting-edge

“We use smart, data-based services and platforms to make lives easier and more enjoyable.”

Dr. Aisha Bin Bishr,
Director General,
Smart Dubai Office

technologies such as cognitive computing and blockchain. Last year, the Department of Economic Development launched Saad. Powered by IBM's Watson cognitive computing system, Saad answers questions from business owners who are making licensing and registration applications, and is able to learn from its interactions with them.

IBM and the SDO are also working together to use blockchain to help meet the government's goal that by 2020 all its transactions should be paperless. "Blockchain will revolutionize business," says Amr Refaat, IBM general manager,

Middle East and Pakistan. "We are already working with government entities such as trade and customs authorities to accelerate the deployment of blockchain in Dubai."

Dubai's smart city ambitions extend well beyond the public sector. The Dubai Data Establishment, which is part of the SDO, is currently implementing the world's most ambitious citywide data sharing initiative. Younus Al Nasser, CEO of the Dubai Data Establishment, says that by opening and sharing city data across the public and private sectors, with complete security and privacy, Dubai aims to stimulate a



new data economy and raise the quality of life for everyone in the city. "We do not want just to collect data but to create the highest value out of data," Al Nasser explains. "When data is shared between organizations, it can make services more efficient and the people who use the services more satisfied."

"We can even use data to generate future predictions and insight. Soon we will be able to bring people a service without them asking for it. It all forms part of Smart Dubai's mission to embrace technology and innovation and make Dubai not only the smartest but also the happiest city in the world." ■

NEW TECH ON THE BLOCK

Recognized by Euromoney in 2017 as the Best Digital Bank in the Middle East and the Best Bank in the U.A.E., Emirates NBD is at the forefront of the digital transformation of financial services in Dubai. The official banking partner of Expo 2020, the bank is empowering customers with its investments in new technologies and implementing Smart Dubai's vision of a smarter, happier city.

How quickly are your customers in Dubai adapting to digital banking?

We are continuously introducing new solutions into our banking channels, such as a natural language virtual assistant in our call center and a chatbot on Facebook. Recent innovations include FaceBanking,



a video banking facility that allows eligible customers to talk to an advisor at any time, and SkyShopper, an exclusive e-commerce platform. For our millennial customers in Dubai, this sort of interaction is more important than traditional branch banking. Our customers hardly need to go to into the branch anymore.

We already have more than 5,000 customers for Liv., our digital-only bank which uses data analytics to offer our millennial customers attractive promotions. They can even open an account

“We believe blockchain will change the way we operate forever.”
 Abdulla Gassem,
 Group COO,
 Emirates NBD

online without going into a branch.

How do you think the banking sector can contribute to making Dubai a smarter and happier city?

We share the vision of the government of making Dubai the smartest city in the world. We work closely with the Smart Dubai Office. Financial institutions have an important role to play in building the local Smart City ecosystem, by enabling online government services and online transactions. Emirates NBD intends to continue to be an

engine of innovation for financial services in Dubai and the U.A.E.

What is the potential for blockchain to transform banking in Dubai?

Exchanging documents is a process that can take days to complete, but blockchain eliminates the need for it, with high levels of efficiency, security, trust and transparency. We will soon be launching some of the world's first ever trials of blockchain with the government here in Dubai. We are already testing blockchain for sending remittances to India. We are also adopting Check Chain technology, which uses blockchain and QR codes to authenticate post-dated checks. It brings an added layer of security to our check clearing system, strengthening authenticity and minimizing potential fraud. We are still at a very early stage for blockchain. It has massive potential for our business. ■

UNIFYING HAPPINESS

Celebrated for its spectacular and fast-changing skyline, at ground level the city of Dubai is increasingly focused on the well-being and happiness of its inhabitants.

For tourists, business travelers and long-term residents alike, this emphasis on the human side of 21st century urban living is helping to differentiate Dubai ensuring the city remains an ideal place to visit, invest in, or call home.

“Other cities can learn a lot from Dubai's happiness strategy.”
 Yousef Al Assaf,
 President, RIT Dubai

“Happiness is a hot issue in Dubai right now,” says Mohammed Shael, CEO of Corporate Strategic Affairs at the Dubai Economic Department (DED).

In 2017, the city's Happiness Meter was rolled out rapidly at private sector organizations such as retailers. Based on information from the meter, changes are made to organizational processes and procedures to make sure they are meeting their end users' requirements.

“Capturing customer happiness at a service counter is only the beginning of the city's transformation”, says Danish Farhan, founder and CEO of consulting and design agency Xische & Co., which worked with the Smart Dubai Office to create the city's Happiness Agenda. The program provides a framework for so-called Happiness Champions at organizations in Dubai, founded in positive psychology and supported by smart technologies. “As a young and agile city with a supportive, centralized leadership, Dubai presents a green-field opportunity for emerging technologies,” Farhan adds.

At the same time, Smart Dubai is focused on educating people and



The Rochester Institute of Technology in Dubai offers a diploma in Corporate Happiness organizations about how to prioritize happiness in their work and daily lives. In partnership with Smart Dubai, the Rochester Institute of Technology (RIT) in Dubai has started providing a professional diploma in Corporate Happiness.

“If you want to have happy customers, you need happy corporations,” says Yousef Al Assaf, president RIT Dubai. “Our program is designed to train public entities in the science of happiness and to transform them into champions of happiness. They learn how to increase the engagement and commitment of their employees and how to satisfy customers.”

It is not only residents of Dubai who are benefitting from the new focus on happiness. To reach its target of attracting 20 million people in the year of Expo 2020, the main players in Dubai's tourism industry are repositioning the city as a place not only to visit for high-end shopping, but as a city with a unique culture and history to enjoy over an extended stay. “People can really feel passionate about Dubai,” says Issam Kazim, CEO Dubai Tourism and Commerce Marketing (DTCM). “There is an unbelievable energy here that is genuine and natural.” ■



دبي الذكية
SMART DUBAI
 حياة أسعد HAPPY LIVING

2021 OBJECTIVES



Interconnected Society
 With Easily Accessible
 Social Services



Globally Competitive
 Economy Powered by
 Disruptive Technology



Smart Livable &
 Resilient City



Digital,
 Connected, Lean
 Government



Clean Environment
 Enabled by
 Cutting-edge ICT
 Innovations



Smooth Transport
 Driven by Autonomous
 & Shared Mobility
 Solutions

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TECHNOLOGY DRIVES TRADE EXPANSION

Located at the crossroads of Asia, Europe and Africa, with container ships and cargo planes loading and unloading freight around the clock, Dubai's bustling ports and airports have become critical parts of the global trade map.

Smart technology will secure our place in the global supply chain."

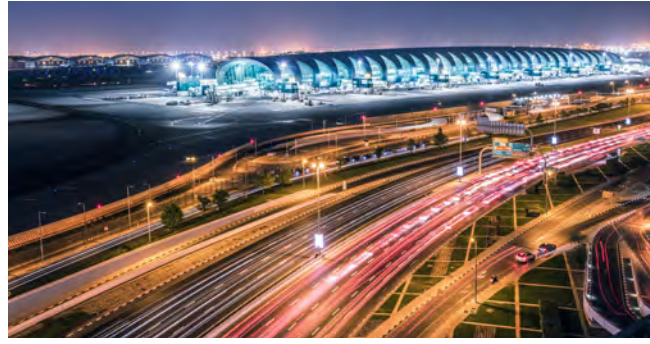
Sultan Ahmed bin Sulayem, Group Chairman & CEO, DP World

To manage ever-rising volumes of traffic with increased speed, greater efficiency and lower costs, the Emirate's transport infrastructure companies are embracing

state-of-the-art technologies including digitalization, mobile data and automation.

"Smart Dubai has a major role to play in connecting east to west. Our biggest challenge today is without doubt how to stay ahead of technology," says Sultan Ahmed bin Sulayem, the group chairman and CEO of DP World, the giant international trade enabler, which runs Jebel Ali Port in Dubai. "We are always thinking about how to use technology to speed up our operations and save time for our customers."

Over at Dubai International Airport, which is increasing its capacity from 90 million people a year currently to 118 million people by 2023, Paul Griffiths, CEO Dubai Airports, agrees that it is customer demand that is driving increased spending on technology. "Using technology and changing processes to increase capacity and



Dubai International is the busiest airport in the world in terms of international passengers improve the customer experience is critical to the success of the air transport sector and to the success of Dubai," he says.

In the trade sector, many of DP World's customers have invested heavily in huge new vessels to offset the impact of low freight rates. As a result, the company has had to transform its ways of doing business, deploying new technology to be able to handle the very largest ships and unload them safely and efficiently. At

its flagship Jebel Ali Port, DP World has acquired a whole new generation of semi-automated and remote-controlled cranes, with one worker now controlling a whole series of cranes.

Meanwhile, in its \$1.6 billion Terminal 4 expansion project now under construction, DP World plans to run a fully automated container terminal, along the lines of the company's groundbreaking Rotterdam World Gateway operation in the Netherlands. ■

THE CUSTOMER FIRST

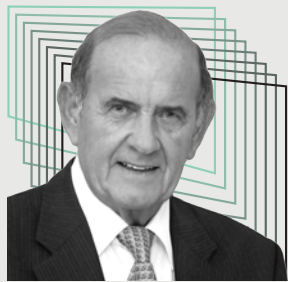
How important is smart technology to the operations of Dubai Duty Free?

Last year, Dubai Duty Free sold 74 million pieces of merchan-

its legitimacy. We also introduced a facility several years ago called Dynamic Currency Conversion, where people can pay either with local currency or their own currency. It speeds up our operations and satisfies our customers.

The Happiness Agenda is embraced by the team at Dubai Duty Free."

Colm McLoughlin, CEO, Dubai Duty Free



dise, conducted 27.1 million transactions, and delivered 147,000 pallets of merchandise to its outlets. We couldn't do that without technology. Years ago, you had to get approval from the bank just to pay with a credit card. Now, in Dubai Duty Free you show it to the register and you are assured of

How are your sales currently performing?

We are at plus 2% on our sales, this year versus last year. That is a strong performance for the duty free industry in the present environment. The sale per head for passengers is an important measurement in duty free. Most airports sell to 18 or 19% of

departing passengers. In Dubai Duty Free, we sell to just under 40% of departing passengers. Very few airports in the world that have a sale per head as high as we do.

How can technology innovations help increase sales?

Technology continues to play a huge role in our retail operation. We are committed to embracing technological advances that enhance our service to our customers, both from the back end through improvements in our logistics and the front end, whereby we aim to make the shopping experience fast, friendly, efficient and convenient.

In line with developments in mobile payment technology, Dubai Duty Free has already implemented Samsung Pay which allows customers to complete their payments via an application which is resident on their Samsung phones. We are currently working

on a project to extend mobile payments to support Apple Pay which will be launched by the end of this year.

As a part of continuous enhancements to Dubai Duty Free's online services, we introduced a click-and-collect service and also a translation of our website into Mandarin.

What impact will Expo 2020 have on your business?

It is going to be terrific. We are expecting an additional 25 million visitors to Dubai, and need to be ready to handle the additional number of customers that this will create.

Looking beyond 2020, by around 2025 we will have 80,000 m² of retail space and 10,000 employees. Our business is now around \$2 billion per annum and we expect it to be in excess of \$3 billion by 2020. ■



Innovations that put you first

Proud Premier Partner of Expo 2020 Dubai

For over 50 years, our passion for innovation has provided our customers with products and services that have made a difference in their lives. Whether in Retail Banking, Wealth Management or Wholesale Banking, this has been at the heart of everything that we do.

Today we are proud to partner with Expo 2020 Dubai to help bring opportunity, mobility and sustainability to the world.



OFFICIAL PREMIER PARTNER

THE CONNECTED CITY

Years of continuous investment from public organizations and private sector companies have provided Dubai with world-class infrastructure for communications and transport. The Emirate is now poised to reap new rewards from that investment, as futuristic Smart City services emerge to transform urban living.

“The connectivity is already there in Dubai,” says Osman Sultan, CEO of telecom carrier du, which is the strategic partner of the Smart Dubai initiative. “Our aim now is to move beyond connectivity. We want to help turn the data from Dubai’s digital infrastructure into information and knowledge, to create new smart solutions for government departments, for businesses, and for their customers.”

With the Smart Dubai Office, du is developing and implementing the Smart Dubai Platform, which



The Volocopter autonomous air taxi service being trialled in Dubai

will act as the central operating system, providing access to city services and data for the private and public sectors.

“Dubai is a beacon of hope for the emerging world.”

Danish Farhan,
Founder and CEO,
Xische & Co

“Dubai will become a truly Smart City when the data is transformed to improve the quality of life of

inhabitants and visitors and to help policymakers plan for the future. That is the main purpose of the Smart Dubai Platform,” Sultan says.

It is not only companies in the ICT sector that are helping creating a smarter, more connected city. The city’s Roads and Transport Authority, which is Smart Dubai’s partner for mobility, has rolled out a series of new functions for its popular Nol payment card: users can now recharge the card just by touching it against the back of smartphones with the

public transport app installed. “We have also introduced the Nol card outside public transport,” explains Abdulla Al Madani, CEO of corporate technology support services at the RTA. “People can now use the card to pay the entrance fees to museums and parks and to make micropayments.”

“Dubai has a simple and bold vision,” says Danish Farhan,

“The introduction of the Smart Dubai platform marks a significant step towards the U.A.E.’s smart city transformation.”

Osman Sultan,
CEO, du.

founder and CEO of Dubai-based design agency Xische & Co. “Technology is a means to the end and the end is the happiness of the people. Dubai is leading the way in piloting the city of the future.” ■

Dubai Duty Free

WORTH FLYING FOR

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Hundreds of the world’s most desirable brands.
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