

Smart Country

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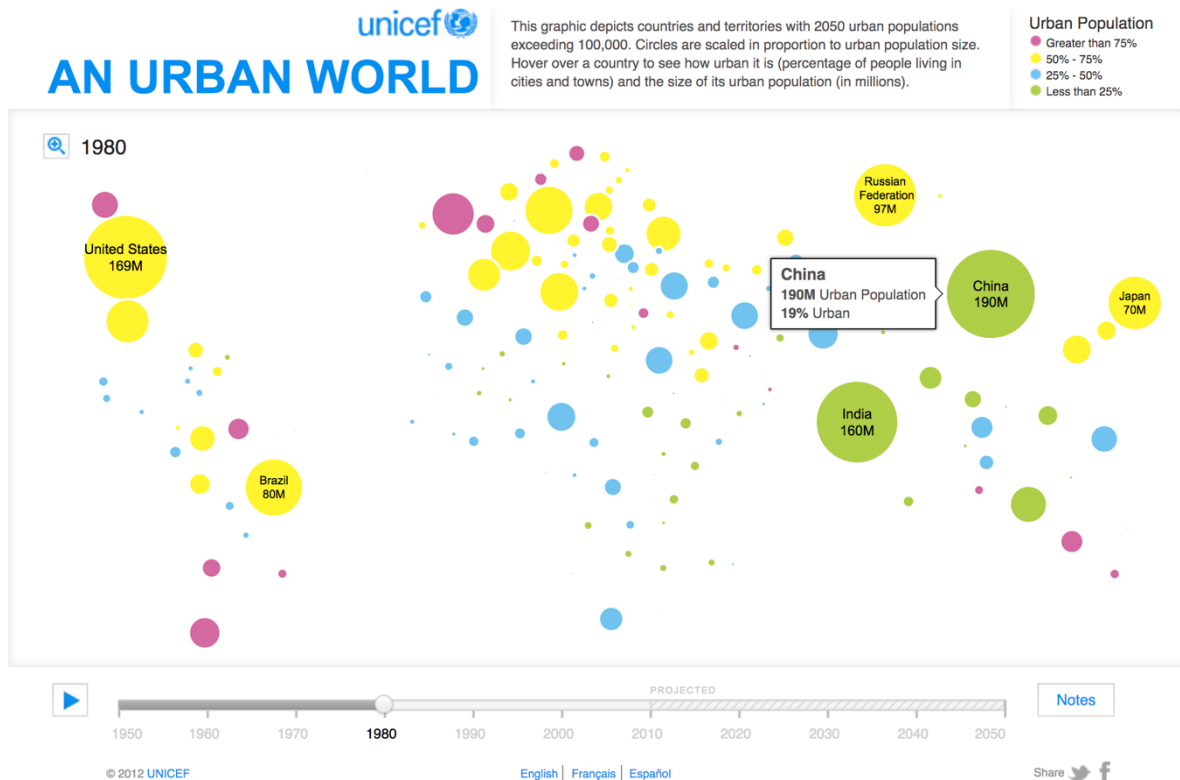


Smart cities are based upon a mix of the user experience and technology that allows citizens to live or prepare to be living in a smarter environment. We distinguish between a “smarter city” and a “smart city”. A smarter city does not imply a smart city, but a smart city does imply a smarter city. A smarter city is a situation where we compare that city to other cities or to its past situation. What defines a smarter environment can vary in time and in the experience of its citizens and local businesses in their interaction with the municipalities. While there is no common definition for smart city, all have common themes: long term vision, technology-based integration capabilities, and a roadmap with an overall goal to improve its citizens’ quality of life.

The drivers to fulfill the vision of smart city vary. Cities in India are more interested in solving natural disaster effects, energy, poverty, and employment concerns vs. London, whose key issues are immigrant absorption and traffic. Cities in Israel has several flavors of concerns, the largest being absorption, air pollution, health care and mobility.

There are many ways to view “living in a smart city.” To understand how this can be interpreted let’s look at the smart city drivers. There are four that we will explore – social, economic, political and technological.

Social. If we look at history before the industrial revolution, most people lived in rural areas. In early 1800, only 3 percent of the world's population lived in cities, today in developed countries more than 70 percent of the population live in cities. This rapid growth adds enormous pressure on old and crumbling infrastructure and cities struggle to support and maintain the quality of their social and physical public services including air and water quality, healthcare, education, traffic congestion management, security management, sewage management, etc.



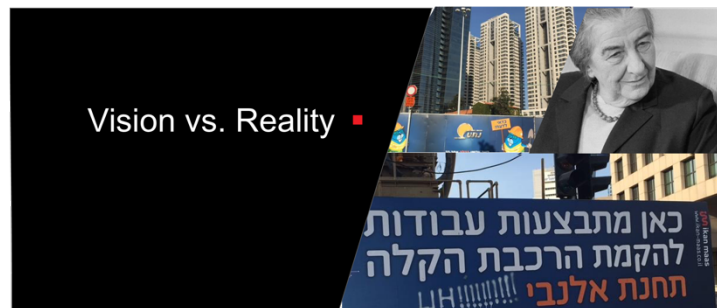
As we have seen globally, adoption of mobile technology also has had a major impact on a citizen's expectations, particularly millennials. This generation is highly communicative in sharing experiences, skeptical, and expects immediate gratification. Cities must find a way to collaborate and communicate to address this and future generation's needs. In 2050, the number of people over the age of 60 is expected to triple and will outnumber children under 15 for the first time in history, resulting in another social need. Israeli is one of the most urbanized countries in the world with an urbanization level that exceeds 90%.

Economic. Economic applies to the financial aspect of how to deliver more with less. Traditional economic models will not work for smart cities. Cities struggle to figure how to pay for the rip and replace of old infrastructure with integrated solutions that are not necessarily less costly to maintain. Without an increase in taxation or finding new revenue models, expecting a municipality to cover the costs while maintaining service levels is always a challenge. This highlights the need for out-of-the-box financial models that are collaborative, reduce costs and allow for a win-win for the citizens, the municipality and its business partners.

I said earlier that financial models need to be different. This is a key aspect that has both political, economic and social impacts. There are tensions on how to define shared goals resulting in a win-win situation for all parties using public-private-partnerships (PPPs). Other creative ideas are allowing smart city stakeholders to manage business case funding and defer payments over longer periods of time. The partner must have the credibility in facilitating development and finance with trade partners, facilitating export credit agency insurance/financing, and experience in forming vehicles to manage execution risk for larger

programs. In the past, urban development was viewed as a form of public works handled by national, regional, or other government agencies. In smart cities, development is increasingly being undertaken as an investment, particularly in emerging markets. Thus, smart cities are being constructed and operated as commercial enterprises. Regulation also needs to transition power from government to municipality from municipality to the citizens. These financial models will focus on moving Capital Expenditures (CAPEX) to Operating Expenditures (OPEX). Most smart cities still rely on federal funding to support their initiatives.

Political. Political drivers are the most devastating. Many of the above challenges represent the failure of political institutions to have an accurate understanding of its citizens need and how technology influences them.



In Israel, there seems to be enough vision, but very ineffective urban management and inhibitions due to regulation. Leaders are bogged down in bureaucratic and political bickering. Take the example of the Tel Aviv Light Rail; a plan whose vision was established in early 1970s by Golda Meir's government and was intended to address the projected traffic growth of 1980s and is only now in development. In this case, Tel Aviv's urban leadership is attempting to solve the problem of the past and not of the future. There is very little insight into the possible negative impact that such a solution will have with the advent of autonomous vehicles in the early 2020s.

Transforming a city cannot succeed without an effective strong government and supportive judiciary body. Jitney in 1914 was the Uber Car Pooling service of today, named uberPOOL. In one year, Jitney had 150K car pools a day in Los Angeles, while, today, 102 years later Uber is doing 157K rides a day. So what happen to Jitney? Jitney was regulated out of business within 5 years due to competitive maneuvering that added onerous regulation and politician's inability to react appropriately in the best interests of its citizenry.

It is interesting to note that as election dates are nearing, the volume of conversation about smart cities are ramping up and similarly the volume of smart city discussions will rapidly scale down after the elections are over.

Politicians are using the smart city trend for political gains but the majority of them fail to follow up on the required long-term vision for success.



The above behavioral pattern only adds to a growing mistrust of citizens in the government institutions and their leadership. The lack of tools and processes that allow for complete and timely financial transparency of government actions were used by majority of the mayors, who

were charged with financial corruptions, as a tool to drive their fraudulent schemes, schemes that we became so accustomed to reading about in the daily news. Such corruptions are an existential threat to our society. As long as we don't solve the transparency challenge we will not be able to combat corruption effectively.

Technological. While the drivers for smart cities differ, a common approach that smart cities use in their search for a solution to their challenges, with varying level of success, is to use integrated analytics from numerous data sources originating from the city eco-system. Using rich integrated analytics minimizes the risk of producing a point solution (local optima) vs. an optimal solution. To address traffic congestion in the cities, some cities invested significant amount of resources to improve their access and exit roads. But, e.g. studies that were conducted between 1927 and 2001 in San Francisco found that on the average 30% of the cars in congested downtown traffic were cruising for parking and in another survey, that was conducted between 2006-2007 suggested that 45% of cars on a street in Brooklyn were cruising for curb parking. A city analytical siloed approach in a complex eco-system may only deliver local optimization but likely to deliver unintended negative consequences. Cities, in their digitization efforts, must attempt to use modern analytical platforms that maximizes use of the city-eco system data sources. Such data sources might include among others: real-time parking data, traffic management data, city lighting status, and even taxation, all intended to provide optimal solutions over local optimal solution.

Holistically integrated approach is the catalyst to improving the quality life of its citizens. Recently, such technical platforms with integrated analytical capabilities were far out of reach to cities. With the emergence of hyper innovation technologies such as cloud, internet of things (IoT), machine learning, artificial intelligence (AI), city digitization can be and must be within the reach of any municipality that aspires to deliver a vision of a smart city.

Cities that focus on making things smarter vs. smart (integrated) have not managed to develop a vision and most likely their digitization solutions are done in silos; e.g. parking optimization, traffic management, city lighting, crowd management, pollution environment management, etc. This approach where every department makes independent investments results in at best local optimization. This fragmented approach is inefficient, has limited effectiveness, and is not economical.

One would wonder about the huge high rise construction on an already congested narrow city street in Tel Aviv. This suggests the following question, "Did those who approved its construction and those that are responsible for traffic and road planning ever have a conversation?" A smart city framework needs an integrated digital approach that addresses multiple needs.

Technological advances in Information and Communications Technology (ICT) such as cloud, IOT, big data, machine learning, cognitive computing, smart grids, autonomous vehicles, blockchain, etc. are many of the enablers for smart city innovation. Only a few years ago we used to think about car accidents as an unsolvable tragic reality, or what is also known among social planners as a "wicked problem" (a problem that is difficult or impossible to solve mainly

due to the complex interdependencies associated with them). Today, with the emergence of autonomous cars we can recognize that car accidents are solvable problems. Several years from now, all cars will be required to be autonomous (most likely by law). At that point, car accidents will be truly an exception vs. a daily reality. Such innovation can be both a driver and a solution for smart cities. The foundation for integrated solutions requires intelligent communication and enormous data analytical capabilities. Cisco predicts that in 2020, IoT devices that provide real-time connectivity between devices such as smart metering, smart grids, traffic cameras, street lights, and others, are expected to boom from 16.3 billion to 26.3 billion. These solutions are only expected to amplify an already existing phenomenon, data is exponentially growing and needs sophisticated platforms to integrate and manage them. Companies like CISCO have developed a platform and methodologies to harness the power of hyper digitization for smart cities.

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Additionally, it is not just simply about digitization. Similar to banks, the digitization of cities started a long ago, shortly after computers became a commodity. There are some significant similarities between banks and cities. Both are facing significant pressure to transform their infrastructures and address the needs of their customers and citizens more efficiently and for less money. In both cases, technology and innovation are the key enablers. This is more a matter of survival in both cases to transform aging infrastructure with competitive technology or be left behind.

Where smart cities succeed, is in cities where governments and leadership are promoters with vision and support that vision with economic “Chutzpah”. Making a city “smart” is a process that needs to evolve. Those that emphasize socio-economic benefits appear to be the most successful. This desire to attract new high-tech businesses, to stimulate economic development and to boost the local job market is evident in the success of Austin, Texas. In 2014, after speeding up the permitting process and removing red tapes, the city launched Google’s Fiber, a gigabit per second service to residents that provided high bandwidth communication. As a result of smart thinking, Austin had attracted over 4,700 high tech companies that account for 12 percent of the job market by the end of 2015.

Beyond providing significant operational and cost efficiencies, one of the key benefit of blockchain technology (a foundational technology that enables distributed ledgers and is mainly known for its support of digital currencies including Bitcoin) is its ability to provide financial transparency. Before being executed and recorded every transaction in such a distributed environment must be first verified by the majority (>50%) of the nodes in the network. In addition, once such a record is stored, it is visible to all and it is immutable (inability to be deleted or changed). To minimize fraud and financial abuse the UK government, for example, is now exploring the use of a blockchain to manage the distribution of grants. Similarly, the government of the Republic of Georgia decided to fight fraud are is first to use such technology to validate property-related government transaction including land title.

To rebuild and regain their citizens trust urban leadership must start proactively investigating and deploying blockchain solutions across all of their operations and form a far-reaching vision on how their city will evolve smarter using integrated technology. The vision needs to be executed in a timely manner. The rate of pace of technology change is leaping ahead of the pace of municipal bureaucracies.

Israel is the start-up nation and is ranked fifth internationally overall on this year's (2016) Bloomberg Innovation Index. This index measures country performance and provides the annual rankings of countries in terms of research and development (2nd place), tech education, patents, and other marks of technology prowess. With only 7 million people, no natural resources, enemies on every border, Israel produces more start-ups than Japan, Indian, Korea, Canada and the UK.

This start-up nation should view smart city initiatives as a smart nation initiative. By leveraging our start-up lead position, Israel can outpace the EU or India's current leadership in this area. Israel should promote the formation of smart cities and position itself as a model to world cities – and in doing so, fill the role of smart nation. To do this, Israel needs to harness political bickering and regulation, increase investment in education and particularly in engineering, and allow innovation and technology to benefit its citizens. Transforming a city cannot succeed without an effective strong government and supportive judiciary body. In their book *Start-Up Nation*, Dan Senor and Saul Singer start the forward saying “People prefer remembering to imagining. Memory deals with the familiar things; imagination deal with the unknown. Imagination can be frightening – it requires a departure from the familiar.” Israel, are we ready to depart from the familiar and grab that vision? Or are we going to be looking back like Golda 45 years from now and saying “Oh Vey”?

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