the voice of business

SMART CITIES
AND THE DIGITAL ECONOMY

B20 COALITION RECOMMENDATIONS
TO G20 GOVERNMENTS

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CONTEXT

The B20 Coalition has made the Digital Economy its priority for 2015 and has identified three areas of action:

IT Security – because it is one of the biggest concerns in implementing the digital agenda;

Common Standards – because in an increasingly interconnected world the base cannot be built upon without Common Standards; and

Smart Cities – because our future lies in making our cities more sustainable, efficient and responsive.

To report on the main challenges identified by the companies that it represents, the Coalition's digital agenda was introduced in June 2015 with the publication of a series of recommendations to the G20 governments – Digital Economy: The Driver for Growth.

Finally, with the goal of fostering the integration of Digital Economy into the G20 leaders' agenda, the B20 Coalition co-organized with B20 Turkey, a conference on Digital Economy, called The Third Wave: Digital Economy and The Industrial Internet. This first-of-its-kind initiative took place on October 06, 2015, in Istanbul, in parallel to the G20 Trade Ministers' meeting.

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ABSTRACT

The leading independent industry associations and business organizations from G20 countries, which come together in the B20 Coalition, have paid special attention to the digitalization of the economy in 2015. The B20 Coalition strives to address the global impediments to the digitalization of the economy as well as to outline potential strategies towards a digital future, particularly with regard to Smart Cities.

The digitalization of urban areas provides great opportunities to develop more resilient, faster, and more capable urban infrastructures. This is of particular relevance since we are experiencing growing urbanization with increasing economic, social and ecological constraints. Smart Cities offer innovative solutions for various challenges. As such, the B20 Coalition examines three major recommendations:

Develop new Perspectives to Finance Smart Cities

Demographic and economic growth intensify the current urbanization trend. However, urban infrastructure is experiencing a backlog in structural investment on a global scale. The B20 Coalition supports the development of new strategies and measures to make broadband accessible for all citizens. Public-private partnerships (PPPs) can leverage financial resources and lead to more resilient 21st century urban infrastructure.

Close Engagement with Policy Makers and Regulators

The B20 Coalition urges policy makers to harmonize non-discriminatory and transparent public procurement regulations. Such policies could play a vital role in the development of innovative products and technologies.

Strengthen Security and Data Safety of Digital Applications

Quality and security of data flows will be of fundamental importance to the digital future. Digital platforms must guarantee the maximum level of security. The G20 must take a strong stance against organized cybercrime. Protection of data in combination with strong data security will be of growing importance for data driven business models.

Foster the Interoperability of Standards

Standardization processes are pivotal in order to integrate various providers into urban digital environments. Interoperable, open and technically-sound standards enable interconnected consumer and industrial applications. Without coherent standardization processes, networks, hardware and software will not fit together.

THE NEXUS BETWEEN URBANIZATION AND GROWTH

The world is experiencing a period of enormous urbanization. For the first time in history, the majority of people live in urban areas. Current studies estimate that in the near future cities will account for about 90 per cent of global population growth, 80 per cent of wealth creation, and 60 per cent of total energy consumption.[1] Modern cities are the nucleus of human productivity and cultural life. They create natural hubs where societies offer and transfer products, services, and information, while developing innovative ideas and economic dynamism. At the same time, modern cities face various challenges. Infrastructure is overstrained with respect to mobility, waste, and energy. Scarcity of urban resources such as living space and recreational areas as well as pollution and climate related repercussions lead to growing inefficiencies, which ultimately impede urban growth.

These challenges do not allow for a one-dimensional approach. The concept of Smart Cities offers an understanding of how digital transformations can provide innovative and sustainable technological solutions to surmount both existing and future urban challenges. These solutions are applicable in various sectors including urban infrastructure, life and working conditions, as well as governmental services and public participation. They offer new strategies for large-scale cities to improve living conditions while reducing resource consumption and environmental impact.

Smart sensors in combination with high quality transfer of data will improve the pace of informational flows within cities. On-time information, intelligent processors, and software will allow for prompt and highly efficient adaption to changing circumstances. Ultimately, this will improve the management of complexity and lead to higher capacities. Digitally enhanced infrastructure will be more resilient, faster and capable. Consequently, the development of Smart Cities will unfold unprecedented opportunities for innovation and entrepreneurship. Data driven business models will pave the way for creating intelligent approaches to urban design.

SMART CITIES: HOW DIGITAL SOLUTIONS HELP TO CREATE MODERN PATHWAYS OF URBAN LIVING

Smart Cities enhance the quality and efficiency of urban areas. Since urban infrastructure is experiencing a backlog in structural investment, new opportunities are increasingly important. Digital solutions can break through these delays with more effective and cost efficient investments. This is particularly relevant since cities in emerging countries are experiencing more rapid urbanization. Suppliers of smart infrastructures can enable cities to leapfrog many phases of development particularly in areas where the development of infrastructure is still in the early stages. Moreover, urban digital solutions can lead to

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[1] Massachusettes Institute of Technology, *MIT City Science*, <http://cities.media.mit.edu/about/cities> (accessed on 05.09.2015).

improved living conditions by making resource consumption more efficient and environmentally friendly. Furthermore, Smart Cities can make administrative processes more transparent and inclusive.

Nevertheless, Smart City markets are still in a starting state and driven by small groups in chosen verticals. In order to take benefit of a Smart City and realize its full efficiency, digital solutions should be integrated not only in a single vertical of a city (i.e. transport or energy) but into all verticals.

Smart ICT Infrastructure

Convenient and trustworthy ICT infrastructure is key to provide resources and services in highly populated urban areas efficiently. This infrastructure will ideally consist of different layers. These include sensors and actuators at physical level, connectivity or communication networks, as well as an "operating system". This system must be able to control the underlying infrastructure, while allowing the development of new applications. These applications should address all vertical sectors involved in a city (energy, transport, commerce, city services, etc.), while allowing interoperability between them. It must avoid silos to enable a true and secure Smart City management.

This holistic approach affects all services offered in the city. Thus, it brings together initiatives focusing on living standards, sustainability and efficiency. The Smart City´s integrative and multidisciplinary character provides a variety of opportunities and benefits for all stakeholders.

Smart Mobility and Logistics

Digitalization will improve urban mobility by making it safer, more efficient and environmentally friendly. Intelligent and interconnected modes of transport will offer tremendous opportunities to reduce accidents, traffic jams, emissions, noise as well as the consumption of resources. Different transport modes will become interconnected and will create optimal conditions for the mobility of individuals and goods. Service providers and users will organize mobility efficiently thanks to available real-time traffic information and innovative business models and apps. They will allow mobility-on-demand applications in combination with a highly differentiated multi-modality (e.g. electric scooters and bikes, cars, trains, busses etc.). These positive effects of interconnected mobility are enhanced by two other trends that are currently foreseeable: the automation of driving and alternative power train technologies, particularly electric mobility. Ultimately, the interaction of these various innovations will result in higher capacities on existing infrastructure, less urban space consumption and better CO_2 footprints.

For example, urban parking guidance systems are already reducing traffic jams. Accompanied by a higher level of automation, in the future vehicles could drive autonomously to a parking lot. Parking areas could therefore be relieved and furthermore converted to other uses. The combination of a silent, emission free delivery traffic and fully

automated, interconnected mobility will also open up new opportunities for urban logistics. Citizens will be able to receive ordered goods at any desired time or place without disturbing their neighbours. This would have an overall positive effect on the transport and logistics sector.

Digitally interconnected harbours and logistics hubs are already improving the flow of commodities by using real-time telematics systems and mobile applications. These systems allow participants to communicate within integrated systems and therefore to optimize routing and the overall effectiveness of their supply chains. Hereby they are lowering turnaround time, resource consumption and noise emissions.

Smart Building Technologies

Smart building technologies offer hitherto unknown possibilities for modern living conditions in urban areas. Digital technologies are able to improve security and safety of modern buildings. They will increase the flexibility of apartments and increase comfort while offering enormous efficiency gains (e.g. energy and raw materials). Smart buildings will be interconnected within certain areas to create synergies and provide network efficiency gains. These buildings will be sensitive and adaptable to changing circumstances. New types of functional construction materials and techniques will offer new potential to decrease resource consumption.

Smart Disposal and Circular Economy

Waste disposal and circular economy is one of the most crucial issues in modern urban infrastructures. Modern cities are increasingly suffering from growing disposal needs. This waste often contains measurable amounts of rare earths or other valuable commodities. Smart Cities will offer new opportunities to meet the requirements of modern urban sourcing.

Digital applications will facilitate new opportunities to reuse or recycle waste. They also provide new waste-to-energy strategies. Smart sensors will lower waste disposal by making products increasingly modular and less defective. Products will have longer life cycles due to modified ownership rights in "share economy" patterns. Furthermore, due to growing dependencies on mineral resources and increasing global demand on commodity markets, circular economies will become a serious alternative to current consumption patterns. Therefore, it is important that product stewardship and competitiveness pave the way for a sustainable and forward-looking circular economy.

Smart Energy Efficiency

Secure, competitive, and clean energy is an integral part of a sustainable urban environment. Though prices for many resources have fallen since 2010, a more efficient, deliberate and smart use of energy resources is crucial. New market participants with

growing demands and sustainability measures such as emission trading systems or renewable energy regimes are likely to offset this trend.

Therefore, the "smartification" of energy distribution will play an essential role. It will allow cities to buffer energy by transferring the electrical load within different smart applications. This is of particular relevance considering that energy production will be more decentralized and renewable in future urban areas. Furthermore, smart grids will be able to respond to human mobility and behavioral patterns and will therefore be better positioned to provide safe, reliable and efficient power distribution. As a result, Smart Cities will increase the efficiency of their energy consumption while also reducing their CO_2 footprint. Smart District Heating and Cooling will also provide cities with an intelligent way of improving the energy efficiency and reducing the CO_2 emissions.

E-Government

E-government is one of the important demand stimulation strategies, which promotes ICT awareness and increases broadband penetration. Deployment of e-government services act as a complementary service to broadband, enhancing consumer surplus and willingness to adopt broadband.

On other hand, digital governmental services improve the interactions between the public and government. Public decisions can be communicated transparently and greater public participation can lead to better output. Additionally, administrative services will be easier to distribute and more accessible for citizens. Ultimately, the government's use of information and communication techniques can obtain higher public acceptance.

Lastly, e-government techniques increase public engagement or participation in governmental decision-making processes. As such, they will enhance good governance and better regulatory objectives.

RECOMMENDATIONS

Develop new Perspectives to Finance Smart Cities

Demographic change and economic growth are intensifying the current urbanization trend. Therefore, investment in new infrastructure will be of increasing importance. However, urban infrastructure experiences backlog in structural investment on a global scale. Digital solutions offer various key opportunities to avoid these delays, particularly in emerging markets.

It is vital to examine new strategies and measures to close the digital gap and make broadband accessible for all citizens. National broadband plans of each country shall encourage the effective development of infrastructure, provide rapid and nationwide ICT services and improve affordability of broadband.

Highly capital-intensive innovations must be open to new investment measures like financial cooperation between states and private donors. The B20 Coalition supports the development of public-private partnerships, which would in turn allow private financiers to invest in public assets under certain criteria. These partnerships could then leverage financial resources and lead to more resilient 21st century urban infrastructure. For instance, through PPP models, governments could develop ICT policies and national broadband plans to drive investments and ensure access to broadband. Delivering broadband access via PPP models is critical especially for rural areas where strong government financial support is needed to increase fiber infrastructure investments.

Close Engagement with Policy Makers and Regulators

A roadmap for on-going investment and incentives for long term investment is a must. For instance, taxing incentives are required for the taking up of Smart Cities by both the sector players and end users.

Public Procurement measures need to be harmonized to pave the way for investors to enter into foreign markets. The B20 Coalition supports non-discriminatory and transparent national public procurement policies. Such policies could play a vital role in the development of innovative products and technologies. Many countries still have procurement measures based on low cost bids. These are well known barriers for innovative and more efficient technologies.

Strengthen Security and Data Safety of Digital Applications

Quality and security of data flows will be of fundamental importance to the digital future. Open communication platforms such as smart hubs or autonomous mobility must guarantee the highest level of security.

However, digital solutions suffer from severe loss of confidence and, without consumer trust, it will be difficult to embrace digital solutions. In an effort to build this trust, the B20 Coalition emphasizes the necessity of clear ground rules and their proper enforcement. The G20 must act strongly against organized cybercrime. Protection of data in combination with strong data security will remain essential for data driven business models.

All stakeholders must cooperate more closely to improve the coordination among existing national and global frameworks and regulations. The B20 Coalition acknowledges the necessity of governmental as well as private to public information sharing processes. In the latter case, they need to remain on a voluntary basis.

Foster the Interoperability of Standards

Industrial-led standardization processes are pivotal in order to integrate various suppliers into urban digital environments. It is necessary to guarantee open and secure platforms that allow consumers to use various public or private smart services. Smart buildings, smart energy meters or smart mobility vehicles must be able to communicate and transfer

information among themselves and must provide the highest level of security in order to gain public acceptance. Nevertheless, interoperability of standards should not be considered as a black or white issue. We need to take into account that openness is needed for the benefit of consumers but at the same time, platforms should be able to have a return on their investments for the development of technology.

This statement is issued in
Berlin, Brasilia, Brussels, Buenos Aires, Istanbul, Johannesburg, London, Madrid,
New Delhi, Ottawa, Paris, Rome, Seoul, Sydney, and Washington, D.C.
by the B20 Coalition members

ABOUT THE B20 COALITION

The B20 Coalition brings together leading independent business associations
from G20 economies and operates as a worldwide exchange platform
between national business communities, aiming at building consensus and developing
common positions on critical issues for enterprises.

Through its broad-based representation, the Coalition
on behalf of more than 6.8 million businesses of all sizes and from all sectors
engages policy-makers on a global scale and advocates
policies that contribute to global growth and job creation at regional and international levels.
The Coalition is instrumental, notably, in supporting the G20 process
and ensuring continuity over successive Country Presidencies.

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