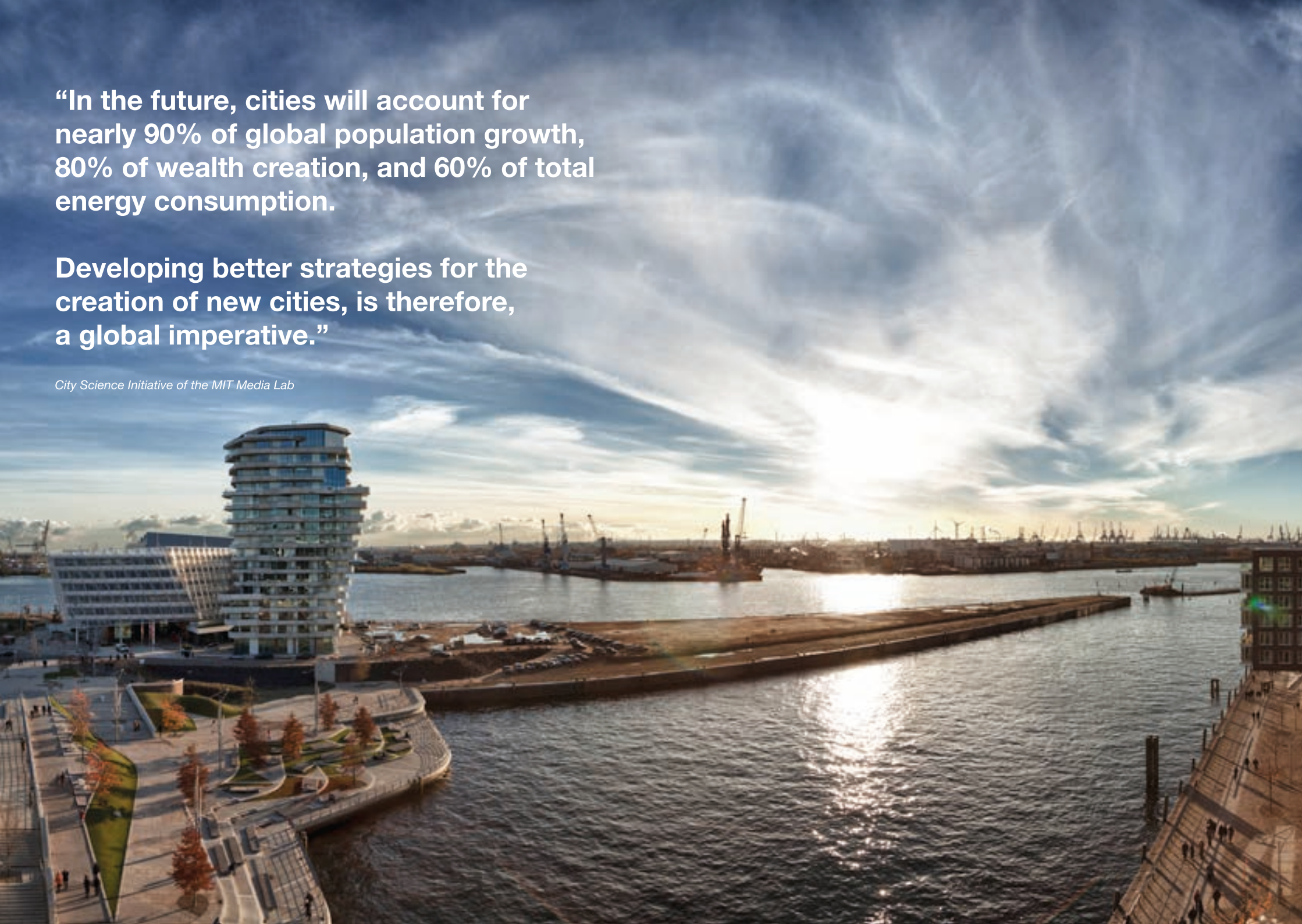


“In the future, cities will account for nearly 90% of global population growth, 80% of wealth creation, and 60% of total energy consumption.

Developing better strategies for the creation of new cities, is therefore, a global imperative.”

City Science Initiative of the MIT Media Lab

Olaf Scholz

First Mayor
Free and Hanseatic City of Hamburg

“Cities have always thrived because of their diversity. Nowadays embracing diversity also means to use the digital technologies available to make modern cities even more attractive: livable for citizens and appealing for companies.

This is why Hamburg is implementing its digital city strategy which will not only impact the city’s administration but many other sectors like the smart port, logistics, mobility, energy, culture or education.

We intend to create a climate throughout the city in which Hamburg can develop into a laboratory of digital modernity.”

The Smart City

A port that grows without the need for more space. A city that is attracting more and more people, and yet offers everyone plenty of elbow room.

Office buildings that supply themselves with electricity. Utopia? By no means. A journey through the Hamburg of tomorrow – which is already here today.

Hamburg, one of Europe's most livable and economically strongest cities, is growing like most metropolitan areas around the world. This growth is challenging, because political, ecological and geographical tasks are bundled into the assignment to using existing space in a new way alongside ensuring sustainability, quality of life and economic growth.

This is why Hamburg turns its Smart City approach into reality by establishing smart technologies and implementing numerous interdisciplinary pilot projects. These tangible steps in the fields of energy, mobility, logistics, governance, society and science positively impact not just the city's innovative and sustainable development but social progress as well.

The concept of „Smart City" includes the idea of digitally enhancing the habitat "City" in order to benefit its citizens. This does not only include the intelligent steering but also the active participation of the public in identifying and creating trends and new developments. The offering of access to information via open data transparency initiatives as well as the possibility to share and cross-link it, is also a priority.

In 2014, 9.7 million containers were handled in Hamburg, a figure that is expected to rise to 15 million by 2025. The port is growing – much like the city at the heart of which it lies. Hamburg's population increases annually by more than 5,000 inhabitants. City life is becoming more and more attractive on account of employment opportunities, education facilities, good local transport and leisure activities. By 2050, 6.3 billion of the world's population will live in large cities. Urbanisation – for some a challenge, for others an opportunity.

The same holds true for the process of digitization. A process that touches many aspects of urban life. This applies not only to administration, infrastructure, business, transportation, science and research but also to education, energy and healthcare, as well as other areas of public life.

The city of Hamburg is determined to approach digitization as an opportunity and to tap its potentials for providing greater economic power and quality of life for Hamburg's citizens.

Digital City Strategy

To bundle the processes in these diverse areas, coordinate them, and harness synergies, the Senate of Hamburg agreed on the "Digital City Strategy" and set up a steering center for the digital city in the Senate Chancellery. It is designed to provide a better overview of the numerous projects and processes already under way in the city. The strategy follows a holistic approach and wants to facilitate the creation of networked solutions.

The underlying objective is always one of using technology to improve the quality of services and to use resources more efficiently. At the same time, this creates the opportunity to open up innovation areas to companies, in which they can have a go at new options and technologies and develop them to market readiness in pilot projects.

SmartPORT Hamburg

Typically for Hamburg the movement to digitize was pioneered by the port. It represents one innovation motor of Hamburg. The smartPORT will facilitate the increasingly efficient use of the port area, which is limited by its inner-city location. And it will produce advantages for the port operations and the environment.

Being the backbone of Hamburg's economic power, the port plays a major role in creating a cleverly connected city. One constant task is to optimize traffic management, safety, infrastructure and environmental conditions in the port. The Smart Infrastructure for Ports (SI4P) projects aim to improve traffic management, reduce traffic related delays and loss of revenue. The Kattwyk bridge, a major entry to the port, is of special interest. Here, the vendor consortium is using road sensors and cameras to unlock the potential of a new level of traffic monitoring, smart street lighting, smart parking and infrastructure monitoring.

Smart Energy: Self-sufficient Greenpeace headquarter, HafenCity Hamburg

HafenCity Hamburg

Another lighthouse project is Hamburg's "HafenCity" that directly borders Hamburg's port. This city quarter especially plays an international pioneering role in sustainablity and smart living as HafenCity is setting leading-edge standards for the future.

Hamburg's newest city quarter is already Europe's biggest urban development project and still growing. Pilot projects aim to reduce and optimize traffic and create intelligent solutions for real estate management. Visitors and inhabitants will soon enjoy an integrated solution for mobility, including almost seamless transitions between car/e-cars and bike/e-bikes. Stadtrad Hamburg is already offering 30mins of free rides on bikes in most parts of the city and the most successful bike-sharing project in Germany. Overall, Hamburg intends to raise the share of bike rides in the mobility mix.

The following pages detail a few selected pilot projects and initiatives of Hamburg's Smart City approach

“Hamburg is a city of innovations. Our Smart City initiatives are a way of continuing on this path and preparing ourselves for the future.

The opportunities presented through the networking of people, processes, data, and things will not only drive progress in the cities and municipalities, but also offer citizens greater convenience and therefore a higher quality of life.”

Frank Horch
Senator of Economic Affairs
Transportation & Innovation
Free and Hanseatic City of Hamburg

SmartPORT

Finding the right balance between economy and ecology has become a key issue for ports all over the world.

In today's world of globalization and digital transformation, creativity and alternative methods are required to achieve economic growth with little impact on the environment. In Hamburg, we are faced with the challenge that we cannot expand our roads, rails and waterways indefinitely. In Hamburg, port management is in particular about increasing efficiency of existing facilities and transport routes. This not only includes meeting the current demand, but doing so with the future in mind. We have focused on modern IT processes, and we will certainly continue to pursue that path. The Hamburg Port Authority (HPA) is aiming to make the Port of Hamburg a "smartPORT". "Smart" meaning the exchange of information to increase the quality and the efficiency of the port as an important link in the supply chain. It also means making the port less dependent on conventionally generated electricity by switching to renewable sources. Under the smartPORT strategy, the HPA has identified two strong pillars: smartPORT energy and smartPORT logistics.

smartPORT energy was initiated jointly by the HPA, the State Ministry of Urban Development & Environment and the State Ministry of Economic Affairs, Transport & Innovation with the objective to extend the Port of Hamburg's green-energy strategy beyond the HPA's scope of action. The second pillar smartPORT logistics refers to intelligent traffic and trade flow solutions in the Port of Hamburg, taking account of both economic and ecological aspects. A special focus of the strategy lies on infrastructure, traffic flows and trade flows. When it comes to transporting goods, one important aspect of the intelligent port is to ensure that the information about traffic conditions is up to date and available fast. If traffic flows smoothly on the roads, there will be less congestion and travelling times and/or waiting times for trucks will be shorter. smartPORT has been developed to ensure quality information both strategically and operatively through suitable traffic management measures.

Containerterminal at Smart Port Hamburg

Port Monitor

The Port Monitors draws its information from various sources such as electronic charts, vessel positions, water levels, berths, bridge heights and widths, current construction sites, planned diving missions, etc.

The information is retrieved from existing single systems and merged. Via links it can be called up directly from the Port Monitor.

The Port Monitor is the main tool to manage vessel movements on the waters of the Port of Hamburg and a central element of the Vessel Traffic Service Centre.

In addition a mobile chart-based information system (tablet app) was added to the Port Monitor that now provides other port-related information, e.g. about rail and road traffic conditions.

Hamburg Port Authority manages the smartPORT pilot projects

SmartROAD

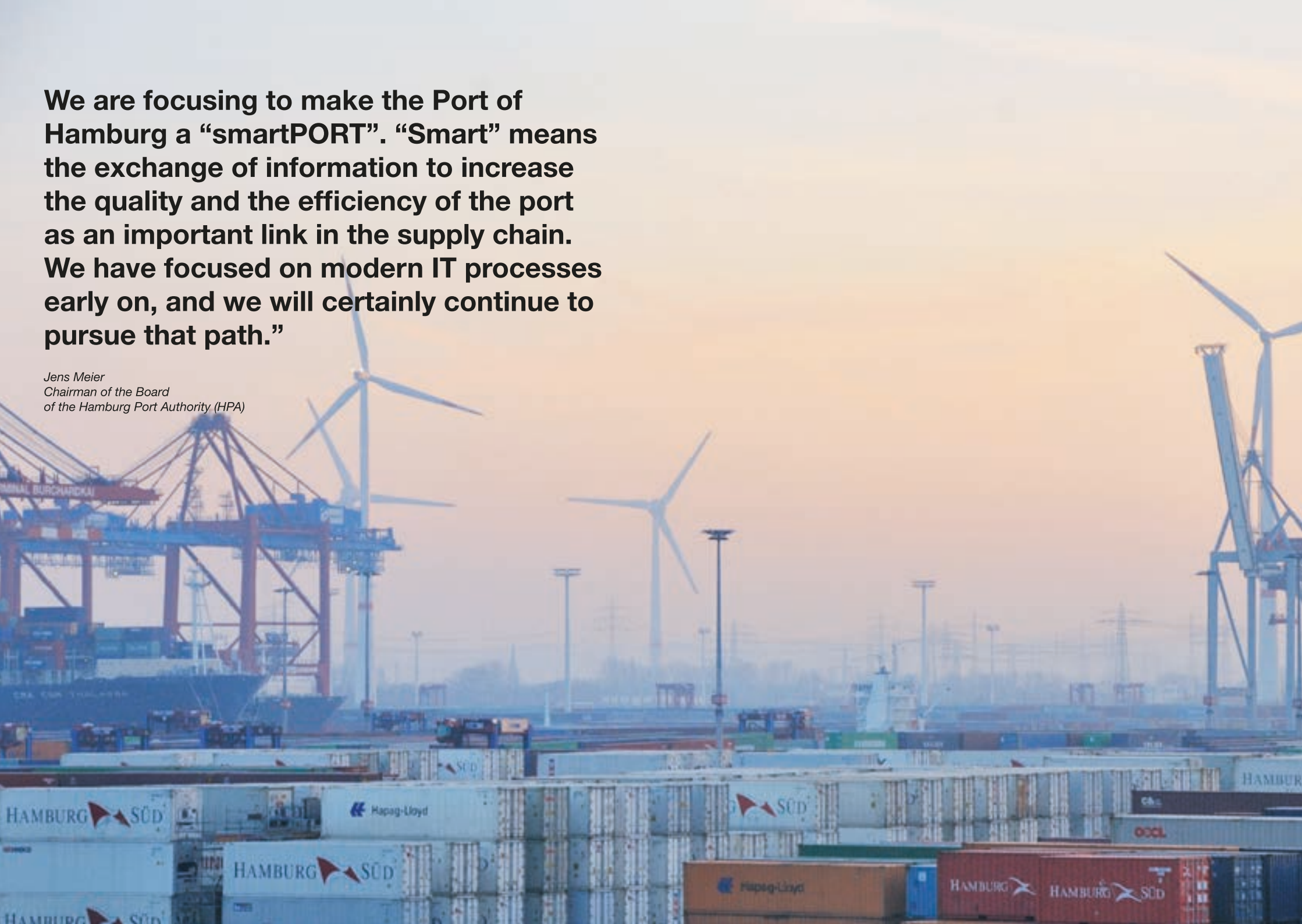
Pilot operations along an entire road section to analyse what can be achieved by deploying information technology.

The information gained under the project will be useful when it comes to installing the technology throughout the port:

- Current traffic conditions are determined and displayed (smartTRAFFIC)
- Weather and environmental data are collected (smartENVIRONMENT)
- Depending on the light conditions and objects along the road section road lighting will be actively controlled (smartLIGHTING)
- Sensors capture the strain on and the condition of the Kattwyk Bridge (smartSENSING)
- The data collected are analysed and displayed on a dashboard (smartANALYTICS)

We are focusing to make the Port of Hamburg a “smartPORT”. “Smart” means the exchange of information to increase the quality and the efficiency of the port as an important link in the supply chain. We have focused on modern IT processes early on, and we will certainly continue to pursue that path.”

Jens Meier
Chairman of the Board
of the Hamburg Port Authority (HPA)



HafenCity University Hamburg

Capital of Knowledge

Education and training, research and development, and the transfer of innovation and knowledge plays a key role in Hamburg.

In Hamburg and its Metropolitan Region, around 94,000 German and international students are enrolled at 19 public and state-recognised universities, five private universities and at the University of Cooperative Education Hamburg. Key research institutions include the Technical University of Hamburg (TUHH) or the University of Applied Science (HAW), three Max Planck Institutes, Kuehne Logistics University (KLU), and knowledge transfer experts like TuTech in Hamburg-Harburg. All of these contribute to the creation of knowledge and innovation in and around Hamburg.

This range of talent is complemented by ten collaborative research centres and nine graduate schools. Hamburg also maintains an intensive dialogue with higher education and research institutions in the region's surrounding towns such as Wedel, Stade, Geesthacht, Buxtehude and Lüneburg.

Higher education in Hamburg

With around 41,000 students, the University of Hamburg (est. 1919) is Hamburg's largest higher education institution. The Hamburg University of Applied Sciences is among Germany's largest technical colleges, with a student body of around 16,000. At the Hamburg University of Technology, research, teaching and technology transfer are centered on the guiding theme of developing technology for people.

The HafenCity University (HCU) for Environment and Metropolitan Development is the only university in Europe devoted solely to research and teaching in the field of the built-up environment, offering architecture, civil engineering, geomatics and urban planning under one roof.

Research and Knowledge Transfer

A number of highly specialised research facilities and institutes supplement the diverse range of public and private training and education facilities of the Hamburg Metropolitan Region. In recent decades, a culture of knowledge has evolved here, successfully combining fundamental research and knowledge transfer for the use in innovative products and technologies. In this way, the region has established itself not only nationally but also internationally as one of the leading centres for climate research, technology development and life sciences.

HOOU – Hamburg Open Online University

A concept from Hamburg that even impressed visitors from MIT and Harvard is the Hamburg Open Online University. It was developed jointly by the state universities located here, enabling them to further evolve their possibilities for teaching and learning in the digital context.

In contrast to massive open online courses with huge participation but even larger dropout rates, it will offer knowledge resources, "a user database for locating suitable learning-partners, and a topic database.

CityScienceLab:
HafenCity University Hamburg has launched a collaboration with the MIT Media Lab in Boston.

Hamburg as a living laboratory for digital urbanization is the object of the cooperation between the HafenCity University Hamburg (HCU) and the Changing Places Group of the Media Lab at the Massachusetts Institute of Technology (MIT). Co-funded by the Free and Hanseatic City of Hamburg, the cooperation will set up the CityScienceLab at HCU (CSL@HCU) as a research unit to explore processes of urbanization in the digital age. The lab will work on a wide range of topics related to concepts of ›digital cities‹ and ›smart cities‹ and will furthermore investigate through experiments how these theoretical ideas can be applied to Hamburg. In order to fulfill this goal the lab will cooperate with scholars from other universities as well as companies and local initiatives to develop and test new forms of urban development.

Contributing to the Olympic City bid

During its three year initial period CSL@HCU lays its main geographical focus on the neighborhood of Rothenburgsort which plays a vital part in Hamburg's plans for the development of the city's eastern districts along the rivers Elbe and Bille. Closely linked to the analysis of Rothenburgsort the researchers of CSL@HCU will contribute significantly to the current creating of an Olympic City on the Kleiner Grasbrook. In close geographical proximity to Rothenburgsort the Kleiner Grasbrook is an island in the river Elbe, which is allocated as a major site for Olympic sport venues and housing for athletes should Hamburg be chosen as the host for the Olympic Summer Games in 2024 or 2028.

CityScope – 3D visualization platform

Finding new ways of communication in urban planning and urban design is one of the lab's predominant themes. The plans for both neighborhoods will therefore be visualized by a CitySCOPE – a scalable 3D-platform that facilitates the evidence- based, data-driven processes for urban design. It allows all players in the process to easily communicate changing or alternative ideas regarding the planned target. For the goal of sustainable urban development, tools like a CitySCOPE are a means to develop new approaches to citizens' participation and decision making in planning processes.

Many aspects of academic debates around the conceptualization of ›smart cities‹ including, for example, urban technological infrastructures or sharing economies in an urban context will be central to the work at CSL@HCU. At the same time, this new research lab at HCU will take on the crucial task to reflect critically concepts of ›digital cities‹ as the basis for urban innovation.

MKG – Museum for Arts & Crafts

Digital Culture

Digitally Creating Cultural Access and Cultural Education

Initiated by the City of Hamburg, the federal IT planning council has added the focus on digital culture to its study “Zukunftspfade – Digitales Deutschland 2020” (Paths to the future – Digital Germany 2020).

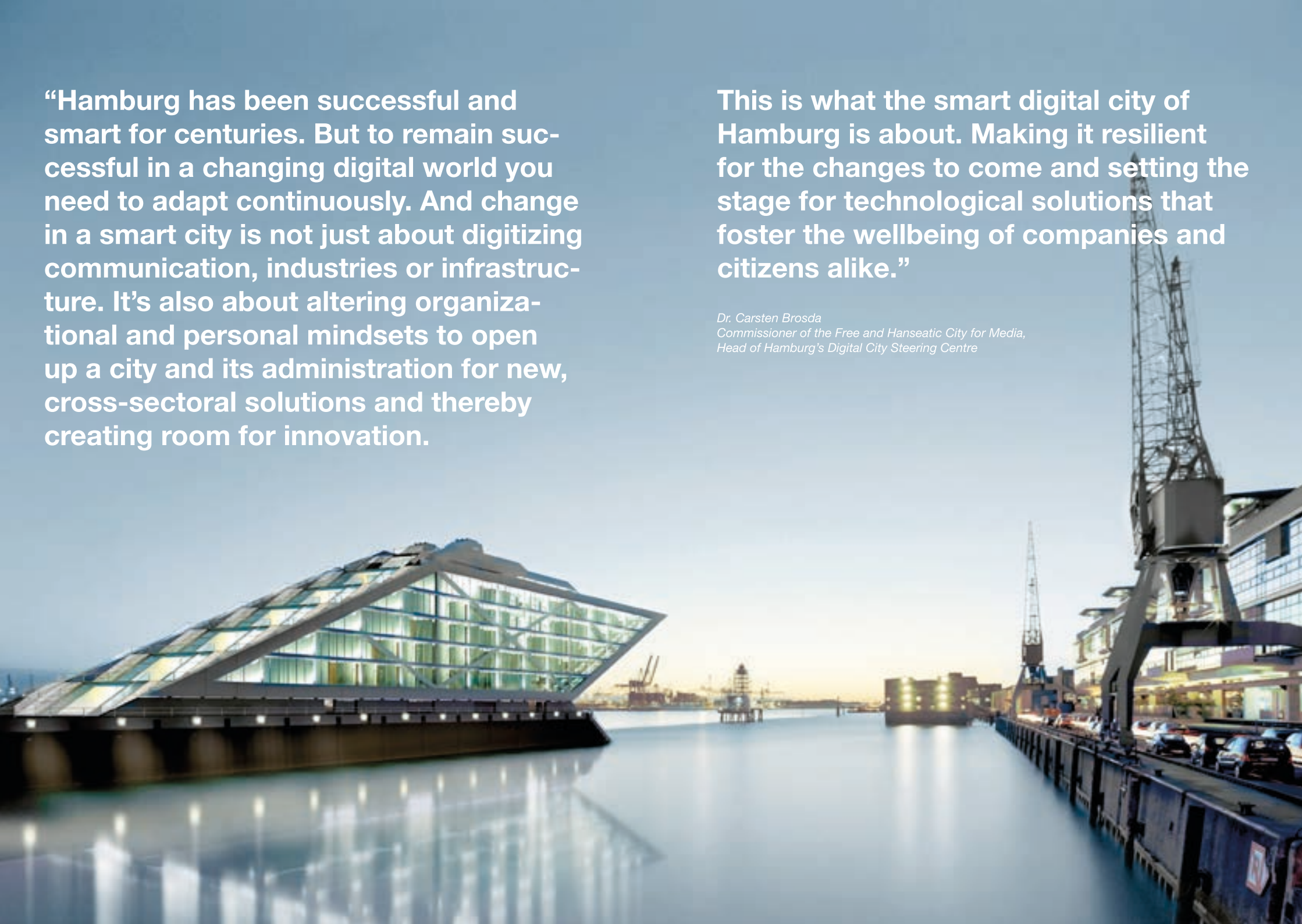
The „eCulture Agenda 2020” is one contribution by the Cultural Department to implement Hamburg’s Smart City concept – or as it’s called in Hamburg the “digital city strategy”. One strategic aim included in the Agenda is the creation of digital access to cultural goods. At the core stands the concern to enable citizens to actively participate in cultural programs via digital offers. To achieve this, the significant cultural institutions of Hamburg have committed to act jointly and create an “eCulture Cloud” in order to combine their competences.

This Cloud aims at making available digitally enhanced cultural content as well as related eLearning content. In 2015, important initiatives have been detailed and are now incorporated in Hamburg’s 2016 IT planning process.

As of now, the actual implementation of the eCulture Agenda 2020 has already begun. For years, the cultural institutions have been digitalizing their collections. Additionally, pilot projects such as eKunsthalle / eMuseum, eFoto, the Digital State Archive as well as the further development of the WiFi infrastructure are currently underway. Recently, the Cultural Department of the City of Hamburg has released the App “Kulturpunkte” for mobile devices, which offers its users the possibilities to experience cultural institutes, art works and monuments in Hamburg City and exchange their opinions and experiences with other users.

The digital exploitation of cultural goods opens up opportunities to offer new, low-threshold access to highly diverse audiences (young citizens [“digital natives”], citizens with migration backgrounds, citizens with disabilities, older generations). Additionally, the digital presentation of cultural goods holds great value to schools and the field of education in general. It offers direct and straightforward access to content concerning numeral cultural topics for students and teachers. Information could easily be found – offering regional references and high quality.
At the moment, the Cultural Department of the City of Hamburg is in talks with the Department for Schools and Vocational Training of the City of Hamburg regarding future developments in this field.

So far, this concept has not only gathered national but also international interest. Cooperation agreements have been made with Birkbeck, University of London as well as the University of Florence and the City of Florence. Exploratory understandings have been reached with Deutsche Digitale Bibliothek (German Digital Library) and Europeana.



“Hamburg has been successful and smart for centuries. But to remain successful in a changing digital world you need to adapt continuously. And change in a smart city is not just about digitizing communication, industries or infrastructure. It’s also about altering organizational and personal mindsets to open up a city and its administration for new, cross-sectoral solutions and thereby creating room for innovation.

This is what the smart digital city of Hamburg is about. Making it resilient for the changes to come and setting the stage for technological solutions that foster the wellbeing of companies and citizens alike.”

Dr. Carsten Brosda
Commissioner of the Free and Hanseatic City for Media,
Head of Hamburg’s Digital City Steering Centre

Great views for the Salons: overlooking the new architectural icon of the Elbphilharmonie

Smart City Salons

The monthly Hamburg Smart City Salons invite innovators, tech players and administrative decision makers across diverse industries to share knowledge and a vision for the future of better cities.

Hamburg is driving the course to become one of the leading smart cities of Europe – first pilot projects are successfully underway.

The salon series is curated by MLOVE with topics like mobility, smart health, logistics and smart home that are discussed with members of the solution provider ecosystem like Cisco; with MIT Media Lab, Hamburg universities and other leading cities – as well as creative startups looking at the impact for smart citizens.

Kent Larson, Director of the City Science initiative at the MIT Media Lab

Dr. Sebastian Saxe, CIO & CDO of Hamburg Port Authority (HPA)

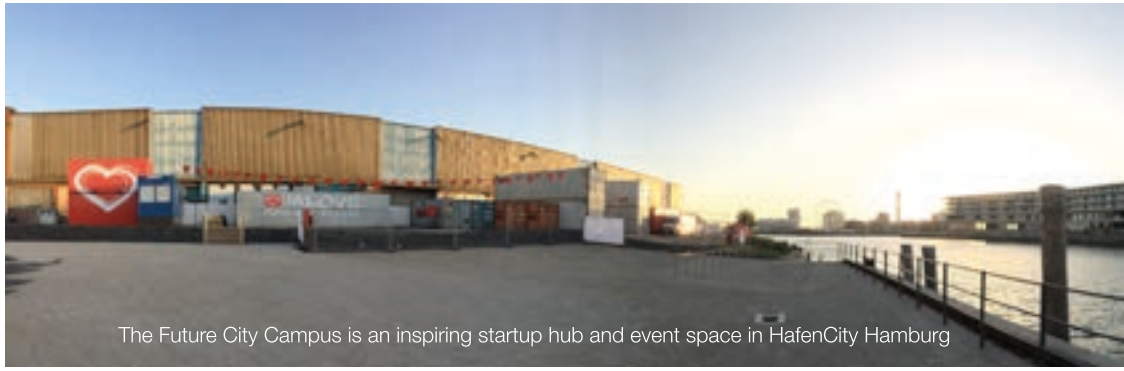
Dr. Carsten Brosda, Head of Hamburg's Digital City Steering Centre

John Baekelmans, CTO at Cisco

Senator Frank Horch opened the Smart City Summit and salon series

MLOVE Future City Campus features a unique showroom about the Hamburg Smart City projects

Future City Campus: The innovation consultancy MLOVE created the Hamburg Smart City Showroom & CoLab as a startup hub and workshop space with a unique design from shipping containers in HafenCity Hamburg.



The Future City Campus is an inspiring startup hub and event space in HafenCity Hamburg

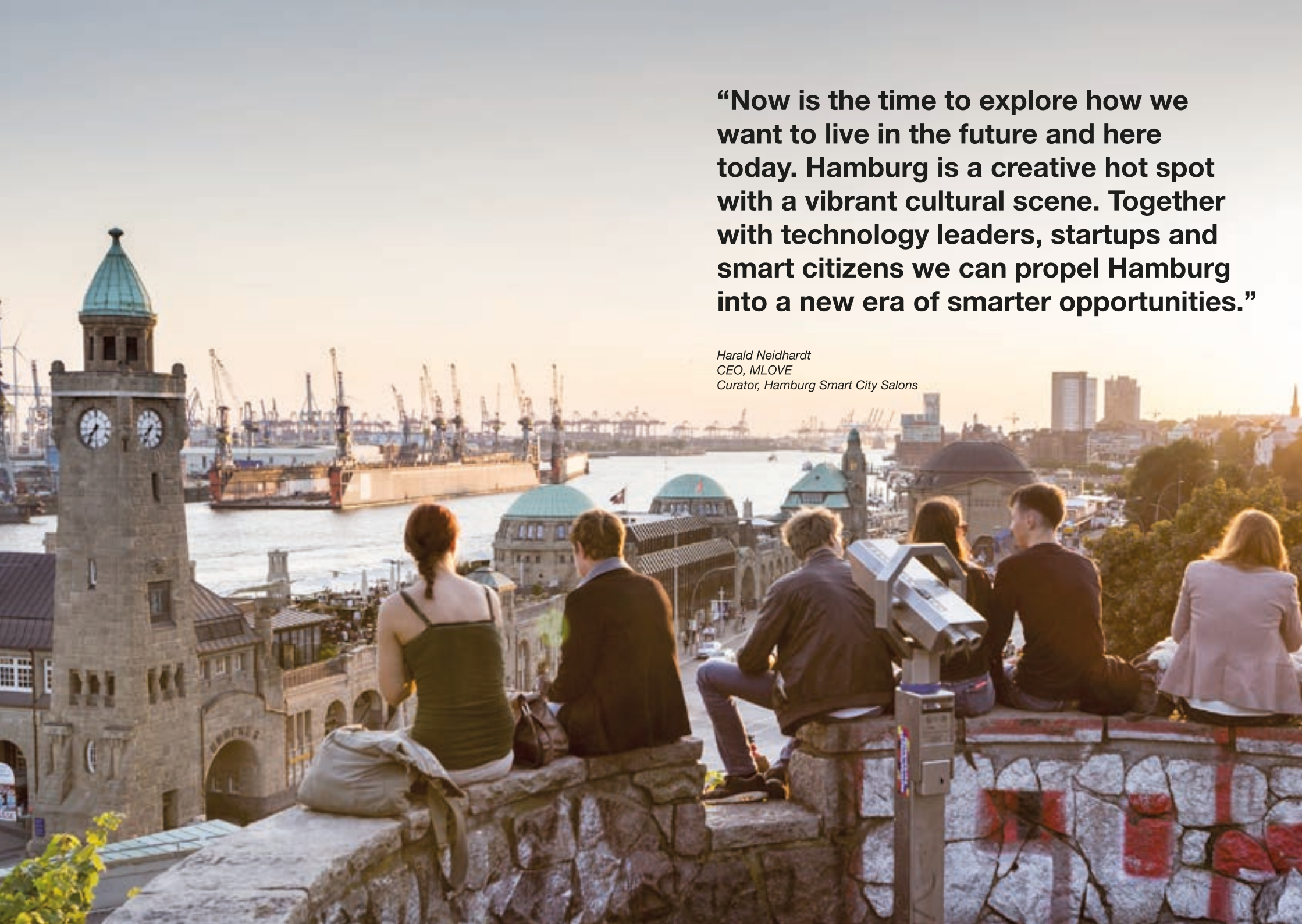
The MLOVE Future City Campus was opened by Senator Horch in June of 2015 – in the same time frame as two major international events were hosted in Hamburg: Major City of Europe and IAPH.

Senator Horch with Harald Neidhardt, MLOVE CEO at the Campus Opening

More events with international speakers were held on the Campus: MLOVE ConFestival and the Maker City Fest – both with an emphasis on Smart City, Mobility and the Internet of Things. Inspiring workshop spaces and startups like floatility joined the Campus as part of a Maker Lab environment. International delegations visited the Hamburg Smart City showroom that features some pilot projects by Cisco, UKE, Avodaq and the HPA.

MLOVE ConFestival – International speakers about Smart & Maker Cities

A CoLab workshop room inside a 40ft Container is designed to inspire future insights about 2025



“Now is the time to explore how we want to live in the future and here today. Hamburg is a creative hot spot with a vibrant cultural scene. Together with technology leaders, startups and smart citizens we can propel Hamburg into a new era of smarter opportunities.”

Harald Neidhardt
CEO, MLOVE
Curator, Hamburg Smart City Salons

New Mobility

Mobility is of the utmost importance in a city such as Hamburg which is defined by industry, trade and services.

The Hanseatic city's environmentally-friendly transport concept combines good local transport, car sharing, e-mobility and city bike rental. This mobility mix contributes to the above-average quality of life and to the stable economic growth of Hamburg. More than 2 million inhabitants of the city and surrounding area use Hamburg's public transport every day. The majority of Hamburg's population (99%) lives less than 300 metres from a city train station, underground train station or bus stop. More and more employers are rewarding their employees with the cost-effective "Jobtickets". The local public transport system is an innovation driver behind emission-free mobility: Hamburg is already a pioneer in the use of climate-neutral hydrogen-powered buses. From 2020, Hamburger Hochbahn AG and the city are planning to only use emission-free buses. Economic reasons also play a role. In the coming decades, fossil fuels will become ever more expensive, and innovative, alternative transport ever more important. At the same time, the use of hydrogen as a storage medium for renewable energies is becoming more economic.

Switchh – smart mobility made in Hamburg

Switchh is an innovative mobility concept that enables people in Hamburg to choose the most flexible connections between different modes of transport – a concept that is unparalleled in Germany. Its objective is to reduce car traffic in Hamburg. The project is based on the idea of "complementary mobility". Since October 2013, Switchh has been cooperating with Hochbahn AG, the car sharing provider Car2go and the car rental company Europcar. Via an app, Switchh users can choose the best connections by bus, underground, suburban rail, Car2go, rental car, rental bike or taxi, and get the best prices.

Rental Bike Hamburg aims to increase the share of bicycle traffic by 18% by 2015. Cycling your bike in Hamburg should be safe, fast, comfortable, easy and attractive. The basis for this is provided by the bicycle traffic strategy, which has been successively implemented since 2008. Measures include the expansion of the cycle path network, improved bicycle parking options and the StadtRAD bike rental system. 322.000 registered users can now rent a bike via a smartphone app, from as many as 1.800 bicycles at 170 docking stations. The first 30 minutes are free, which gives you plenty of time to access the compact inner city. One million CO2 neutral kilometres were covered by over 2.4 million trips on city bikes anually.

Hamburg focusses on e-mobility and bike rentals

As one of eight German states participating in the "Model Regions for Electromobility" programme, Hamburg already benefits from comprehensive know-how and has built up an e-fleet of way over 600 vehicles – making it the largest in Germany. Hamburg's underground and local railway systems are already powered by green electricity. With 160 vehicles, Hamburg possesses the largest communal electric fleet. Moreover, with 250 charging stations, it has developed one of the densest charging networks. The batteries powering the vehicles also function as storage mediums (example for wind energy), when less electricity is required.

StadtRAD – bike rental system

In January 2014, the three-year field trial "Eco Fleet Hamburg" began. This aims to examine the practical everyday suitability of 450+ electric vehicles in operation, as well as energy consumption and measurable CO2 reductions for businesses. For the future market of electromobility, Hamburg offers above-average economic and employment growth, but also optimal conditions thanks to the partnership between companies, universities and politics.

Additional impulses come from innovative startups like Jaano (Vespa sharing) or floatility with their pilot of lightweight emobility vehicles starting in HafenCity in the fall of 2015.

eFloater – new mobility device by floatility

Unilever headquarters in Germany is a green building in HafenCity

Urban Development

HafenCity is created for the 21st Century

HafenCity is setting leading-edge standards for the future through sustainable urban development. Intensive re-use of old docks and industrial areas is enlarging Hamburg City's area by 40 percent. The principle behind the development of HafenCity is in itself an important criterion for sustainability since, instead of expanding Hamburg into land on its periphery, unused inner-city areas of the port are being regenerated and in addition land is being recycled; interior densification is taking place.

Sustainable development embraces many other primarily ecological, as well as economic and social individual aspects. Sustainability is being initiated at a range of levels, for example building construction, energy supply and mobility.

Efficient Land use

Brownfield development: HafenCity is developing on 157 hectares of former port and industrial sites right next to the existing city centre of Hamburg. The density of buildings, with a site occupancy ratio of 3.1-5.6, is comparable to other European city centres. Per hectare, HafenCity will accommodate 94 residents and 355 people working in the district. Road surface accounts for just 25 percent of the overall surface area.

Sustainable Mobility

Walkable city and cycling-friendly district: an attractive, dense network of different routes and many bridges lead through the new and the existing city centre. The water's edge is fringed with 10.5km of promenades (of which 3.1km are riverfront). Local rental points for bicycles mean CO2-free tours of HafenCity. The new U4 subway line, in service since the end of 2012, is a central element of sustainable mobility. With the opening of the third subway station at Elbbrücken, and the near-completion of HafenCity construction, 35,000 people a day are expected to use the U4. In the future, the share of motorized individual transport should be reduced to 20 to 25 percent (Hamburg average 47 percent).

Resource-Efficient Buildings

Sustainable construction par excellence is promoted by the HafenCity Ecolabel. In 2007, it launched Germany's first certification system for sustainable construction. At least 50 per cent of buildings in eastern and central HafenCity have to match the very high and increasing standards required for the sustainability insignia in gold. The certification system is awarded for energy efficiency and four other categories. It is subject to continual readjustment and now pertains to all building types. Certificates are awarded once energy efficiency has been checked out after one year's operation.

City of short, attractive distances

HafenCity features a fine-grained horizontal and vertical mix of various urban deployments – homes, workplaces, culture, leisure activities and shopping all lie cheek to cheek. A total of 12,000 people will call HafenCity home and 45,000 will work there. Of the total surface area, 37 per cent is available for public uses. This makes for short attractive journeys. Raised mounds under buildings provide car parking space (underground garages), simultaneously providing flood protection.

Low Emission Thermal Energy

The thermal energy system is based on non-technology specific solutions with a CO2 benchmark for a local supply network. Western HafenCity achieves CO2 emissions of only 175g/kWh through district heating, fuel cells and solar collection. That target will be markedly undercut in eastern HafenCity to 89g/kWh through use of regenerative energy sources (biomethane fuel cells, wood combustion and geothermal and solar energy).

Adaption to Climate Change

Due to its water surfaces, wind and space between buildings, HafenCity experiences a reduction in the urban heat island effect in summer. This reduces demand for air-conditioning and increases comfort at home and work. The flood defence concept is leading-edge. Instead of the old 5m above sea-level height of buildings in the port, they now lie at 8 to 8.60m above on artificial compacted mounds which both provide long-term flood protection and preserve their close relationship to the water.

Smart Home

Apartimentum – Europe’s smartest Home

The construction works of the “Apartimentum” are advancing quickly, with first tenants opening their smart doors early in 2016. Owner and investor Lars Hinrichs is the founder of the business network Xing. He is sure to have found a market niche with this a new home of 43 intelligent appartments plus a coworking and eventspace on the ground floor.

The Internet of Things makes instant comfort possible: As soon as the resident of the Apartimentum gets out of his bed, the bathroom slowly warms up. The coffee machine heats up to prepare a quick coffee; the smartphone checks the appointments, the traffic with the best route and also, if necessary, adjusts the wake up-time. The “most intelligent door of the world” recognises an approaching resident by his smartphone and opens automatically.

“With this house, I’m trying to make the sharing economy marketable in real estate. The offer is directed at managers, who temporarily reside in Hamburg, for example when the next step in their career is coming up,” stated Hinrichs about his flat-rate offering of services including the largest amount of e-car charging stations in the parking garage.

Thorben is one of the first patients at the UKE who enjoys staying connected to his classmates.

Smart Health

Project “Blumberg*” – Virtual Classroom and Social Inclusion for Child Patients

A state of the art solution for connecting long term diseased children to their social environment at school as well as at home has been evaluated since March 2015.

The goal of the University Medical Center Eppendorf (UKE) is to enable diseased children to take part in the school and also to be integrated in their usual social environment.

An easy to use mobile video cart is provided at the usual class room to enable the patient to communicate with his teacher and the class by using a mobile device at the hospital as well as at home. The cart is equipped with a monitor that shows the patient to the class room and a camera to show him the black-board, the teacher and scholars. Microphones and loud speakers allow the patient to talk to the class.

In 2015, 3 pilots at different schools and school types and with patients of different ages between 10 and 16, have improved the usability of the solution and helped to optimize the design. Now is the point that this experience leads to a new standardized eLearning approach. The impressive feedback given by the patients as well as by their parents and teachers motivates to establish it as a standard service available for all child patients.

The project has been set up and designed by Cisco Systems and UKE-IT and the technical solution has been developed and implemented by Avodaq AG while the children have been attended by a psychologist of the Children Cancer Foundation.

* Ferdinande von Blumberg initiated local school lessons for diseased children at Eppendorf Hospital in 1898

“Modern cities, like companies, are in competition with one another. They search for opportunities to create jobs, grow, increase profitability, become more efficient, and, above all, improve the quality of life for their citizens. Cisco is proud to be working with the City of Hamburg and the Hamburg Port Authority to promote innovation and make the most of the opportunities presented by the Internet of Everything.”

Wim Elfrink
Cisco Systems
Executive Vice President

Hamburg‘s Alster – an inner city lake is attractive for its citizens and visitors

Smart City Facts

By 2050, 70% of the world’s population will be living in towns and cities.

The global market for smart grids and smart homes is estimated to be around $10 bn in 2020.

Until 2016, $30 bn will be invested for the installation of sensors in smart cities – a fivefold increase since 2011.

50% of all buildings in global smart cities will be fitted with intelligent building systems in less than five years from now.

In 2025, half of the world’s smartest cities will be found in Europe and North America. In 2011, the number was just four out of five.

Between 2011 and 2050, the world population is expected to increase by 2.3 billion, passing from 7.0 billion to 9.3 billion.

At the same time, the population living in urban areas is projected to gain 2.6 billion, passing from 3.6 billion in 2011 to 6.3 billion 2050.

Urban areas of the world are expected to absorb all the population growth expected over the next four decades while at the same time attracting some of the rural population. Urban areas consume 70% of energy, and account for 75% of the EU‘s greenhouse gas emissions. This share is foreseen to grow in the coming decades. Cities are the places where most energy savings can be made.

By 2030, the world will need 40 percent to 50 percent more energy, water and food in tandem with rising demand and increased populations. Smart grids combine electrical and information infrastructure and are needed to shape a sustainable future. With lower CO2 emission and reduced office spaces companies in Amsterdam have saved up to $13 mio. Smarter government services are an opportunity to infuse intelligence into needed services, stimulate economies and save taxpayer time and money.

A smart water project in Corpus Christi, Texas found out, that 33 percent of the city’s wastewater efforts addressed just 1.4 percent of residents, which helped the city tailor its maintenance schedule to address the places in most need of repair first.

Another smart water project in San Francisco developed smarter management of the city‘s 1,000 miles of sewer system and three treatment facilities. As of 2009, software had already improved the organization‘s ratio of preventive to corrective maintenance by approximately 11 percent, meaning that the organization has been doing more preventive and less corrective maintenance.

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