Konrad Adenauer Stiftung

EKLA
Regional Programme Energy Security and Climate Change in Latin America

URBAN CLIMATE GOVERNANCE: THE LATIN AMERICAN EXPERIENCE

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Abstract

Current climate change policy takes place at different institutional levels. On the one hand, governments are trying to find a political framework for a global climate agreement under the auspices of the United Nations. On the other hand, a variety of local initiatives, especially city networks have been established in recent years and autonomously implement measures to combat climate change and exchange best practices. This so-called bottom-up approach is intensified by the fact that cities have become hotbeds for socio-political and technological innovation. The high density of talent, technology and capital located in urban areas, the necessity to find innovative solutions to the pressing problems of climate change and population growth, and the role of cities as drivers of economic growth foster collaborative creativity and stimulate innovation. Becoming increasingly independent from an institutional perspective, cities have emerged as the driving force behind implementing climate policy-related measures. This article presents the benefits of dealing with climate change at the local level and aims to demonstrate how cities have become centres of innovation in this area. Focusing on Latin America, Brazil in particular, this paper showcases opportunities for cooperation between cities and businesses that have the potential to further accelerate the process of combating climate change and are thus instrumental to achieving a more sustainable form of urbanisation.

Introduction

This century will bring about massive changes to our planet's society. Due to record-speed population growth the Earth's population will have peaked at 9.5 billion by 2075 and the face of our planet will have changed forever[1]. Nowhere will this change become more apparent than in cities. As an increasing number of the rural population migrates to urban areas in order to find employment, it is estimated that 66% of the world's population will live in cities by 2050. This constitutes an additional inflow of approximately 2.5bn people within the next three and a half decades[2]. According to John Wilmoth, Director of the Population Division of the Department of Economic and Social Affairs of the United Nations, "[m]anaging urban areas has become one of the most important development challenges of the 21st century". He further states that the success of the post-2015 UN development agenda is in large parts contingent on whether or not sustainable cities can be built.

Producing 80% of the global GDP cities are one of the main drivers of economic growth. In their role as economic powerhouses they create jobs and compete with each other in order to attract investments. To stay afloat in this constant state of competition cities are required to innovate, modernise and adapt at rapid speed. At the same time, they have to provide for their citizens and meet their demands. These include a well-working and affordable infrastructure and a wide range of municipal services. It is therefore essential that city governments deal with problems where they occur: on the local level. The high density of talent, technology and capital accumulated in urban spaces has made cities hotbeds for collaborative creativity and, consequently, socio-political and technological innovation. Politically speaking, cities have gained in importance, too. Especially in Latin America, a wave of decentralisation that started in the mid-1980s has equipped municipalities with new competences and resources and transferred a considerable amount of power to sub-national governments[3]. Solving problems at the local level echoes the Agenda 21 to "think global, act local" and has become known as the so-called bottom-up approach that has established itself as an alternative to the traditional top-down method of problem solving usually employed in the political sphere.

This newfound importance of cities becomes particularly apparent in the realm of climate policy. As cities account for 75% of global energy consumption and 80% of CO2 emissions[4] they are very much causing the climate change that they, themselves are affected by. In order to deal with the repercussions of changing

1 North Atlantic Treaty Organization (NATO). 2011. NATO Review. Available online: http://www.nato.int/docu/review/2011/climate-action/Population_growth_challenge/EN/index.htm

2 United Nations Department of Economic and Social Affairs (DESA). 2014. World's population increasingly urban with more than half living in urban areas. World Urbanization Prospects. Available online: http://www.un.org/en/development/desa/news/population/world-urbanization-prospects-2014.html

3 Nickson, A. 2011. Where Is Local Government Going in Latin America? A Comparative Perspective. Swedish International Centre for Local Democracy. Available online: http://www.icld.se/pdf/ICLD_wp6_printerfriendly.pdf

weather patterns and temperatures, mitigate the possible risks and adapt to the new status quo, city governments cooperate increasingly with each other to create knowledge-sharing platforms and exchange best practices. Eventually, those cities, which are most sustainable and resilient to climate change, will stand out among their peers and thus do better in the aforementioned competition. In order to accelerate this process, multiple stakeholders are being brought together to find answers to the pressing problem of climate change. The participation of the private sector in this new form of dialogue with local governments is less advanced, although there lies enormous potential in this area: Unlike cities, businesses have the technical expertise and financial resources to implement innovative solutions and therefore the potential to create shared value in cities. A 2014 study by the Carbon Disclosure Project (CDP) confirms that the needs of cities and businesses are closely aligned and congruent in large parts: Almost 80% of the participating cities expect climate change to affect them and the businesses working in the cities alike with two thirds of the municipalities seeing potential economic opportunities arising out of climate-related issues[5]. The market for these so-called Smart Cities Initiatives is said to grow from around USD 507 billion in 2012 to USD 1,266 billion by 2019[6].

Cities as centres for innovation have already become a reality in Latin America, one of the most urbanised regions in the world, where 90% of the population is projected to live in urban areas by 2020. Urban areas in the region are often not able to cope with the rapid population growth resulting from rural migration leading to elevated poverty and crime rates. In creating a more sustainable economic order, it is necessary to respect the social dimensions of sustainability and include them in the city planning process. On top of that, it is important to take environmental consideration into account and to intensively prepare cities for the possible ramifications of climate change. Latin America and the Caribbean are considered particularly vulnerable in this area, with 73% of its urban population living in low-lying coastal areas (LLCAs)[7], i.e. those regions that will be most severely affected by rising sea levels and extreme weather events. Hence, innovation and sustainability are not merely fancy ideas in Latin America but questions of survival.

This paper presents the benefits of dealing with climate change related issues at the local level and aims to show how cities have become centres of innovation in the course of this process. With a clear emphasis on Latin America and Brazil in particular, it discusses the role of local governments in climate mitigation and adaptation activities and presents various initiatives that demonstrate the advanced level of autonomy of city governments. It is argued that city networks are the embodiment of this novel, locally based approach to climate policy and

4 United Nations Environmental Programme (UNEP). Cities and Buildings. Available online: http://www.unep.org/SBCI/pdfs/Cities_and_Buildings-UNEP_DTIE_Initiatives_and_projects_hd.pdf

5 Carbon Disclosure Project (CDP) Latin America. 2014. Seizing the Opportunities for collaboration between cities and business for sustainable economies. Available online: http://www.kas.de/wf/doc/kas_40014-1522-2-30.pdf?141217185035

6 Transparency Market Research. 2014. Global Smart Cities Market - Industry Analysis, Size, Share, Growth, Trends and Forecast, 2013 – 2019. Available at: http://www.transparencymarketresearch.com/smart-cities-market.html

7 Inter-American Development Bank. 2015. Urban development challenges in Latin America and the Caribbean. Available at: http://www.iadb.org/en/topics/emerging-and-sustainable-cities/responding-to-urban-development-challenges-in-emerging-cities,6690.html

fundamental to spreading innovation in this sector. Furthermore, this article showcases opportunities for cooperation between cities and businesses in this field that have the potential to further accelerate the process of combating climate change and are thus critical to achieving a more sustainable form of urbanisation.

City networks embody the new bottom up approach to deal with the consequences of climate change at the local level

As main emitters of global GHG emissions, cities have become key players in climate-related questions. At the same time, the impacts of climate change are most visible in cities - increases in temperature, precipitation, floods, droughts, storms, extreme weather events and rising sea levels all directly affect densely populated urban areas most severely. It is not surprising to see that 75% of environmental restrictions worldwide are already being implemented on a city level[8]. But cities are not only part of the problem. They can also be part of the solution[9].

In terms of governance, the interest and capacity of metropolitan municipalities to promote integrated policies and groundbreaking local initiatives that improve environmental quality should be highlighted. Local governments can deal efficiently with urban infrastructure, provide essential public services, and are therefore able to influence the decisions of the local population and business environment. Cities have specific demands and the capacity to put them into practice without requiring extensive involvement of other levels of government. This leads to a considerable degree of autonomy and independence in implementing solutions to environmental questions. By developing small-scale pilot projects that can later be replicated and disseminated to other localities, contexts, and levels of government, cities now have the power to sidestep national governments and establish themselves as pioneers in fighting climate change.

The recent emergence and industrious activity of various city networks demonstrates how far along this process has come already and symbolises both the increasing autonomy of cities and the necessity to quickly spread innovation and best practices on an international level. The creation of these transnational networks of local governments represents a new form of decentralised international cooperation that has become vital in dealing with climate change at the local level. The C40 Cities Climate Leadership Group (C40) is the most prominent example for such an initiative. This global coalition comprises of 70 megacities from around the world that collectively take action to reduce greenhouse gas emissions. In 2013

8 Eletrobras, 2014. Seminar "O Balanço Energético Municipal do Rio de Janeiro e Contribuições para Cidades mais Sustentáveis". UFRJ/COPPE and Centro Clima.

9 La Royere, E.L. 2013. A. Importância da Elaboração dos Inventários de Emissões de Gases de Efeito Estufa nas Capitais Brasileiras. CentroClima/LIMA/PPE/COPPE/UFRJ. 2o Encontro dos Secretários de Meio Ambiente das Capitais CB 27. Available online: http://www.kas.de/wf/doc/9640-1442-1-30.pdf

alone, the C40 cities have implemented over 8,000 climate actions[10]. That year, Rio de Janeiro's mayor Eduardo Paes was elected chair of the C40 to honour the city's achievement in the realm of sustainable urban development and resilience-improving policies. The election of a Latin American mayor as the head of the network demonstrates the growing tendency and will to include the Global South in these kinds of initiatives, which has been a pronounced aim of Paes' mandate.

Central and South American cities are members of a variety of such cooperative approaches such as the Low Carbon Liveable Cities Initiative of the World Bank, the Sustainable Cities Programme of UN-Habitat and UNEP, and the Emerging & Sustainable Cities Initiative of the Inter-American Development Bank to name just a few.

When speaking about the local dimension, it is important to mention that Latin America has its own national network initiatives as well, which are becoming increasingly popular on an international scale. One of these success cases is the network of the environmental secretaries of Brazil's 27 state capitals, CB27. Its birthplace was the World Climate Conference Rio +20, which brought world leaders, thousands of government officials, the private sector, NGOs, and many other actors together to reduce poverty, promote social equality and ensure environmental protection[11]. CB27 is a platform that facilitates communication between the Brazilian regional capitals on matters concerning environmental management. Although relatively new and still incipient in the developing world, this network approach to urban climate governance has great potential for innovation in terms of mitigation and adaptation policies. It has frequently been presented as an innovative example to implement and develop environmental policy on a local level at an international scale, most recently at the COP20 conference in Lima, Peru where city environmental representatives from member states of the Pacific Alliance – Chile, Colombia, México and Peru – signed a declaration to form a similar network. Similarly, meetings between Mexican cities are currently being organised with the intention to show how city networks are increasingly becoming a reality in Latin America[12].

10 Paes, E. 2014. Cities are leading the fight against climate change. Climateaction 2014-2015. United Nations Environmental Programme. November 2014.

11 United Nations Conference on Sustainable Development (UNCSD). 2012. About the Rio+20 Conference. Available online: http://www.uncsd2012.org/about.html#sthash.ASCoemRj.dpuf

12 Konrad-Adenauer-Stiftung Regional Programme Energy Security and Climate Change Latin America. 2015. Sustainability Opportunities and Challenges for Mexican Cities. Available online: http://www.kas.de/energie-klima-lateinamerika/en/events/62734/

Multi stakeholder collaboration is key to successfully implementing and spreading pioneering environmental solutions

Although a high level of activity in this field should be welcomed, the myriad of different city networks can sometimes be a curse rather than a blessing. Take the case for GHG emissions inventories, for instance: A large number of players from different sectors have made it their business to develop methodologies to register and manage their environmental data, which led to the coexistence of numerous different approaches. In the way that too many cooks spoil the broth; too many different methodologies result in lower quality and hence incomparable data sets – leading to confusion among the final users of these data. It is therefore of utmost importance that increased activity in this sector is always accompanied by an elevated degree of cooperation among the different players. That is why at this year's COP20 in Lima the first global standard to measure city greenhouse gas emissions the Global Protocol for Community-Scale Greenhouse Gas Emission Inventories (GPC) was jointly launched by the C40, Local Governments for Sustainability (ICLEI) and the World Resource Institute (WRI). The GPC offers a harmonised approach to measure GHG emissions. With unified and comparable data sets, city and communal governments can deal more efficiently with urban infrastructure and pass regulations at the local level. After all, this is where climate change occurs.

By sharing best practices and exchanging knowledge on a regular basis, city networks are instrumental to this cooperative process of spreading innovation. An ideal case to demonstrate how this can be done is the Bus Rapid Transit system (BRT) that exists in many Latin American cities. First implemented and pioneered in Curitiba, BRT is a flexible concept that can be configured especially for the market it serves and adapted to the physical environment, in which it operates. It is a high-capacity bus system that provides a fast, reliable, and efficient service and has little in common with traditional bus systems. Using exclusive bus corridors BRT achieves equivalent or even elevated performance at a lower cost. Moreover, it has the potential to significantly reduce CO2 emissions. Curitiba's Integrated Transportation Network inspired TransMilenio, the BRT system that serves Bogotá and as of 2012, had 12 lines totalling 112 km (70 mi) throughout the city, which made it the world's largest system of bus rapid transit. The rapid dissemination of BRT systems in Latin America and Asia – both regions are currently leading the implementation of BRT systems with around 56 and 35 cities, respectively – shows that cities face similar challenges, which they have to answer with locally compatible measures. BRT systems, as opposed to rail-based technologies, have the ability to deliver a high-quality mass transit system within the budgets of even the low-income municipalities.

The private sector increasingly provides innovative, locally adapted climate solutions

The private sector has been crucial to the success of BRT systems in many Latin American cities. Businesses and investors alike have played a vital role in financing and implementing this innovative idea. In Mexico City, for example, buses have been largely financed privately, except for contributions by the government in

setting up the first two lines. This shows how private investment can be mobilised for LCR infrastructure. In Porto Alegre the BRT systems offered areas dedicated to retail, services and advertising activities in order to generate revenues and attract private investors for the construction of the terminals and a large part of the infrastructure.

Due to fierce competition and the dynamic nature of enterprises in comparison to public entities the private sector has traditionally been the most prominent source of innovation. Businesses have the knowhow and competences to manage projects in a time and budget efficient manner. Lastly, firms offer financing possibilities that allow to drastically reduce upfront payments and thus aid cities with budgetary constraints. Since collaboration between traditional companies and city governments is still underdeveloped, the private sector constitutes a practically untapped source of innovation and funding. If managed correctly, businesses can not only create shared value but are one of the most efficient engines for societal change.

Rio de Janeiro's Operations Centre (COR) is a Brazilian pioneer project that works as the monitoring centre of the city of Rio de Janeiro and aims to optimise the city's functions and efficiency. It is an innovative institutional model fostered by local governments, which was to a large extent made possible thanks to the involvement of the private sector. In cooperation with other multinationals such as Cisco and Samsung as well as with local businesses, the North American technology giant IBM established the centre in 2010. Today, it acts as the general headquarters of the city hall integrating about 30 municipal agencies and public service concessionaires in order to monitor and optimise the operations of the city.

The control room – an intelligence centre – has the largest screen in Latin America, with 80 square meters where more than 70 controllers monitor the city full time. It has been widely used to track extreme weather events, such as floods and landslides, and also traffic patterns to help reduce congestions. Features, such as real-time data analytics, predictive traffic analyses, and automatic video use state-of-the-art technology brought in by the private sector. IBM's experience with managing big data has been vital in this process, just like the knowhow of various start-ups and local businesses contracted by city hall to keep the centre's operations running. A large number of SMEs and startups originally invited to help with the implementation now constitute the backbone of the centre. The application Waze, well known to drivers as the world's largest community-based traffic and navigation app, was among the first initiatives to build a mutually beneficent relationship with the municipality of Rio de Janeiro by developing an adapted version of the app for the panels of the COR[13].

The inclusion of the private sector in city projects traditionally belonging to the public sphere is only one side of the coin, though. In order for these projects to be successful, all the parties involved have to understand that collaborative projects with city governments always require a large degree of adaptation to the local circumstances. Colab, a Brazilian application, was launched in 2013 as a virtual complaints channel where anyone could publish a local problem and share

13 http://blogs.estadao.com.br/link/startups-de-tecnologia-ajudam-prefeituras-a-inovar/

it with friends for support. Despite the app's success as a niche social network, there were significant difficulties in addressing the problems posted. A solution was found, only when the city of Curitiba requested an adapted version of the app for local government. A unique partnership like this opened up a new channel of communication between the population and the municipal administration. As a digital tool that allows citizens to monitor and evaluate the municipal services and propose solutions to the city government it enhances the sense of shared responsibilities, brings about better problem management and eventually results in the delivery of better services to Curitiba's citizens.

Public-Private Partnerships can potentially emerge as the engine of this newfound form of cooperative urban climate governance

Another impressive example of the inclusion of the private sector in traditionally government-owned services is the redesign of water concessions in the Colombian cities Cartagena and Barranquilla. Via the inclusion of both private operators and local private shareholders the municipalities created mixed public-private capital companies to improve access to water and sanitation. This improved services, reduced losses from unaccounted-for water through metering and significantly increased access to water for poor urban dwellers. The long-term sustainability of this programme was guaranteed by fostering local entrepreneurship in the water sectors. In the case of Cartagena, the city managed to increase water and metering coverage from less than 70% and 30% in the early nineties to nearly 100% in 2006[14]. Similarly, sanitation coverage increased by more than one quarter to 79% from 1996 to 2006[15]. This success was only made possible via the inclusion of the private sector in an area usually dominated by public institutions.

These so-called Public-Private Partnerships (PPPs) are a specific form of collaboration between governments and the private sector. The term is used to describe long-term agreements made between the public and the private sector, in which the private sector performs certain services that would usually be provided by the government[16]. PPPs are hence a tool for governments to share risks of certain megaprojects, assure the maintenance of the project throughout its lifespan, and circumnavigate budgetary constraints by attracting private investor money. They guarantee a provision of services that is more efficient and/or of higher quality than if provided by public institutions. For the private sector PPPs often represent attractive investment opportunities as the contracts are long-term and guarantee a fixed revenue in the form of concession, usage tariffs, monetised savings etc.

14 World Bank. 2006. Local Solutions Improve Water Supply and Sanitation Services in Colombia. Available at: http://siteresources.worldbank.org/INTWSS/Resources/colombia.pdf

15 Marin, P. 2009. Public-Private Partnerships for Urban Water Utilities: A Review of Experiences in Developing Countries. Trends and Policy Options, No. 8. The World Bank / Public Private Infrastructure Advisory Facility. Available at: http://www.ppiaf.org/sites/ppiaf.org/files/FINAL-PPPsforUrbanWaterUtilities-PhMarin.pdf

16 Public-Private Partnership in Infrastructure Resource Center for Contracts, Laws and Regulations (PPPIRC). 2014. What are Public Private Partnerships? World Bank Group. Available online: http://ppp.worldbank.org/public-private-partnership/overview/what-are-public-private-partnerships

Since PPPs are often related to infrastructural projects, they are particularly important for developing countries.

However, stable and transparent legal frameworks are a prerequisite to successful PPP agreements. According to the Multilateral Investment Fund's (MIF) Infrascope framework, Latin America as a region has become more attractive for private sector investments. Nancy Lee, General Manager at the MIF states that "PPPs work well for inclusive growth when they are designed according to best practices and backed up by strong laws and regulations"[17]. Even though Latin America has made large advancements in this area, the environment differs from country to country as successful cooperation with the private sector in contingent on each country's national policies. Hence, there are some countries that are more favourable for PPPs than others with Chile, Brazil, Peru, Mexico, and Colombia currently leading the rankings. It is no wonder that four of these countries are members of the Pacific Alliance, a free trade bloc founded in 2012 that openly promotes market friendly policies to foster economic growth with PPPs being a fundamental part of this approach. The establishment of PPP laws hence has to be supported by political will that must not be protectionist and backward looking.

PPP laws need to be clear enough to guarantee risk assessment, flexible enough to accommodate changes in conditions typical for long-term agreements, and inclusive enough to attract investors from all over the world. The need for stable legal frameworks on a national level to regulate local action demonstrates how closely linked the top-down and bottom-up approach are. Both must not exclude each other out but go hand in hand in order to guarantee an efficient working of the government. In an ideal scenario, the different levels of government are autonomous entities that are vertically integrated and complement each other. In a case like this, the state government could use its legislative powers to create the necessary laws that empower and capacitate regional and local government bodies to find, design and implement the most appropriate solutions. This paper therefore concludes with a set of a few select policy recommendations that constitute, in our opinions, first steps toward a sustainable climate policy that acknowledges the power of the local.

17 Inter-American Development Bank. 2013. Chile, Brazil, Peru, Mexico and Colombia have best environment for PPPS in Latin America and the Caribbean. Available online: http://www.iadb.org/en/news/news-releases/2013-02-12/environment-for-ppps-in-latin-american-and-caribbean,10327.html

Concluding Recommendations

The various achievements of city networks such as C40 show that cities are perfectly able to implement climate-related policies, if granted a certain degree of autonomy. However, many Latin American cities still depend completely on the municipal environmental budgets allocated by the often centralised governments. The environmental departments' budgetary constraints are aggravated by the fact that environmental policy is not a priority in many Latin American states, or municipalities. We therefore recommend to earmark a fixed percentage of state allocations for environmental causes as it is done in Brazil, for instance, with education (25%) and health (15%)[18].

A second recommendation concerns the legal framework for PPPs, which has to be designed in a clear and private sector-friendly manner. Three characteristics should be respected when designing PPP frameworks: transparency, predictability and accountability since the companies will only enter such agreements if a reliable risk assessment is made possible by national laws[19]. Brazil's National PPP Law and similar policies on a state level, as well as Colombia's toll road concession programme are examples for favourable political frameworks that have boosted both of the country's FDIs. To furthermore mobilise private sector investment and increase the number of PPPs national governments can set up funds that provide subsidies for PPPs, such as Mexico's National Infrastructure Fund FONADIN.

While these two recommendations were directed to national governments, local governments also need to become more proactive. Our third recommendation calls for cities to be more proactive both via forming new city networks and other multi-stakeholder alliances and to leverage the existing ones. Cities can benefit from existing city networks as platforms to further explore their capacity as innovation centres and learn from the experiences of projects developed in other municipalities facing similar realities to save both time and money. There is no need to reinvent the wheel each time they prepare themselves to tackle an urban environmental challenge. The aforementioned GPC dealing with municipal GHG inventories, for example, was only possible due to a coordinated initiative among a group of cities that allowed policy makers to establish a baseline for tracking emission trends, developing mitigation strategies and assessing progress. The German non-profit organisation Engagement Global shows that such cooperation can also happen internationally and stimulates twin cities partnerships. One of them has been developed between the cities of Rio de Janeiro and Cologne, which have assisted each other in local sustainability programmes. Rio supported Cologne with producing its inventory, while Cologne helped Rio in waste management matters. In this case, Rio's inventory was produced by the Federal University of Rio de Janeiro, which once more indicates the importance of involving a widespread array of players in these kinds of problem solving processes.

18 According to the 1988 Constitution of the Federative Republic of Brazil.

19 Marks, A. T. 2010. Public-Private Partnerships: Navigating the Waters in Latin America. Latin American Law and Business Report. Volume 18, Number 4. WorldTrade Executive / Thomson Reuters. Available online: http://www.milbank.com/images/content/1/2/1268/0410-Marks-PublicPrivatePartnerships-Navigating-the-Waters-in-La.pdf

Politicians have an important role to play in fighting climate change and should press for urban climate governance to be included in their respective political party programmes. Only by establishing this subject as an issue of permanent concern in the public mind can politicians assure a lively and sustainable debate on urban environmental questions. It is important to highlight that current city networks and similar initiatives are only that successful because they are driven by a few engaged politicians with their own personal agendas and political ideologies. These individuals have a higher goal in mind and constantly try to form a constructive dialogue between all political parties and actors involved. In the future the success of these initiatives will to a large part be contingent on whether climate policies will find their way into the public mind. Until now, environmental questions have occupied at best a niche in the political debate, and that on a continent that depends to large parts on exporting natural resources. As with every social movement, the thought leaders in the field will now have to make sure that their ideas reach a critical mass, ideally via the anchorage of the environmental dimension in the programmes of political parties.

While the recommendations are specifically addressed to the government, it is also important that the private sector respects the multifaceted nature of working with cities. Firms have to make it their first priority to refine and maybe completely redesign their offers according to local conditions. Not only does this include standard market research about local tastes and preferences but it also requires an in-depth understanding of the legal frameworks on all governmental levels. Establishing cooperation with cities can be a huge market opportunity but if businesses do not acknowledge that each city is different, then any form of collaboration will be precarious. Hence, on top of having to provide innovative solutions, businesses need to adapt them to the local level in order to be successful and sustainable in the long run.

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