Insight from the

2016 Strategic Innovation Symposium
Digital Life in Latin American Cities

Convened by the Technology and Entrepreneurship Center at Harvard

Introduction

Latin American hubs are establishing themselves as globally recognized cities of the future, from Buenos Aires to Medellin to São Paulo and beyond. By embracing technology and the Internet of Things (IoT), these blossoming Smart Cities will be more efficient, sustainable, comfortable and interactive, allowing citizens to enjoy an enhanced quality of life. The extraordinary potential of Smart Cities is being realized through the collaborative efforts of city governments, citizens, universities, and corporations. To foster further collaboration and discussion, we recently held the **2016 Strategic Innovation Symposium: Digital Life in Latin American Cities**.

The Internet of Things makes "Digital prosperity" across Latin America possible; however, it is not solely driven by technology. The Smart Cities movement is also heavily influenced by digital confidence, access, the open nature of governing institutions, and confidence in the digital entrepreneurship. Yet questions remain:

- How does Latin America fare in terms of digital confidence, access, openness, and digital entrepreneurship?
- What successful approaches can be implemented in Latin America to help cities solve challenges, embrace opportunities and create a better society through technology?
- How should digital prosperity be measured?

The promise of technology and the ability to create digital prosperity relies on citizen support. The time is now to engage industry and government leaders to drive policies that will present solutions for long-standing challenges in order to create digital prosperity for their communities.

The 2016 Strategic Innovation Symposium: Digital Life in Latin American Cities was aimed at advancing the discussion of digital prosperity and digital life. The two-day event was held in Miami from June 28th to 29th, convened by the Technology and Entrepreneurship Center at Harvard (TECH) with generous sponsorship from Telefónica and ASIET. The event brought together top leaders and stakeholders to discuss the innovations that will create digital prosperity across Latin America.

The Symposium is the start of a conversation that will continue with future events in key cities around Latin America. Key learnings, which will inform global policy decisions that support local economies and their initiatives, are detailed in this report.

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Digital Prosperity, A Global View

Raul Katz, Professor of Economics at Colombia Business School

Digitization can be defined as the capacity to use digital technologies to generate, process, share and transact information. For digitization to have a significant impact, it must be widely adopted in the society, embedded in the process of delivering goods and services, and also relied upon to deliver public services.

At Telecom Advisory Services, we have been studying digitization, including determining how to quantify digitization and exploring the trends we see around the world related to the digital transformations that are taking place. Here I will share findings that capture Latin America's current progress in digitization. These findings not only show a snapshot of the current situation but also give us insight regarding why digitization is important and how we can make greater progress in the future.

"There's something that says that some countries develop faster than others. Why do they develop faster? What are they doing that makes them more adept about growing these transformations? I believe the key factor is policy, as well as institutions."

–Raul Katz
Professor of Economics
at Colombia

The Digitization Index

In analyzing digitization, we recognized that there are four necessary conditions for digitization to occur. First, it must be affordable to allow for a scalable impact. Telecommunications networks and reach populations also must support it across the nation. Further, it must be accessible by multiple fixed and mobile devices. And finally, it must be reliable in delivering vast amounts of information at speeds that do not hinder effective use.

With these conditions in mind, we developed an index to measure digitization that includes six dimensions: affordability, reliability, access, capacity, usage, and human capital. Each dimension is measured by a set of indicators; then these indicators are aggregated to give a single Digitization Index score for a region, country, or city.

By studying the digitization index, we found that there are four stages of digitization:

- **Limited** – Digitization index score of 0 through 20. In Latin America, this includes Cuba.

- **Emerging** – Digitization index score of 20 to 35. In Latin America, this includes Jamaica, Bolivia, Guatemala, Honduras, and Nicaragua.

- **Transitional** – Digitization index score of 35 to 50. In Latin America, this includes Costa Rica, Ecuador, Brazil, Peru, Mexico, Paraguay and El Salvador.

- **Advanced** – Digitization index score over 50. In Latin America, this includes Chile, Panama, Uruguay, Argentina and Colombia.

Comparing Dimensions of Digitization

In addition to the aggregated Digitization Index, we can look at how each Latin American country performs on each dimension of the index. When doing so, we see the places in which Latin America has excelled and where Latin America still have a way to go.

For example, we've done a good job at providing services (particular mobile telephones) at an affordable price, and we've done a good job developing networks, so people have access. However, the weakest areas are usage and human capital. We are making progress in these areas, but in regards to human capital (which involves education and workforce training), these things take time before we can see progress.

Diversity in Digitization

In exploring the Digitization Index, we can also look at average digitization in regions or continents. When doing so, we get an average score for Latin America of 44.55, which places it in the Transitional stage of digitization. However, that number doesn't really capture what is going on in individual countries within the region.

The countries of Latin America vary widely in individual Digitization Index scores, with many countries in the Advanced stage and others in the Limited or Emerging stages. We also discovered that countries in Latin America vary in how digitization and economic development are linked. In some countries, digitization and economic development are growing in tandem; in some countries, high digitization impacts economic growth; and in some countries, digitization does not increase despite economic growth.

Why Do Some Countries Develop Faster?

Comparing countries across the globe, and even countries within Latin America, we see that some are developing faster than others. What are they doing that makes them adapt better? This is something we are still studying, but we believe that the key factor is policy as well as institutions. We can look at the Digitization Index at various points in time and pinpoint specific policies that helped bring about improvements in the digitization score. For example:

- **Chile, 2008** – The annual growth rate of the Digitization Index jumped from 4.74 percent to 8.80 percent after the launch of the first version of Agenda Digital.

- **Uruguay, 2009** – The annual growth rate of the Digitization Index jumped from 6.16 percent to 9.09 percent after the launch of Plan Ceibal.

- **Columbia, 2011** – The annual growth rate of the Digitization Index jumped from 8.35 percent to 11.23 percent after the creation of MinTIC and launch of Plan Vive Digital.

- **Brazil, 2011** – The annual growth rate of the Digitization Index jumped from 7.68 percent to 9.57 percent after the launch of the National Broadband Plan.

Whether it is the liberalization of the telecom industry, the awarding of 3G licenses, providing universal access and service obligations on the part of carriers, or something else, policy initiatives appear to drive a jump in the Digitization Index, demonstrating that policy and improved digitization go hand in hand.

Making the Case for Digitization

What government leaders want to know is why they should focus on digitization instead of other projects, such as building bridges and roads? Why is digitization important from an economic or social standpoint, and why should governments focus their time and energy into policies that expand digitization?

From our research, which is still in an exploratory phase, we've found that digitization has many positive impacts on the economy, society, and government. More specifically, we've conducted statistical analyses that show:

- Digitization impacts the economy, including GDP growth, job creation, and innovation.

- Digitization impacts society, including social inclusion, social equality, consumer surplus, access to information, access to basic services, and political participation.

- Digitization impacts government, including quality and output of education, quality and output of health care, the efficiency of public administration, and the delivery of public information to citizens.

We are still trying to identify how digitization works to promote these positive changes in the economy, society, and government. Right now most of the evidence is anecdotal, but we see correlations and relationships, so we know something is going on here. The story is incomplete, and the mechanisms and path of causality must be worked out. This is something we need to keep working on from a research standpoint.

Advancing Latin America

The Digitization Index helps us explore how digitization is playing out in Latin America, but as mentioned before, the region is quite diverse, with some countries performing well and others lagging behind. We see the same thing happening when we look at individual countries, where some cities are standing out as world class cities in digitization and other cities within that same country are underperforming.

To advance Latin America, we have to understand the situation at the regional, country, and city levels. We also must go beyond broadband and technology to understand digitization as a multidimensional concept. Our research has shown that institutions and policies have the capability of boosting the Digitization Index. By working together, we can develop institutions and policies that are capable of creating these quantum leaps in digitization.

Disability: An Upside for Everyone in Unifying Smart City Design

Chris Lewis, Lewis Insight

Disabilities have a lot in common with the many of the technology markets I have analyzed for the last 30 years: each was developed and considered in isolation, solutions were specific to each area, and the cost was excessive. Nothing united the disability segments just like nothing united the different streams of technology. Until now.

Historically, the technology available to help disabled people has been as diverse as the types and degrees of disabilities themselves. Whether the condition affected is physical, cognitive, hearing or vision, each situation had its own expensive gadgets and associated support structure. The advent of the smartphone and tablet provides a platform for the first time which stretches across all disabilities and also crosses over with mainstream services. Hence the opportunity to bring the world's billion disabled people into the digital era and provide benefits for everyone.

Furthermore, Smart Cities are beginning to build a platform that can take this to a new level:

- At the core is the individual, now armed with wearables from motion sensing bands, patches, cameras and microphones linking to a smartphone to complement, substitute or enhance particular senses or activities .

- Smart Homes offer a series of sensors linking through the domestic broadband to lighting, heating, and domestic devices which can now be accessed and controlled via the smartphone and more accessible apps.

- And in Smart Cities, the services being made available through different smart devices need to be developed in a common framework and with simple, accessibility friendly interfaces.

> *"[Smart City] initiatives ... are being looked at in isolation and not holistically from a city and citizen point of view. What is needed is a broader, more all-embracing perspective."*
>
> —Chris Lewis
> Lewis Insight

Smart City initiatives around the world have been built around specific areas such as automated cars, smart metering, and smart garbage collection. These initiatives, similar to the technology and disability areas mentioned above, are being looked at in isolation and not holistically from a city and citizen point of view. What is needed is a broader, more all-embracing perspective. Designing with all citizens in mind, including the disabled, will ultimately make services more accessible to everyone. And, by placing them in a common framework, services will be linkable and not isolated as in previous generations.

Smartphones, tablets, and wearables are at the heart of this drive for an inclusive society. Since the disabled community represents one in seven of the world's population, it is vital that we get this right. This group is economically powerful (representing some $4 Trillion of spending power worldwide) but has often missed out on getting online or benefiting from the digital services most people consider their basic human right. Making Smart City services accessible to all will increase both their power and reach. The availability of different channels for communication, instant messaging, video, chat, and, of course, good old-fashioned voice, means that there are now multiple options if one channel is denied through disability. This is true for interacting with city services, but it is also true for helping some of the disabled to enter the workforce and use different technologies to communicate with colleagues and customers alike.

The economics are also compelling. Standard smart devices with accessibility software and peripherals have replaced specialist equipment costing tens if not hundreds of thousands of dollars. Since we now have an app for everything, we need to ensure that mainstream apps are accessible to complement the specialist apps built for people with different disabilities such as sign language online or item recognition. Furthermore, including accessibility considerations from scratch from a digital product and service design point of view, avoids the ugly bolt-on solutions that we have endured for decades.

To put this in context: from time to time we are all temporarily or 'situationally' blocked from using certain senses or services. For example, during our daily lives, we can't use our mobile screens when cycling or wearing thick gloves, or we might suffer an unexpected injury that prevents normal activities (try typing with a broken arm). However, these technologies provide alternative means of access when used to their full potential. The point is, that if we design inclusively from day one, everyone will benefit.

Healthcare represents a massive component of local, regional and central government spending but disability often gets lost in bureaucracy. Making things more accessible will help disabled people at every stage of their interactions. Ultimately, all of society will benefit from more inclusive access to healthcare systems and organizations.

The danger is that many Smart City initiatives develop in isolation. Coordination between all city authorities and local business is essential to ensure that data is gathered across all of these initiatives to amplify the benefits across the different segments. We should be very careful not to invest just in making the cities smarter, but making sure that citizens and businesses alike can benefit alongside public services that are being made easier to manage, deliver and consume. By keeping the needs of the disabled in mind, we can educate all parties to be more inclusive on all levels.

Igniting Digital Life in Latin America

Jorge Luis Ruiz, Global Digital Acceleration Head, Citi

As we approach the 4th Industrial Revolution, digital innovation is happening at a rapid pace. Fintech companies are multiplying, industries are being disrupted, and traditional companies have to change their business model if they want to survive. Citi's Mobile Challenge Virtual Accelerator is a model for how to succeed in the latest Industrial Revolution. By partnering with fintech companies and developers, traditional companies can bring the best ideas to fruition and create innovative solutions around the globe, including in Latin America.

The 4th Industrial Revolution

Humans have experienced a number of revolutions in the past that have changed how we live, work and relate to one another:

- **First Industrial Revolution** (The Late 1700s to Mid-1800s) –
  Mechanical innovations like the steam engine, cotton spinning, and railroads.

- **Second Industrial Revolution** (The Late 1800s to Mid-1900s) –
  Mass production through assembly lines and electrification.

- **Third Industrial Revolution** (The Late 1990s to Today) –
  Mainframe computers, personal computing, and the internet.

Experts say that we are on the brink of a fourth Industrial Revolution. It is led by the interplay of different fields where breakthroughs in areas like artificial intelligence,

"In order for me to really grow even further, I need to leverage what's happening in the tech world."

–Jorge Luis Ruiz
Global Digital
Acceleration Head, Citi

robotics, IoT, 3D printing, nanotechnology and quantum computing create new realities that were previously unthinkable. More people have access to technology and just about anyone can create new products and services quickly and cheaply.

Traditional Companies Must Adapt and Evolve

Because of the changing business landscape, business models in every industry must be transformed. In general, there are two types of companies:

- Traditional Industry Companies - Large corporations like Citi or other companies that are 15+ years old and have more than $1 billion in sales.

- Tech Industry Companies – Smaller companies and startups that aim to apply technology to shake up various industries, including fintech, health tech, food tech, gov tech and others.

The cost of innovation has never been lower, so tech industry companies are able to get off the ground with only $5000 whereas in the past, starting a company would take $5 million. In addition to lower costs, these tech companies are growing fast and strong. Traditional industry companies typically experience growth of less than ten percent, but tech companies have the potential for exponential growth.

If you look at the S&P 500 index, you can see these changes happening. It used to be that companies would outlive people – you'd see the same companies on the S&P for your entire life. Today, people are outliving companies, and there has been a rapid decline in the average company lifespan on the S&P.

Last year there was about $130 billion investment in tech companies, and almost 75 percent was Series A or seed money. Tech industry companies are multiplying and shaking up each and every industry. Traditional industry companies must adapt and evolve if they want to succeed. It doesn't matter what industry you are in – if you try to keep growing like you've been growing, then you will be disrupted.

Citi Mobile Challenge Virtual Accelerator

The first thing any traditional company must realize is that there is more than just one startup out there trying to do better than you. Citi realized this and decided not to go against it. We decided to partner with these companies instead.

Each type of company brings certain benefits to the table. For example, a traditional company like Citi brings a robust infrastructure, operational knowledge, global reach and market trust. On the other hand, fintech companies bring lifestyle components such as innovation, creativity, technological expertise and teams with diverse backgrounds. With the Citi Mobile Challenge, we aimed at finding and partnering with the best fintech companies and designers so we could bring the best ideas and technology to customers.

"The capacity of the world today to create a business with a lot less money than it was a few years back is tremendously important."

–Jorge Luis Ruiz
Global Digital Acceleration
Head, Citi

This concept of partnership can only happen when you first realize that you don't have to build everything yourself. In fact, you shouldn't be building everything yourself. You need to rely on the ecosystem and create your own platform – to leverage what the world has to offer. Fintech companies understand what people want and can produce new solutions very fast. Partnerships can bring the best of both worlds, where traditional companies and technology companies together can speed up the pace of development and bring solutions to the world.

Through the Citi Mobile Challenge, in two years we were able to attract 7,000 developers from 500 cities around the world. We compiled a portfolio of 300 solutions that are currently being worked on, with 24 that will be implemented by the end of the year. We also partnered with 160 companies, aiming to come up with new ideas for them too. They have also opened up their platforms to us, and together we are driving innovation.

Global Innovation

In revamping a business to adapt to the 4th Industrial Revolution, it is also important to realize that innovation is happening everywhere. Silicon Valley may be one of the most advanced areas of technological innovation, but innovation is happening in every country and every city. Tech starts up are popping up all over the world. The Citi Mobile Challenge was successful because we looked everywhere for the best innovators – and we found them in 500 different cities.

These innovators are coming up with tech-based solutions for local problems, based on local industries and local experiences. It's important that we leverage tech companies in various countries so we can develop location-specific solutions. These solutions are specific to a certain market and serve the customers' lifestyle in that location. This goes against the idea that there can be one method that will serve all.

The Mobile Challenge helped us find fintech companies that can expand digital life in Latin America. For example, one of the biggest pain points for those living in Latin America is not having the ability to buy online from the United States, since most companies (for example, Target) require a U.S. credit card and address. One fintech company we found developed a method where people in Columbia can buy from Target with Columbian pesos. The item price includes shipping and customs, they can pay with their Citi payment, and the item comes directly to them. This application was tested and is now live in Columbia and open to many online US stores. Another fintech company we found created a way for people in Guatemala (which is a cash-based economy) to pay more efficiently using a line of credit from a microfinance entity. Both of these solutions represent location-specific digital innovation for Latin America.

As we transition to the 4th Industrial Revolution, Latin America companies can digitize through a similar partnership model. So far, financial innovation has not advanced much in Latin America because there are not enough innovators (both people and governments) and not enough venture capital as there is in other regions. By working on putting these essential elements in place – and then leveraging the tech companies and innovative ideas in the world around us – we can accelerate digital innovation in Latin America.

Telefónica Open Future Program

Contributed by Telefónica

Startups play an important role in the growth of digital technology in Latin America. In 2011, Telefónica started the Wayra acceleration program in Colombia. This initial effort led to the creation of Telefónica's Open Future division, a group of initiatives focused on giving technology startups in Latin America and other countries the support they need to succeed.

Through Open Future, Telefonica and several private and public partners have created initiatives that cover all the steps an entrepreneur has to go through, from the initial idea to the IPO. This includes:

- **Crowdworking Spaces:** Spaces where local talent can develop their projects leveraging the resources that the Open Future program offers them, including space, access to partners, visibility, and networking. These spaces have supported over 600 startups in various countries around the world, including Columbia, Costa Rica, Paraguay, Ecuador, Chile and Brazil in Latin America.

- **Amerigo Funds:** A network of five VC funds which has provided financial backing to 60 startups in Spain and Latin America. This includes Kibo Ventures (Spain), Active Venture Fund (Barcelona), Axon Partners (Colombia, Peru, and Mexico), InverSur (Chile) and Investech (Brazil).

- **Wayra:** A corporate business accelerator that offers €40k in cash + €40k in acceleration services (from space and technology to mentoring and networking) in exchange for a 7-10 percent stake in the company. The program operates in several countries around the world including Argentina, Brazil, Colombia, Chile, Peru, and Venezuela. The main mission of the program is to launch innovative technological solutions, and to date, it has accelerated more than 600 startups.

Throughout its history, Telefónica Open Future has been able to fuel technological innovation in Latin America and other countries too. Some of the startups that have been accelerated by the project include:

- **Worldsensing:** Intelligent parking systems for Smart Cities and solutions that enhance traffic management and urban mobility through real-time flux information.

- **Apparcar:** An app that enables a driver to find the nearest available on-street parking spot with just one tap.

- **Tado:** Smart thermostat technology that enables users to control the heating system or radiators.

- **Carto:** An open and intuitive platform that uses location data to discover and predict key insights.

Startups can help drive technological innovation in Latin America, as well as all over the world, but only if we can create an environment that provides the support and financial backing that they need. Telefónica's Open Future program demonstrates how public and private entities can come together to achieve that goal.

How to Accelerate the Implementation of Digital Health Through Future Efforts and Policies of Governments

D. Novillo-Ortiz, Ph.D., Pan American Health Organization / World Health Organization, Washington, DC, United States

The latest data that the International Telecommunication Union (ITU) has provided have shed some light on some discouraging statistics. For instance, half of the population in the world is still not connected to the Internet. Even more worrisome is the prevalent gender gap regarding Internet penetration: Internet penetration is 12% lower for women and up to 23% lower in the African region. A positive side to this dark scenario, however, is that costs of access to mobile phones continues decreasing, which enables 95% of the population today to have mobile coverage, usually 2G. [1]

These changes have begun to be strongly reflected in the healthcare of countries. The emergence of information and communications technology (ICT) in the health sector has resulted in a new care setting in which one can find a more empowered patient who can take control over the decisions that affect his or her health. For example, plenty of information about health available on the Internet has transformed, in large part, health and digital services and thousands of smart mobile applications that help one – at least a portion of the population with the necessary knowledge and ability to manage one's self in this environment – be better informed.

This new healthcare scenario, coupled with the commitment of all countries to achieve the Sustainable Development Goals (SDGs) by 2030 – specifically number 3: "Ensure healthy lives and promote well-being for all at all ages" – presents new challenges for governments when it comes to accelerating the implementation of ICT projects in health.

While international organizations (the World Health Organization or the ITU, among others), continue working on coordinating efforts, on the sharing of knowledge and the development of policies and guidelines, the private sector is focusing on the priorities and needs of the public sector and of the population. Governments must thus continue showing a firm and sustained political compromise, taking into consideration the time to appreciate the fact that the benefits of investments in the ICT sector many times surpass the marked political horizons, generally, for periods of four-to-eight-years.

Taking this scenario into account, there are three key actions governments can take to accelerate the implementation of policies and initiatives in the ICT Health sector. Primarily, to establish a model of governance in ICT Health that will facilitate the necessary sustainability and continuity to work on such initiatives. Secondly, to work closely with the academic sector to promote the development of the necessary evidence using data to justify the need to change the processes of health and healthcare provided to citizens. Finally, to review academic plans, especially those related to health sciences, to adapt current professionals to new concepts and tendencies that will become indispensable in less than 10 years.

The future of innovation in the health sector will not come solely with the development of new technology. It will occur through the development of cost-effectiveness studies, better coordination at the national and international level among institutions, and by affording empowered governments clarity in their decision-making in a sector still plagued with uncertainties, without fear that their efforts for the good of their citizens might not be recognized in the long-term.

Disclaimer
The author is a staff member of the Pan American Health Organization / World Health Organization (PAHO/WHO) and is himself alone responsible for the views expressed in the paper, which do not necessarily represent the views, decisions, or policies of the PAHO/WHO.

> *"[IoT] will impact nearly every aspect of our daily lives and is contributing to the convergence of industry sectors, including utilities, healthcare, and transportation. IoT is an ideal glue that can hold together these industries and help establish smart, sustainable cities."*
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> –Cristina Bueti
> Advisor, International
> Telecom Union

Smart Sustainable Cities

Cristina Bueti, Advisor, International Telecom Union

International Telecom Union has launched several initiatives to facilitate the development of IoT and the transition to smart, sustainable cities. The research and reports can serve as a comprehensive resource for growing technological innovation in Latin America and around the globe. Here is a recap of major initiatives and findings, including links and references to supplementary material.

Focus Group on Smart Sustainable Cities (FG-SSC) [2]

FG-SSC, which took place in a series of eight meetings from May 2013 to May 2015, was an open platform for smart city stakeholders to exchange knowledge and identify standardization frameworks that would support the integration of information and communication technology services in smart cities. The conclusions were published in 2015 in 21 Technical Specifications and Reports, and also a flipbook on "Shaping Smarter and More Sustainable Cities" [3] which summarized the findings.

Unleashing the Potential of the Internet of Things [4]

A second flipbook was published to compile information about IoT-based ITU-T recommendations, including definitions, requirements, uses, framework, management, security and more.

ITU-T Study Group 20 (SG20) [5]

Upon the conclusion of the FG-SSC, the SG20 on "Internet of Things and Its Applications Including Smart Cities and Communities" was formed to continue work in the area of smart city activities. The work is based on the fact that IoT will connect an estimated number of 50 billion devices by the year 2020; it will impact nearly every aspect of our daily lives and is contributing to the convergence of industry sectors, including utilities, healthcare, and transportation. IoT is an ideal glue that can hold together these industries and help establish smart, sustainable cities. Therefore, the work of SG20 is to provide the ideal specialized IoT standardization platform necessary for this convergence in smart cities to rest on a cohesive set of international standards. A key part of this study is the standardization of end-to-end architectures for IoT and mechanisms for the interoperability of IoT applications and datasets employed by various vertically-oriented industries. The group met in Geneva in 2016, and the next meeting will be in Dubai in March 2017.

ITU and UNECE Partnership

ITU has also worked with the United Nations Economic Commission for Europe to formulate a definition for smart, sustainable cities and to develop a list of KPIs which allow urban stakeholders to measure their progress toward achieving smart city and sustainable development goals.

ITU and UNECE Partnership

Several leading international cities have also approached ITU to assist with their smart city expeditions. Based on pilot projects in Dubai and Singapore, ITU is currently working on two case studies which will be published in early 2017. Additional pilot projects are planned for Montevideo, Manizales, and Buenos Aires in 2017.

United for Smart Sustainable Cities (U4SSC)[6]

U4SSC is a recently launched mission, with the first meeting held in July 2016. The initiative, which is supported by 16 other United Nations agencies, advocates for public policy to encourage the use of information and communication technology to facilitate and ease the transition to smart, sustainable cities worldwide. Its activities are supported by an Advisory Board6 that has been tasked with refining the ITU-UNECE KPIs.

Green Standards Week[7]

The sixth edition of the Green Standards Week was held from September 5-9, 2016 in Montevideo, Uruguay. The theme was "Shaping Smart Sustainable Cities: Toward Habitat III" and the event brought together leading specialists to discuss, share knowledge, and raise awareness about the importance of using information and communication technologies to speed up the transition to smart, sustainable cities while also protecting the environment.

Shaping Smart, Sustainable Cities

Rosalia Simon Navarro, IoT Smart Cities Director, Telefónica

The 21st century is going to be the century of cities. The world is undergoing the largest wave of urbanization: more than half of the population is now living in cities. The digital revolution is leading us to a hyper-connected world and a sharing society. Hence, the Smart City concept, at the confluence of these two mega-trends, is especially relevant.

A Smart City is an innovative city that uses technology (advanced infrastructures, platforms, and services) to provide more efficient urban services, improving the quality of life of citizens, and developing a new relationship between the government and local companies. Thus, a Smart City meets present and future needs in economic, social and environmental terms, guaranteeing sustainability.

There are four pillars that lead to sustainable Smart Cities:

- Strong **LEADERSHIP** and a consistent **VISION** between national/regional agendas and local governments.

- A **TECHNOLOGICAL MODEL** that is open, based on standards, in order to guarantee interoperable solutions.

- **FINANCING ALTERNATIVES** both for Public and Private models, with more innovative options (e.g. savings-share and pay-per-use models, data monetization models, etc.)

- **REGULATION CHANGES** that drive digitalization, longer contracts, and gain-share models.

Transforming a vision into a reality requires **LEADERSHIP** so that Smart City plans to become something beyond isolated pilot experiences and actually drive efficiency in city management and become an integral part of citizens' lives.

Insight from the 2016 Strategic Innovation Symposium

For example, Valencia, the third most populous city in Spain, is a pioneer and a global reference in terms of Smart City implementation. It is carrying out the transformation of its urban services with a four steps strategy.

- Defining the Smart City Strategy

- Prioritizing municipal services and service indicators

- Establishing a Smart City Platform as a core technological component of the application map

- Creating an innovation ecosystem of open data to be used by entrepreneurs or enterprises

The city vision is to perform the efficient and integrated management of resources through a transversal processing of data: the Valencia Smart City Platform (VLCi). This platform is the key enabler for the monitoring and control of all of Valencia´s urban ecosystem, including real-time information and performance indicators. Thanks to this leadership and vision, Valencia is immersed in a digital transformation supported across political parties and overcoming funding challenges.

When it comes to **TECHNOLOGICAL MODELS**, current approaches for horizontal platforms focus on the availability of a number of functions for the integration of data and their analysis, as well as certain KPIs, for vertical solutions. However, the opinion of the experts is that there are a number of requirements for the platform architecture that facilitate the growth of a sustainable ecosystem around it:

- *Standard:* Aligned with worldwide recognized standardization activities (e.g. NIST, ETSI); open, avoiding being captive by closed platforms; accessible, enabling access of data by third parties; and modular, enabling re-utilization.

- *Horizontal:* Integrating different services and solutions from service suppliers; interoperable, integrating different technologies, devices, and systems.

- *Scalable:* Cloud-based; robust to failures; secure; adaptable to technological evolution; with flexible service models.

As part of the definition of a Technological model, the City Platform selection is key in generating a technological ecosystem that brings integration savings, operational efficiencies, and that can lead to an increase in the value of all the agents and services. In this space, FIWARE has come to cover most of the expert's recommendations around Smart Cities technologies as it is open source and provides open APIs. And it is becoming the "de facto" standard adopted by cities. With the support of 89 cities from 19 countries in Europe, Latin America and Asia-Pacific in the Open and Agile Smart Cities initiative (www.oascities.org).

Concerning **FINANCING ALTERNATIVES**, governments should encourage public-private models of relationship and new patterns for the most effective management of innovation and take-up actions (e.g. public-private partnerships, pre-commercial public procurement schemes and public procurement of innovative solutions).

Additionally, they should promote acceleration and funding programs for start-ups and small-medium enterprises (SMEs) launching new products and services for the city and industries, particularly those based on the Internet of Things, ensuring that SMEs can gain access to the technology platforms and open data necessary for the development of innovative applications and services.

Finally, **REGULATION CHANGES** are needed in public procurement models in order to promote the digitalization of urban services by, for instance, promoting SLA-based service procurement, or by mandating city sensor deployment into new service contracts.

Also in the regulation space, privacy and security are aspects that need to be addressed in the context of Smart Cities. This is an opportunity to make governments pioneers and leaders in the use of data.

Case in Point:

Achieving Digital Prosperity with Open Source Technology and Location Intelligence

Tyler Bird
Community Development
Strategist at Carto DB

"Geospatial technology is a powerful tool when used by governments or citizens to leverage data to make more informed decisions and to better understand the cities they govern and live in."

–Tyler Bird
Community Development
Strategist at Carto DB

Today we are more connected than ever before. We use technology to enhance, share and control the world immediately around us—turning on lights, networking on demand, locating the nearest bike rack or parking space, all from pocket-sized devices. Our connectivity is not only expressed person to person and at the individual level. It is also expressed at the community and city level where improved communication, participation, and collaboration has increased with access to data and information for agencies, institutions, and citizens. Today's cities are laboratories for technology, connectivity, networks, and initiatives, driven by citizens and entrepreneurs together with governments and institutions.

Geospatial Technology for Gathering Location Data

Location data is paramount to intelligent cities planning and development. Geographical information provides a common frame of reference and big picture analysis for entrepreneurs, citizens, and policymakers alike. The new place-based thinking demonstrates that location can no longer be considered just a pin on a map. Now, location is the dynamic nexus of the physical and digital in real time. The availability of geo-tagged digital data creates rich new layers of information that can be utilized at scale to create evolving solutions for more livable cities, intelligent policy and design, better research, improved emergency response, predictive analysis, and economic opportunity.

Geospatial technology is a powerful tool when used by governments or citizens to leverage data to make more informed decisions and to better understand the cities they govern and live in. CARTO, a web-based mapping platform and geospatial analysis tool, allows users of all technical skill levels to tap into location intelligence for key insights into information relevant to all aspects our lives. It is important to point out that these insights are often invisible until we use innovative technology to visualize and understand them.

Open source technology allows users to easily apply and integrate their tools into any platform or application. Easy accessibility of open source technology democratizes these powerful tools and opens up information

at an unprecedented scale. Local governments are increasingly opening up their data so citizens can access it and leverage it to inform the many decisions they make on a daily basis. This information can help a family choose where to live, where to send their kids to school, where to start a business, or what kind of business to start. It can even give citizens insight into how taxes are being spent, where the government is allocating time and resources, and where service provisions are working and where they are not.

Applying CARTO in Mexico City

CARTO, with the help of our partners, has implemented such technology across Latin America, most notably Mexico City. The city wanted to serve a broader demographic by applying new technologies to connect city departments and agencies like transportation, administration, healthcare, education, utilities, and construction. To accomplish Mexico City's objectives, priority was given to the areas of the city where bigger social and economic issues were found. Emphasis was placed on social, environmental and economic indicators as they interact with the built urban environment and the people who inhabit the city.

The data portal is aimed at opening communication channels between government and citizens. An application is available for tracking public transport, real-time social media updates, as well as information about traffic routes, social services, marriage and divorce rates, education, property information, crime statistics, unemployment rates, public spaces and parks, and much more. CARTO's APIs allowed for the integration of large data to work without compromising scale or the interpretation of millions of data points.

CARTO's accessible visualizations give Mexico City the transparency necessary to demonstrate accountability to its citizens. The city is taking a modern, integrated approach to smart cities planning, where citizens can work with one another, along with the government, in making a better city that is more responsive to all its inhabitants.

CARTO brings together all the elements of a successful smart city geo-ecosystem with unprecedented accessibility: crowdsourcing with social media, monitoring of sensor networks, custom security and deployment options. CARTO remains current with the pace of technology, and the evolving processes of smart cities and digital prosperity in Latin America and the world.

> *"Local governments are increasingly opening up their data so citizens can access it and leverage it to inform the many decisions they make on a daily basis."*
>
> **–Tyler Bird**
> Community Development
> Strategist at Carto DB

Case in Point:

Protecting the IoT, Today and Tomorrow

Dr. Yuri Quintana
Director of Global
Health Informatics

"We need to assume that any given system will be eventually compromised. Having the means to quickly detect an attack and control its impact is what makes all the difference."

–Dr. Yuri Quintana
Director of Global Health
Informatics

During the past two decades, the IT & Communications industry revolutionized our world by greatly enhancing what our minds can do. The various "screens" that we use everyday act as windows into a new dimension, a Digital World where accessing, processing and exchanging information is within the reach of anybody.

With IoT, we are going one step further. By allowing any "Thing" to collect, process and exchange information, we are essentially bridging the digital and physical worlds. Home automation, connected cars, smart cities, and healthcare are all verticals where the boundaries between digital and physical are disappearing.

In the past years, we have seen the rise of cybersecurity threats as the main concern for this Digital World: online fraud, data breaches, denial of services attacks, cyber espionage, national state attacks, etc. These concerns directly apply to IoT but IoT also introduces a new dimension: safety. Given the capabilities of IoT systems to interact with the physical world, an attack can very well transcend to physical damages.

From a security perspective, IoT introduces many challenges. We have to deal with billions of devices that use hundreds of different types of software and hardware with very limited processing power, and communicate with numerous, still non-standard or even competing protocols. This means complexity, which is one of the main enemies of security. It also means that we need to develop new security technologies to replace existing solutions that just don't work in such constrained, fragmented and large-scale environments.

The industry is working hard in order to develop new technologies, and we will definitely see many innovations in the coming months and years. But this doesn't mean that we should wait. There are things we can do today to enjoy IoT systems with reasonably good security.

During the past years, we have learned, the hard way, that no IT system can be protected 100 percent by defensive systems. The paradigm has changed. We need to do things differently.

First, we need to assume that any given system will be eventually compromised. Having the means to quickly detect an attack and control its impact is what makes all the difference. This new breed of cybersecurity

Insight from the 2016 Strategic Innovation Symposium

solutions leverages big data technologies and data science processing techniques to find threats by shifting through terabytes of information on the public and underground Internet to detect vulnerabilities and indicators of compromise found within internal IT systems.

This very same approach has to be applied to all IoT systems. The IoT is not only about the devices. Data aggregators, routers, internet connectivity and back-end systems are all parts of any IoT system which, at the same time, employs traditional IT technologies that we know how to secure. In many past IoT incidents, the entry point of the attackers were not the devices, nor did the attackers use any new techniques.

For example, today's cars are probably the most complex, networked, computer-enabled systems we use in our everyday lives. Numerous sensors, computing units and critical control systems regulate how a car is operating at any time. Sophisticated infotainment systems provide us entertainment and connectivity onboard. All those systems are increasingly connected via the internet to external systems so that they can be accessed and managed remotely.

During the past year various possible hacks of connected cars have been demonstrated by security researchers. Instead of breaching the more tightly controlled critical onboard systems directly, the remote management web portals and the infotainment systems were first examined and found vulnerable to known types of attacks. Having established an entry point, gaining control of critical car systems like throttle, brakes and steering was possible.

The good news is that these attacks were just applying known IT attack patterns to a new and less mature use case so protecting those systems does not require new security solutions, just thoroughly applying the lessons already learned. At the same time, agile and effective remediation when something goes wrong is critical. In these examples, some cars were swiftly patched remotely, like any other IT System. In other cases, millions of car recalls were required. Having contingency plans for incident response is definitely a practice that everybody should apply as soon as possible.

These examples tell us that we need to examine all IoT systems with an end-to-end vision and start with the basics: end-to-end system security design, secure communications, network segmentation and encryption to isolate and protect critical functions, continuous SW patching and vulnerability scanning, robust authentication and access control, continuous threat monitoring, and incidence response readiness.

Even if we still need to develop new technologies to deal with the most complex scenarios, we can already enjoy secure IoT applications in our Digital World if all actors in the IoT ecosystem apply the cybersecurity lessons learned so far and get help from the experts in the field.

"The good news is that these attacks were just applying known IT attack patterns to a new and less mature use case so protecting those systems does not require new security solutions, just thoroughly applying the lessons already learned."

—Dr. Yuri Quintana
Director of Global Health Informatics

Discussion & Insights: Digital Life in the City

In our Digital Life in the City Panel, we pondered about what digital life is and what may be limiting our growth in digitization. We contemplated that the barriers to creating a better digital life in Latin America may be more about culture and willingness than technology and access.

What Is Digital Life?

Participants gave varying definitions when asked, "What is digital life?" but some themes emerged. Participants said that digital life is about the ability to connect with other people, ideas and resources. It is a means by which you can improve the quality of your life using digital tools to make daily life more convenient, efficient and enjoyable. Further, "digital life" and "technology" are not synonymous. Participants viewed technology as the enabler of a digital life; that is, technology is a tool and digital life is an experience.

"Technology is a tool and digital life is an experience."

What Is Limiting the Growth of Digital Life in Latin America?

At the Digital Life in the City Panel, participants suggested that technology and access are not preventing Latin America from enjoying digital life. Instead, other barriers were mentioned including:

- Lack of skills to process information which is fundamental to enabling a digital economy.

- Inadequate training to help people develop those skills.

- Cultural resistance to embracing technology and digitization.

- Shortage of qualified personnel to implement digital projects in governments and businesses.

The Demand Gap

One of the biggest limiting factors for digital life in Latin America is what Raul Katz referred to as the "demand gap." As mentioned, Latin America is doing very well in supply and access, but the demand gap refers to roughly 45 percent of the people who, although they could access digital life, do not wish to do so. Three factors explain the demand gap, including affordability (some people still cannot afford technology and the associated taxes), digital literacy (the skills factor where some people do not know how to get online, access content, send emails, etc.), and relevancy (in terms of content, much of what is on the internet is in the English language).

In reflecting on these difficulties, participants agreed that we must address these problems in order to promote digital acquisition in Latin America. The gap is widening between people who have digital access and those who do not, and steps must be taken today to increase digital inclusion.

Digital technology helps conduct activities in a less imposing way, thus changing the nature of work and relationship with government entities. However, issues remain, such as slow innovation (caused by the three-year lag of adopting US-developed platforms in Latin America), and cultural barriers (especially in healthcare, which prevent the adoption of technology to changes systems and processes that can improve digital life). These issues aside, there are potentials as well. Latin America has the ability to use digital technology to give individuals anywhere a faster track to a better job – people who may never have access to college in Latin America but can secure a better paying job through the use of digital technology.

Discussion & Insights:
A Better Digital Life

Since 1997, there has been a huge increase in internet users in Latin America. However, challenges remain. How can we connect the other 50 percent of the population that is still not connected? How do we improve the entire digital landscape so Latin America can reap the benefits of digital connection? In our panel "A Better Digital Life," panelists discussed the many challenges to digitizing Latin America and what important things we must consider as we set up policies.

Costs

It is estimated that we need $400 billion dollars to close the digital divide in Latin America. Revenue from traditional services, such as voice and SMS, is not a sustainable source of funding these new networks. We want to expand internet access to all and could close the gap by 2020, but it will take a lot of investment.

Productivity Gains

Latin America grew throughout the last 15 years because of increased prices for commodities, not productivity gains. To have a future, Latin America needs to generate productivity gains from digitization efforts. ECLAC (Economic Commission for Latin America) is saying to increase productivity, all Latin American countries need to do is boost digitization. That's the core of the prevalent economic consensus today in Latin America.

Demand

A recent survey in Chile found that four out of ten households don't use the internet, don't know what the internet is, and don't know what value the internet would offer them. Other people in the region, even if they can afford an internet connection, do not feel that the internet is relevant to their lives. Lack of knowledge and lack of belief in the utility of the internet impacts demand. The solution is to foster innovation and companies that CREATE DEMAND. When we create companies that find solutions that solve problems in Latin America, then that will drive demand. It will also reduce friction, such as the many barriers currently experienced in e-commerce in Latin America, including going online, buying something, and having it delivered.

Expanding Awareness

Since one of the challenges to digitizing Latin America is a lack of understanding about what the internet is and its benefits, how should we go about expanding knowledge? Should we create policies that will educate the average person about how the internet will help them? Panel members agreed that simply pursuing infrastructure is an outdated policy, and instead, policies should focus on other elements like awareness, demand, skills, and more.

Skills

Even if we can help people understand what the internet is and what the benefits are, there will still be problems with usage. Some people will not have the skills necessary to take advantage of the internet, which will limit its impact. One basic skill referenced during the panel was research: having the ability and skills to conduct initial research online before making a major purchase - a skill that would greatly benefit citizens in Latin America. This issue speaks to the "human side" of the internet and the fact that this is not just about providing access – we must address human issues as well.

Banking Obstacles and Trust

In Latin America, the fundamental building block of a credit card for transactions does not exist. 70 percent of Latin Americans don't have any access to any products from a financial institution. Why? Because for many historical reasons, there is a lack of trust in the banking system. As a result, 70 percent of Latin Americans are excluded from digital commerce.

Some companies have recognized and adapted to this, for example, LAN.com, an airline website that allows people to make reservations online but then pay at a bank or supermarket. However, this adds friction and inefficiency to the process.

We need to overcome the issue of lack of trust. However, trust in Latin America is not the same as security in the US. Improving trust will require educating and overcoming cultural issues, such as in telemedicine

Venture Capital Landscape

The venture capital landscape impacts the development of tech-based companies and ideas. Panelist Camilo Kejner, who has invested in several tech companies in Latin America, says innovation could be fostered if the landscape was more collaborative in nature rather than competitive. To improve innovation and collaboration, Camilo's company, Angel Ventures Mexico, invests in 60 companies in five areas that they believe address issues and opportunities in the Latin America economy – Fintech, Internet of things, Healthcare, retail/e-commerce, and agricultural businesses.

Diversity

"Latin America" is a collective term for countries that are actually quite diverse. Certain countries are performing well in digital life, while others are not. Since each Latin American country is not the same, each country has to analyze its own problems and diagnose its own solutions. There is no one-size-fits-all solution for digitizing Latin America.

Focus

Previous efforts have been focused on infrastructure development – providing universal access to the internet. At the Symposium, panel members agreed that the focus going forward needs to be on policy that closes the demand gap, creates skills, and encourages the development of services that drive the demand for internet access.

Unified Market

The ECLAC is currently debating about creating a single digital market in Latin America. Many believe that creating this single digital market will help overcome historical differences among countries and thus unlock potential. In many ways, each country must analyze its own conditions to figure out how to best spread digital technology to its residents. However, we also have to think of how to create regional standards and agreements that create a digital common market so Latin American countries can work together in the digital ecosystem. It's one thing for a business in Chile to sell online to its own population of 17+ million citizens. It's another thing entirely if that business could be opened up to a market that includes the 600+ million people of Latin America.

So far, governments have focused their efforts on policy and infrastructure development. They are asking themselves how they can get universal coverage, or at least basic internet access to as many people as possible in each country. However, this is a narrow view that doesn't recognize the other issues that must also be resolved before a policy can be successfully enforced. By addressing the issues listed above on a country-by-country basis, we can create better policies and a better digital life in Latin America.

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Policy Recommendations

A. Investing in digital adoption as part of technology infrastructure policy.

Recent surveys [8], [9] of Latin American countries have shown that, while on average, 90 percent of people could have access to the internet, almost half of those people choose not to receive coverage. The three most cited reasons, in decreasing order of importance, are:

1. **Lack of relevant content**

2. **Lack of necessary digital skills/literacy**

3. **Affordability**

Most striking is that the most cited reason was a lack of content — rather than lack of affordability or access. This is significant as most traditional public infrastructure initiatives and public policies focus on enabling access and where necessary driving costs down through subsidies or incentives with internet providers. Neither of these traditional approaches addresses the underlying problem off relevance and literacy in digital adoption.

Literacy is mostly a problem for older citizens, with the younger population (under 29) having an almost 100% adoption of some form of digital device and the internet2 (typically the smartphone). This is a challenging demographic to educate as most, if not all, are finished with conventional education and are working, creating a need for new education platforms that adapt to working individuals who may have limited access to digital products.

One driver for literacy may, in fact, be the same solution as to the largest barrier: lack of relevant content. In the US there are over 70 million grandparents, who never grew up with more than a corded telephone, yet 75% are online, 63%

shop online, 56% share photos and 45% use social media. The reason? They are interested in the content that is available, in particular, the ability to connect with family and friends and to do things, such as shopping, that may no longer be as easy due to mobility and other factors. Relevant content will organically drive adoption by all as well as motivate those without the skills to become literate.

Policy recommendations:

- **Measure infrastructure initiatives by adoption, not availability.**

- **Develop non-traditional education for older citizens to improve their digital literacy.**

- **Subsidize/incentivize the creation of local content (News, social media, government, local commerce, etc.)**

B. Increasing security in digital platforms and education to increase trust in digital life.

The cost of cyber crime has been increasing across the globe, and particularly in Latin America. Brazil (4th) and Mexico (6th) are in the top ten for costs of cyber crime worldwide, with $8 billion and $3 billion estimated costs, respectively [10]. A recent global survey found that two-thirds (64 percent) of users are more concerned today about online privacy than they were compared to one year ago [11]. Over 75 percent of respondents are concerned about criminal hacking of their banking and personal information.

Cyber crime is the responsibility not only of the end user but the local government and international community as well. Users are not only concerned with explicitly cyber crime – such as hacking or direct attacks on their devices and information – but also the use of personal information collected during regular internet usage. To build trust with end users, usage of personal data also needs to be addressed.

Education plays a key role, as users need to understand that secure usage of the internet can be done, but it may take some protocol or steps to ensure safe usage. It is a shared responsibility of the internet provider and local government to not only provide clear and secure governance, but also education so that users can implement best practices to maintain security – thus building trust. With trust, the economic and educational benefit of the community can be fully realized.

Policy recommendations:

- **Clear definitions around what the operators perform with the data, information rules and obtaining approval from users.**

- **Encouraging local, proactive solutions for security from international internet providers.**

- **Education for citizens on best practices for secure online life.**

- **Prioritize mobile security solutions**

C. Increase entrepreneurship through decreased regulation, partnerships and investment

The creation and sustainment of new firms is critical to all growing ecosystems. Latin America falls behind in the level of investment in small and new firms, and venture capital overall. The per capita investment for Latin America is $1.67 USD versus $415 USD in the USA, $819 USD in Israel and $38 USD in Europe. This low investment indicates both a lack of resources, but also a lack of activity and perceived opportunity.

Public policy can play a key role in supporting a growing startup ecosystem, both good and bad. A recent study at George Mason University found that increased regulation had a direct negative effect on new company formation/entrance [12], indicating that increased regulation is not a driver of growth (statistically).

Examples of positive public policy are those that support private investment. These public-private partnerships allow or incentivize private investment in areas that perhaps do not attract public funds. One notable example is Israel, who at one time offered a 1 to 1 match for public dollars with no equity stake. Such lucrative public support is rare but has driven significant growth, particular in high tech. Other examples of successful public-private investments are in Finland with its Tekes [13] program and Singapore, with the Infocom Investments [14]. Notable with these programs is the partnership between the public and private sector and targeted investment in high-growth industries.

Policy recommendations:

- **Develop collaborative funding models for public-private investments.**

- **Develop policies that encourage investment; make your city/country have the "unfair" advantage in optimal policy.**

- **Focus investments on industries where your community has a competitive advantage.**

D. Encourage and enable in LATAM created content

The key to driving local economic growth is the development of value added services and content for local and global consumption. Latin America consumes 63 percent of its online content from non-Latin America sources [15]. The local content that is consumed is predominantly from local news outlets and e-commerce that is country/region specific. The large amount of international consumption is driven by a disproportionally high usage of social media. Social media represents 78 percent of total internet content, higher than any other region in the world (64 percent on average) [16].

Multi-media content is dominated by international providers, in particular, You-Tube and Netflix. This in itself is not negative, as Latin American content can be distributed through these channels, but anecdotal evidence suggests that much of the content is from international sources, with educational content primarily being consumed in English.

E-commerce represents one area where Latin America has some local content, as local providers can serve their markets better. As examples, B2W Digital, Nova Pontocom, and SACI Falabella are the top three e-commerce platforms in Latin America and are local providers2. E-commerce, however, is still very small in Latin America, with its worldwide percentage expected to decline by 20182.

Policy recommendations:

- Policies enabling e-commerce can drive local internet use.

- Incentives for local content can drive local generation and engagement.

- Policies enabling digital content, such as secure e-commerce, banking, and health care will drive local engagement.

E. Establish secure financial infrastructure for e-commerce for low income/ non-banking citizens.

A theme presented throughout the Symposium was Latin America's access to financial instruments, specifically for e-commerce. Unlike the US or Europe, where credit cards have found ubiquitous usage, as well as emerging non-traditional payment systems, like PayPal, Latin Americans do not have the same trust and access to P2P and P2C financial instruments.

The lack of access or availability was attributed to the lack of traditional credit and banking history used by traditional financial instruments/institutions. Many citizens have not had a previous bank account nor credit history. In addition, these citizens do not represent the high-profit/fee customers that most traditional banks seek. Finding a low-cost, history free, trusted method of P2P and P2C money transfer is key to enabling online local commerce, which will, in turn, drive local content creation and local economic growth.

Several solutions have been found in other regions, such as bkash in Bangladesh and M-Pesa in Kenya, both providing local solutions for P2P and P2C money exchange. In Kenya, M-Pesa accounts for 25 percent of all transactions in the country [17]. The success has been attributed to easy access, a no-fee model as well as significant training of staff to ensure high customer service which directly translates to trust – one of the major impediments to the adoption of new e-money and e-commerce solutions. Bkash offers access to financial transactions to 98 percent [18] of its customers. In addition, in countries where currency fluctuations are high, cyber currencies are being considered, such as Bitcoin in Argentina [19].

Policy recommendations:

- Policies to support solutions for unbanked customers.

- Policies to engage interoperability of mobile money and non-traditional financial money system.

- Policies in support of security and de-risking mobile-money and e-commerce for all users.

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About the Strategic Innovation Summits and Symposia

The Strategic Innovation Summit and Symposia series was convened to enable multi-disciplinary discussions of senior leaders on relevant topics of the year. Unlike conventional, discipline-specific conferences, where topical content is narrow and participants are generally from the same discipline, the Summits bring together people from many sectors. These include government, business, education, non-profit, and the arts and sciences.

The goal is to create and stimulate conversation that would normally not take place elsewhere, between senior leaders on important topics related to innovation and society.

The Summits and Symposia provide three important benefits to participants:

1. Education – As experts in their fields, participants learn from one another through interactive sessions and dedicated talks. These aim to educate, raise important questions, and present the latest data on trends and the current state of the Summit topic.

2. Multi-disciplinary Engagement – The Summits are sized such that even during the main session, a conversation can occur amongst all participants. Questions and answers are not only between the speakers, but also the participants. Facilitators and moderators from HBS, TECH, and other centers are brought in to ensure engagement and to be a catalyst for the conversation.

3. Action – The ultimate goal of the Summits is impact. For this to happen, action is a critical component. The summits dedicate approximately 25 percent of the time to action sessions with the participants. That format drives the discussion and ideas presented into an action set for both the participants and the broader community.

Attendance is by application only, and senior leaders from any discipline that is relevant to the topic are encouraged to apply. Summits are generally convened on the campus of Harvard University; however off-campus Summits do occur when the topic and location enhance the opportunity for conversation and engagement of the participants.

Topics are proposed by participants, senior leaders in industry and government, and the Fellows in TECH. Topics are chosen based upon relevance and potential for impact in a broad sense, to include economic, societal, and environmental benefits.

For more information about the Strategic Innovation Summit series, please contact the Program Chair, Dr. David S. Ricketts (ricketts@seas.harvard.edu).

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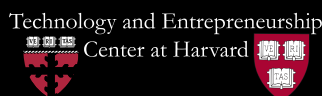
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Janete Veiga, Co-Founder, Futurecom

Laudalio Veiga, Chairman, Futurecom

Liane Ventura Guerra, Senior Vice President, Greater Miami Chamber of Commerce

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