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MARKET STUDY

TO MAP THE SMART CITIES ECOSYSTEM IN MEXICO



Mexico, a strategic lab for Smart Urban Solutions

Mexico is a country with multiple faces, a mosaic of opportunities. This diverse ecosystem offers a growth market to develop, incubate and test solutions to be replicated globally.

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About the Trade Commissioner Service

(TSC)

Created in 1894, the Trade Commissioner Service (TCS) has over 125 years of experience helping Canadians succeed in foreign markets by promoting the economic interests of Canada in the global marketplace.

Now more than ever, the Trade Commissioner Service (TCS) helps Canadian businesses grow with confidence by connecting them with our funding and support programs, international opportunities, and our network of trade commissioners in over 160 cities worldwide.

The TCS offers four key services, which are designed to support the growth of Canadian companies abroad:

- Preparing Canadian companies for international markets.
- Providing an assessment of the company's potential in target markets and advice on market strategies.
- Finding qualified contacts
- Solving problems and business challenges.

The TCS can provide owners and representatives of SMEs with on-the-ground support in potential target markets, including localized market intelligence. Trade commissioners can help your business scope out prospective export locations and get you connected with the right people.

The TCS also offers a free database of market reports on a wide range of locations, including intelligence on prominent industries in each market. You can access this free service by region or by sector.

You're ready to grow. We're ready to help!



About the Canadian Technology Accelerators

(CTA)

The Canadian Technology Accelerators (CTA) concept started in 2009 as a Mission-led commercial initiative in San Francisco. Based on client feedback, the Mission wanted to evolve from offering Canadian companies responsive services to instead offering short-term continuous intensive services to selected firms to accelerate their growth in the United States.

Fast forward to present day, the CTA is a permanent program of the Trade Commissioner Service and operates in the United States, Mexico, Asia and Europe.

The program falls under the High Intensity Services Division (BBA) whose mandate is to enable the TCS network to provide a tailored and enhanced level of the key services in support of the global growth of clients. Other programs under the BBA portfolio include the newly created Global Mentor Program and the Key Accounts Secretariat.

The specific objective of the CTA program is to accelerate the global growth of high impact businesses in digital industries and ICT, Life

Sciences and Cleantech. The program does this through curated programs that help businesses take advantage of what the local market(s) has/have to offer. While programming is adapted to each market, CTA enhanced services generally include:

- Comprehensive market intelligence to better understand the local market;
- Regulatory environment and import considerations;
- Assistance to resolve difficulties or challenges that may arise;
- Mentorship and advice from industry leaders in the foreign market;
- Meetings with sectoral experts (in group or one-on-one) both in government and private sector;
- Access to potential investors;
- Strategic partnerships with local organizations to provide value-added activities/services;
- Connections and networking in the technology business community;
- Office space in technology centres shared with other entrepreneurs and innovators (where applicable).

+Introduction

We developed this study to help the participating CTA program companies understand the Mexican market related to technologies for smart cities and digital platforms for urban applications. In general, the Mexican market is not explainable in terms of a homogeneous perspective. Instead, it is a country with multiple faces; in that sense, it is a mosaic of opportunities.

Mexico is a diverse country with unlimited opportunities for investment and doing business; however, its social, economic, demographic, and geographic conditions require a detailed analysis of the requirements of each region, locality, or municipality. This analysis will help define the specific strategies to adopt or implement to succeed in doing business in Mexico.

In Mexico, we can find municipalities with high development rates, such as San Pedro

Garza in the Metropolitan Area of Monterrey, Nuevo León, with a GDP per Capita of \$60,000 per year (according to Fitch Ratings, 2018) comparable to Switzerland. In contrast, Chiapas has a GDP Per capita of \$7,072, like the Republic of Congo. Of course, the CTA companies will need to analyze in depth this diversity to understand the business dynamics and opportunities in Mexico. Still, it is also a sample of the incredible variety of possibilities to implement business models for global markets of all kinds.

Although developing business models for cities like Singapore is standard, it is essential to ponder their replicability (the world does not have many Singapores). And on the other hand, CTA companies will need to consider cities like Toluca or Leon, and their challenges are frequent globally; consequently, the model will be easier to unfold.

The study consists of five chapters:

- The **first chapter** covers the IT industry in Mexico and the national strategies to support digital transformation.
- The **second chapter** presents the smart cities ecosystem in Mexico. Initially, a statistical analysis of more than 60 cities in México, including big cities, magical towns, international tourist destinations, and medium-sized cities. This section is the support to analyze further and categorize the cities and their opportunities. In addition, a Digital DB will be available.
- In the **third chapter**, the study presents scorecards and a map of key players and projects for the country, and a selection of cities and towns.



- Based on data and consultants' experience, the **fourth chapter** categorizes cities based on seven archetypes and the main challenges they must implement for Smart City and digital transformation projects. In this chapter we also suggest technology needs in Mexico and opportunities for Canadian companies for each archetype and market niches.
- In the end, in **chapter five**, the study suggests market entry strategies for Canadian companies. It presents conclusions to develop the program in Mexico further, strengthen ties between both countries, and make the most of COSMA and the CTA program.

General Overview

A smart city is much more than a technological city; it is a city that takes advantage of the creativity and potential of new technologies to face the challenges of urban life. In addition, a smart city also helps to solve more sensitive issues for its citizens, such as insecurity, urban mobility problems, water resource management, and solid waste. In other words, a Smart City is not only a digital platform but the results from citizens' well-being perspective.

Suppose there is something that prevents Latin American cities from reaching the top positions in the rankings of the most innovative cities. In that case, it is the lack of political projects and the absence of digitization strategies.

Smart cities in Mexico

Mexico ranks as the country in the Latin American region with the most cities with smart features. Although there are smart initiatives for the future in various country's urban centers, Mexico City and Monterrey are the most progressive cities in implementing new technologies and appear in the Smart Cities Index of EasyPark and the Cities in Motion Index from the IESE Business School.

"Smart City" is no longer interpreted as a term, concept, or a dream that in the future may occur. Instead, many experts agree to define the challenge of developing urban digital solutions to urgent issues or needs in a multilevel approach: traffic congestion, insecurity or delinquency, housing, lack of social inclusion, strains on energy and water systems, among others.

It is now clear that the Smart City concept is related to digital, exponential technologies, ICT, and innovative projects to improve efficiency, productivity, and competitiveness, particularly in urban services generating new economic opportunities for the cities and citizens. Moreover, urban digital platforms have great potential for municipalities, administrative agencies, non-profit organizations, corporations related to information technologies, telecommunications, energy supply, mobility, IoT, real estate, to mention some.

The experience of cities like Barcelona, Singapore, Helsinki, and others answered some questions and created use cases to define where to start.

However, sometimes the concept is not wholly understood. Still, the irreversible digitalization process is in progress, and many cities are becoming more "intelligent." Hence, sometimes we don't perceive digital solutions and their impact on our daily lives as part of a smart city project.

We are active and permanent users of digital services, from simple digital communication

apps to more sophisticated financial, delivery, or digital health solutions. We share our information and personal data with businesses to identify patterns, preferences and profile potential consumers.

However, something is still missing in the ocean of data and information... "governments are not using information and data to benefit society" -at least not every government.

What could be the reason for Municipal, Local and Federal Governments not using the information and data to identify needs, priorities, and opportunities? Could it be related to the misunderstanding of using technologies as a tool instead of adopting it as substantial elements to create opportunities for the cities?

The OECD has defined smart cities as "initiatives or approaches that effectively leverage digitalization to boost citizen well-being and deliver more efficient, sustainable and inclusive urban services and environments as part of a collaborative, multi-stakeholder process" (OECD, 2018a). Pointing out four main issues:¹

- Document better the contribution of smart cities' to improving people's lives while continuing to deliver solutions to some of the most common urban challenges in a sectoral or multisectoral approach.
- To promote stakeholder engagement in local governance and collaborative partnerships. To boost civic engagement and leverage the role of the private sector in decision-making at the local level (citizen participation and feedback. To develop co-creation and co-production models; citizen-centered services and engagement platforms).
- The value of experimentation with public access to open data and collaboration within/between cities; private-public-people; national-regional-local scale.
- To emphasize the need for an integrated and holistic approach to address urban challenges through digital innovation in a city's governance, planning, and infrastructure investment.

In July 2020, during the G20 Digital Economy Ministerial Meeting, members agreed that digitalization ... "offers more significant opportunities to advance standards of living through human-centric, data-driven, and evidence-based policy, increased economic competitiveness, higher-quality jobs, enhanced provision of public services in cities of all sizes and communities in remote and rural areas, and more inclusive societal participation of people from all backgrounds. However, digitalization also poses challenges, including bridging digital divides and developing effective policies and strategies.

Those strategies must be innovative and agile, flexible, and adapted to the digital era while addressing anti-competitive practices, safeguarding privacy, advancing security, and building trust while reducing inequalities. Digitalization also increases the importance of boosting job opportunities and improving market access for Micro, Small, and Medium Enterprises (MSMEs)."²

The ministers recognize that the digital economy is a catalyst for inclusive growth, innovation, and sustainable development.

They also agree on closing gaps within countries by accelerating global internet penetration in remote and rural areas and promoting initiatives to advance digital connectivity infrastructure.

Digital skills and awareness, affordability of Internet services and devices, closing the digital gender gap, digital content³ became the central discussion heading to 2030 and the Agenda for Sustainable Development.

The G20's agreements on the digital economy were focused on:

- **Trustworthy Artificial Intelligence** promotes a human-centered approach to AI; supports the G20 AI Principles; attends National Policies and International Cooperation recommendations according to national priorities.
- **Data Free Flow with Trust and Cross-Border Data Flows** encourage the interoperability of different frameworks for data-free flow with trust and cross-border needs to make front to challenges, such as protecting the privacy and personal data.
- **Smart Cities** and intelligent mobility are holistic approaches to smart cities and communities. A common strategy should serve as a vital engine of innovation and investment, learning from experiences and sharing knowledge to accelerate the diffusion of innovative mobility systems in human-centric, inclusive, and sustainable ways.
- **The Digital economy measurement** of all economic activity reliant on or significantly enhanced by digital inputs, including digital technologies, infrastructure, services, and data. The action must include all producers, consumers, and the government utilizing these digital inputs in their economic activities. Measurement should monitor social and economic impact, jobs, skills, digital literacy, growth, and effective use across communities, considering gender, education, and other socioeconomic factors.

² G20 Digital Economy Ministers Meeting. Ministerial Declaration. Wednesday, July 22, 2020

³ Ibidem

- **Security in the Digital Economy**

integrates security risk management strategies, preserving and respecting human rights, considering that security is central to all businesses, highlighting the critical place of MSMEs as elements of global value chains.

Klaus Schwab said that the Fourth Industrial Revolution could raise global income levels and improve the quality of life for populations worldwide.

Technological innovation leads to a supply-side miracle, with long-term gains in efficiency and productivity. As a result, transportation and communication costs will drop, logistics and global supply chains will become more effective, and the trade cost will diminish, all of which will open new markets and drive economic growth.⁴

Therefore, making it smart not necessarily means we are making it simple, especially when emerging technologies are intended to have implications on urban development and need to interact with many digital applications, such as:

Emerging technologies: 3D printing, IoT, big data analytics, AI, advanced energy storage technologies, civic technology, drones, Blockchain, Biotechnology, AV; Applications: security, healthcare, mobility, energy, water, waste, economic development, housing, etc.

What seems to be the perfect solution to close gaps might also become a greater inequality. Customers, consumers, and service users have total control; they know what they want, know their rights, and are no longer passive. Moreover, customers are aware of the meaning of a consumer/customer/user experience. Therefore, they will not hesitate to move from one supplier to another, looking for the best option in the market to give them the best experience.

"Humans must be proactive in shaping this technology and disruption. This requires global cooperation and a shared view of how technology is reshaping our economic, social, cultural, and individual lives."

Bernard M

Businesses, particularly SMEs, need to utilize technology to enable greater personalization and more valuable, connected experiences across bricks and online channels.

On the other side, we have public administrations that can no longer be traditional, not only because of the international commitments acquired through several treaties and agreements but for their citizens. Citizens, like consumers, are empowered, informed, and

⁴ SCHWAB Klaus, WEF. "The Fourth Industrial Revolution: what it means, how to respond". June 2016. <https://www.weforum.org/agenda/2016/01/the-fourth-industrial-revolution-what-it-means-and-how-to-respond/>

demand transparency, efficiency, efficacy, accountability, and prompt response to their needs. People and businesses are tired of bureaucracy, corruption, delinquency, and surplus, to be the ones who have to pay for wrong decisions made at government levels to survive and stay in the market.

New lessons arise every day, and it should not leave unnoticed the sanitary emergency that shaken the world in 2020 and has seriously tested the global economies. COVID-19 presented clear evidence: organizations that can move fast and become digital had more survival chances than those that remain as traditional businesses.

The time to make decisions based on a low cost of manufacture, low cost of investment, or low cost of living no longer exists. Globalization opens the door to starting your own company in a different part of the world or finding competitive suppliers or human resources from all over the world.

With that in mind, well-being, economic growth, and development are not only about innovation, digitalization, and technology; it



is also about stakeholders. In that sense, one of the most important players is the government at all levels, not only willing to invest, most importantly, ready to take the public administration and public services to the next level.

How to make that happen? How to encourage Public Administrations to become more innovative, digital, emphatic to the citizens? How to make smart movements when countries are so different?

How to learn from international success cases and make it happen when cities and regions are not under the same circumstances and conditions? How to move forward in a country where it is not about going digital, but about digital inclusion and digital alphabetization; technologies and digital innovations; telecommunications; citizens, unions, businesses, industry all working together for its benefit?

How to go Smart when Governments have no similar circumstances?

How to make it happen when it comes to Mexico?

Mexico

Mexico is an ocean of opportunities for SMART, mainly because it can be a way to take advantage of digital innovation and technologies. Moreover, Mexico could be an alternative to take the concept of Smart to the next level and reinvent the idea of Smart into a specific Road Map to Smart cities, regions, communities, solutions, business models, public policy, culture.

It could be the opportunity to think out of the box and doing it "The Mexican way,"... a way that could also be the way of many other countries under similar circumstances. Many countries, like Mexico, are urged to gain the benefits of the smart concept but are just not ready to follow the steps that have become success stories in other countries.

The recent sanitary emergency SARS COVID-19 has tested global economies and competitiveness, increasing the gap between strengthened and emerging economies. Due to the COVID19, the GCR presents a new vision, standards, and drive scalable on four areas:

- Economic growth, revival, and transformation
- Work, wages, and job creation
- Education, skills, and learning
- Diversity, inclusion, equity, and social justice

There is a before and after the pandemic. Governments should learn how to prioritize having long-term thinking while enhancing public services through digitalization to regain trust and strengthen principles that could make them attractive for investment. COVID-19 crisis has proven that the key for survival has been ICT -access, availability, and use-. Digitalization has been accelerated not only in advanced economies but also in emerging economies. Only the ones who were able to reinvent as fast as the pandemic demanded have survived.

It is time to take the risk and address the challenge of transformation and digitalization at all levels. The government must invest in ICT infrastructure and electricity and redefine debt to upgrade ICT infrastructure to accelerate digitalization and change, not as a survival measure but as a lesson learned.

Mexico has additional challenges for digital transformation: digital alphabetization and inclusion, new labor market opportunities, scaling up reskilling and upskilling programs. To do that, government and education institutions must rethink active labor market policies and workforce with skills that could feed the market of tomorrow. Deem Mexico does not revisit the rules and its "doing business" pitch and turns it into a digital and knowledge economy narrative. In that case, the country will progressively go out of the global market.

SMEs have proven they are open to change, but they need support. Mexico should take advantage of the situation and move fast to:

- Ensure stable financial markets,
- A secure financial system,
- Attract investment.
- Facilitate public-private investment;
- Promote businesses constitution as local businesses,
- Integrate companies and talent into the innovation ecosystems;
- Strengthen entrepreneurial culture and,
- Incentivize venture capital.

The Mexican Way

Mexico has a population of 126,014,024 inhabitants, distributed in 32 States⁵ and 2,457 municipalities. Five States concentrate 39% of the population with 49,196,370 million people -Estado de México, Mexico City, Jalisco, Veracruz de la Llave and Puebla. The States with less population are Baja California Sur, Colima, Campeche, and Nayarit, with 3,693,657 habitants which represent only 2.90% of the total population.⁶

Municipalities and town halls with more population are Tijuana, Iztapalapa, León, Puebla, Ecatepec de Morelos, Juárez, Zapopan, Guadalajara, Gustavo A. Madero, Monterrey, all concentrated in eight States, such as Jalisco (2), Mexico City (2), Estado de México (1), Puebla (1), Chihuahua (1), and Nuevo León (1), Baja California (1), and Guanajuato (1).⁷

From 2016 to 2019, Mexico's GDP had a minimal but progressive increase going from 1.078 trillion US\$ in 2016 to 1.269 trillion US\$ in 2019. However, 2020 had a dramatic decrease with 1.076 trillion US\$.

Graph. 2. Mexico's GDP 2016 - 2020



According to the GCP 2020, the ideal frame should be as follows:⁸

- It should be in proportion to the share of GDP by sector: agriculture, manufacturing industry, nonmanufacturing industry (mining and quarrying, electricity, gas and water supply, construction), and services.
- It should ensure the representation of both large- (more than 250 employees) and small-sized companies (250 employees or fewer), reflecting each sector.
- It should ensure that the chosen companies also have a sufficiently broad geographical coverage.

⁵ INEGI. Censo de Población y Vivienda 2020

⁶ To consult population by State, please refer to Tables in Chapter 2, section 2.2.

⁷ INEGI. Censo de Población y Vivienda 2020.

⁸ SCHWAB Klaus, ZAHIDI Saadia. The Global Competitiveness Report SPECIAL EDITION 2020: How Countries are Performing on the Road to Recovery. World Economic Forum. Special Edition 2020. http://www3.weforum.org/docs/WEF_TheGlobalCompetitivenessReport2020.pdf

How can Mexico make that frame possible when -in Mexican slang- the condition of the territory is not even flat?

While in some parts of the country, people live from agriculture, manufacturing industry, nonmanufacturing industry (mining and quarrying, electricity, gas and water supply, construction), and services. In other parts, the industry is very specialized and sophisticated sectors such as automotive industry, IT or aeronautics.

It is crucial to identify the core elements to consider in the Mexican way to boost smart regions, cities, and environments. Canadian companies will need to identify necessities and define priorities; determine opportunities with potential; identify or describe an adequate method of implementation and review the business or businesses models that will bring the business project into a successful case.

Business Demography

INEGI Business Demography Study EDN 2020 estimates 619,443 births and 1'010,857 deaths, representing a variation of -8.05% establishments regarding the total initial population.

Table 3. Demography of businesses in Mexico.⁹

SECTOR / SIZE	Initial population	Births	Deaths	Current population
Total	4 857 007	619 443	1 010 857	4 465 593
Micro	4 690 539	614 766	975 619	4 329 687
SME's	166 468	4 677	35 239	135 906
Manufacture	627 059	55 067	94 085	588 041
Micro	600 023	54 349	89 910	564 462
SME's	27 036	718	4 175	23 580
Commerce	2 311 463	317 842	438 643	2 190 661
Micro	2 254 669	316 513	427 642	2 143 540
SME's	56 794	1 329	11 002	47 121
Private Services (non financial)	1 918 485	246 534	478 129	1 686 890
Micro	1 835 847	243 905	458 067	1 621 685
SME's	82 638	2 629	20 062	65 205

*Elaborated with information from the INEGI Demography of Businesses in Mexico Study. 2020

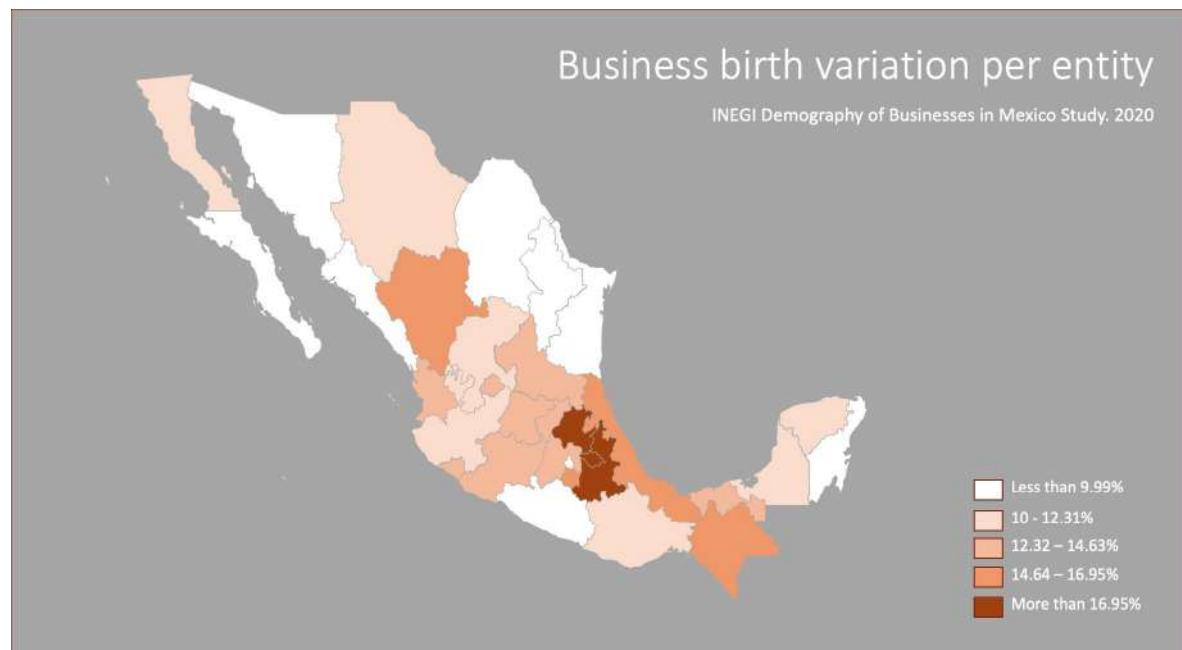
Businesses with more impact during 2020 were Micro with an initial population of 4,690,539 and a current population of 4,329,687, representing a variation of -7.69%. Death variation related to Micro businesses were Commerce -25.98%; Manufacture -46.75% and Non-Financial Private Services -39.55% ¹⁰

⁹ INEGI. Estudio sobre la Demografía de los Negocios 2020.

¹⁰ Idem.

The Entities with more survival businesses were Chiapas, with a variation of -1.75%; Oaxaca with -2.50%; Puebla with -2.77%; Tlaxcala with -3.42% and Veracruz with -3.60%. On the other hand, Nuevo Leon, Sinaloa, Tamaulipas, Baja California Sur and Quintana Roo registered variations -17.86%, -18.06%, -18.10%, -18.60% and -24.21% respectively.¹¹

Graph. 3 Birth variation per Entity (17 months)



In the last census of 2014, Baja California Sur, Queretaro and Yucatán were the entities with greater business survival, with an average of 8.7 years. The municipalities and town halls that register greater business survival in 2014, were mainly located in Mexico's City metropolitan area (7); Mexico City (4); Mérida; Hermosillo; Querétaro; La Paz; Tonala; San Juan del Río; Zapopan; Fresnillo; Zacatecas; Mexicali; Tijuana; Tuxtla Gutiérrez; Pachuca de Soto y Puebla.

¹¹ Idem.

When it comes to Mexico, speaking about security, healthcare, mobility, energy, water, waste, economic development, housing, transport, education, ITC, gender, climate change, pollution, digital inclusion, and digital alphabetization are needs and priorities. This comprehensive list of opportunities may seem a perfect scenario to implement smart concepts to look after the citizens, well-being, and growth. But, companies will need to consider some inhibitors such as socioeconomic differences, local and municipal low budgets, authorities, bureaucracy, insufficient or lack of infrastructure, cybersecurity, privacy, personal data protection, among other factors.

According to the State Competitiveness Index (ICE 2021)¹², a competitive state is consistently attractive to talent and investment, resulting in greater productivity and well-being for its inhabitants. The ten sub-indexes considered for the ICE 2021¹³ are:

- Reliable and objective law system
- Sustainable management of the environment
- An inclusive, prepared, and healthy society
- A stable and functional political system
- Efficient and effective governments
- Efficient factor market
- Stable economy
- World-class pioneer sectors
- Taking advantage of international relations
- Innovation and sophistication in economic sectors

The (ICE 2021) showed in the Competitiveness scale for Mexico an average of 45.64 points. Mexico City is the most competitive State with 67.27 points, followed by Nuevo León, Querétaro, Coahuila, and Jalisco.

-it is essential to highlight that Coahuila scaled up +2 points while Jalisco descends -1 point-, while Veracruz (+2), Tlaxcala (-3), Tabasco (+1), Oaxaca (+1), Chiapas (-3), and Guerrero (0) showed the lowest levels of competitiveness.¹⁴



¹² IMCO, The State Competitiveness Index 2021 (ICE) measures the capacity of states to generate, attract and retain talent and investments.

¹³ The ICE is composed by 72 indicators, categorized into 10 sub-indices that evaluate different dimensions of the competitiveness of the 32 states of the country.

¹⁴ ICE 2021. Executive Resume.

Table 5. General results per Sub-index

Reliable and objective law system	Best entity, Yucatán Worst entity, Morelos
Sustainable management of the environment	Best entity, Mexico City Worst entity, Quintana Roo
Inclusive, prepared and healthy society	Best entity, Mexico City Worst entity, Chiapas
Stable and functional political system	Best entity, Yucatán Worst entity, Puebla
Efficient and effective governments	Best entity, Querétaro Worst entity, Guerrero
Efficient factor market	Best Entity, Sinaloa Worst entity, Chiapas
Stable economy	Best Entity, Jalisco Worst Entity, Baja California Sur
World-class pioneer sectors	Best entity, Mexico City Worst entity, Chiapas
Taking advantage of international relations	Best Entity, Chihuahua Worst Entity, Yucatán
Innovation and sophistication in economic sectors	Best entity, Mexico City Worst Entity, Guerrero

Aspects to be considered in Mexico when it comes to smart are countless. Therefore, an exclusive Road Map to Smart would not be enough.

The present document offers alternatives according to Mexico's overview and conditions that may vary between cities, regions, service areas of opportunity or niches in areas such as: Monterrey, Querétaro, Puebla-Tlaxcala, Guadalajara, Valle de México, Hermosillo among others.

*Own elaboration with information of ICE 2021. Executive Report.

CHAPTER 1

+ Overview of the information and communication technology sector (ICT) in Mexico

1.1 Overview

According to the Federal Government at the G20 Digital Economy Meeting in July 2020, the most comprehensive documents to describe the IT sector are:

- National Digital Strategy (EDN)
- National Development Plan (PND) 2019-2024
- Internet for Everyone Program.
- Electronic Signature Law (2012)
- Federal Law on Protection of Personal Data by Private Parties (Mexico)
- CERT-MX

However, investors and companies must consider other initiatives that are part of the collaborative work between the private sector and the government.

In November 2019, the Business Coordinating Council (CCE), together with the Mexican Business Council (CMN), the Confederation of Industrial Chambers (CONCAMIN), the Mexican Association of Banks (AMB), and the Confederation of National Chambers of Commerce, Services and Tourism (CONCANACO), presented to the Federal Government the "National Private Sector Infrastructure Investment Agreement" ANIISP 2020 – 2024¹⁵, that identified 1,600 public and private infrastructure investment projects aimed to contribute to the growth of 4% of the GDP proposed in the NDP 2019 – 2024, ideally projected to reach an annual investment of 5% of GDP in infrastructure.

The Mexican government announced the National Infrastructure Plan (ANIISP 2020 – 2024) with an initial investment of 44.3 mm in 147 projects related to the following sectors: telecommunications, roads, railways, and suburban trains, ports, airports, water and sanitation, clinics and hospitals, tourism, and energy.

According to the ANIISP investment plan, between 2020 and 2022, the government will make a total investment in Telecommunications for \$118,053.00 MDP¹⁶, programmed as follows, 2020 investment program of 86,561.00 Million Pesos (MDP); by the end of 2022, the projected investment is \$31,492.00 MDP.

¹⁵ Acuerdo Nacional de Inversión de Infraestructura del Sector Privado. Presentación del Gobierno Federal. <https://www.proyectosmexico.gob.mx/wp-content/uploads/2020/08/Acuerdo-Nacional-de-Inversi%C3%B3n-en-Infraestructura.pdf>

¹⁶ MDP. Millions of pesos



Table 1. Investment projected per sector.¹⁷

Sector	Investment Amount per period (Million Pesos)			
	2020	2021-2022	2023-2024	Total
Transport	114,703	83,279	85,871	283,853
Roads	38,255	24,957	36,917	100,129
Railroad, suburban rails	22,650	18,840	26,054	67,544
Ports	24,594	26,227	22,900	73,721
Airports	29,204	13,255	-	42,459
Telecommunications	86,561	31,492	-	118,053
Water	15,998	30,502	-	46,500
Energy	81,780	-	3,200	84,980
Electricity	-	-	63,560	63,560
Tourism	130,964	102,720	19,080	252,764
Health	1,312	-	-	1,312
Other	-	8,000	-	8,000
Total	431,318	255,993	171,711	859,022

*Information taken from the Government presentation of the ANIISP, November 2016

The total telecommunication investment includes four projects, 2 for 2020 and 2 more between 2021 and 2022.

Table 2. Investment per project/year in Telecommunications.

ID	Project	Amount (Million Pesos)	Period
1	Provide symmetric dedicated links only for the corporate sector	400	2020
2	Investment in mobile and fixed telephony	86,161	2020
3	Design, deploy, operate and maintain the 4.5G voice and data mobile broadband Shared Network	11,492	2021-2022
4	Broadcasting and telecommunications	20,000	2021-2022
		118,053	

*Information from the Government presentation for the ANIISP, November 2016

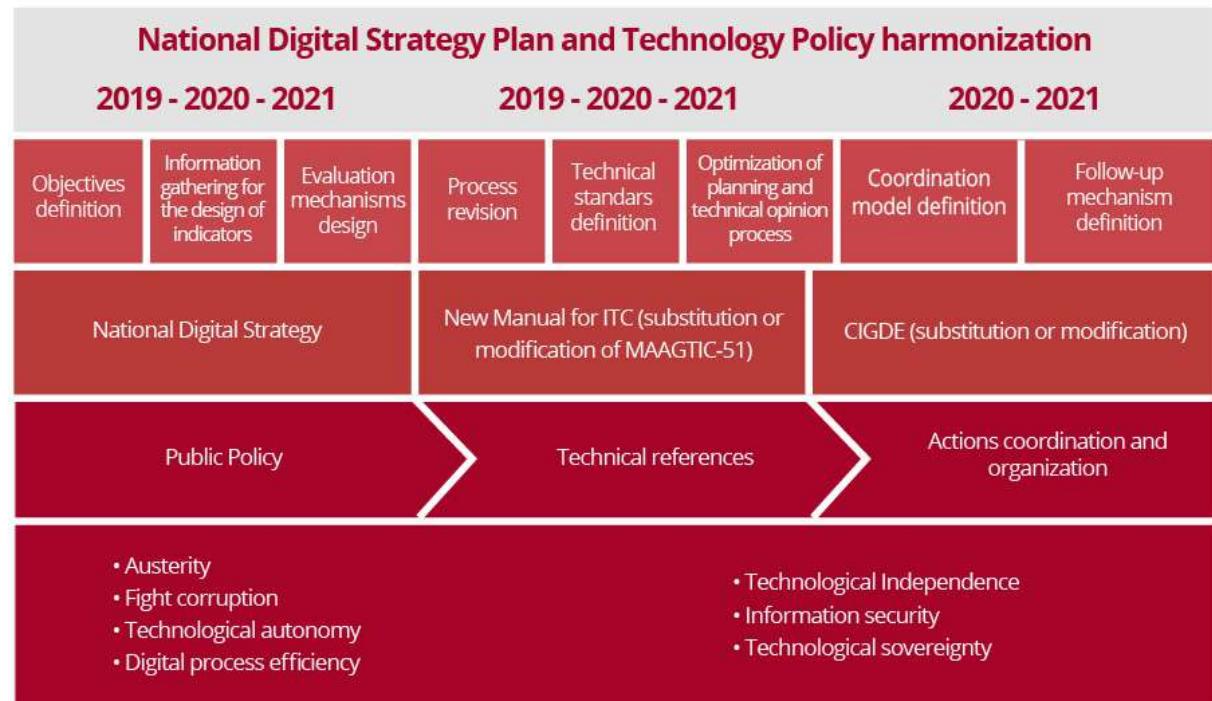
¹⁷ National Infrastructure Investment Private Sector. ANIISP. Full presentation <https://www.proyectosmexico.gob.mx/wp-content/uploads/2020/08/Acuerdo-Nacional-de-Inversi%C3%B3n-en-Infraestructura.pdf>

1.2 Policy in the ICT sector in Mexico

Federal Government has redefined the Coordination of the National Digital Strategy, oriented to improve the efficiency of the federal budget destined to ICT; improve public digital services; democratize internet access and wide-band nationwide, in house IT development, and use of ICT as an anti-corruption action.

The action areas that describe the plan to redefine the ICT Public Policy from 2019 – 2021 are:

- Public Policy definition (2019 – 2021): objective definition; KPI & measurement design.
- Technic references definition (2019 – 2021): review and redefinition of processes; ITC standards definition; planning and operation of technical approval optimization.
- Organization and Coordination (2020 – 2021): new coordination model definition and tracking mechanism definition.



*Taken from the CEDN presentation

Key actions of the ICT Public Policy:

- ICT National Public Policy
- Efficient use of infrastructure and software (shared infrastructure, co-development)
- ICT public procurement standardization
- The technical and economic viability of projects
- Digital transformation of inefficient public services
- Tech Innovation of public services and digital inclusion
- Wide-band connectivity and Internet in all the county.

ICT Public Policy Principles:

- Principle of austerity: more benefit of resources with less investment.
- Principle of anti-corruption: fight against corruption.
- Principle of technical autonomy: in-house development.
- Principle of efficiency in digital processes: simplification of the administrative process.
- Principle of technological independence: no strings attached to technology suppliers to avoid monopolies and dependence on the use of specific technologies.
- Principle of Security of Information: to guaranty quality and integrity of information
- Principle of technological sovereignty: the nation will be the only one entitled to define the policy and strategy to be followed in digital and technical fields.

Highlights

Traceability and interoperability are complex in Mexico, mainly because of the lack of international and national standards adoption at the three government levels. This situation inhibits the free flow of data and reduces usability creating critical challenges of connectivity and cybersecurity.

The budget programmed for ICT has also been impacted by the austerity restrictions, conducting an ICT commissioning exercise and structuring ICT projects that include basic requirements, such as open standards, reusable components, digital identity, and meeting interoperability requirements.

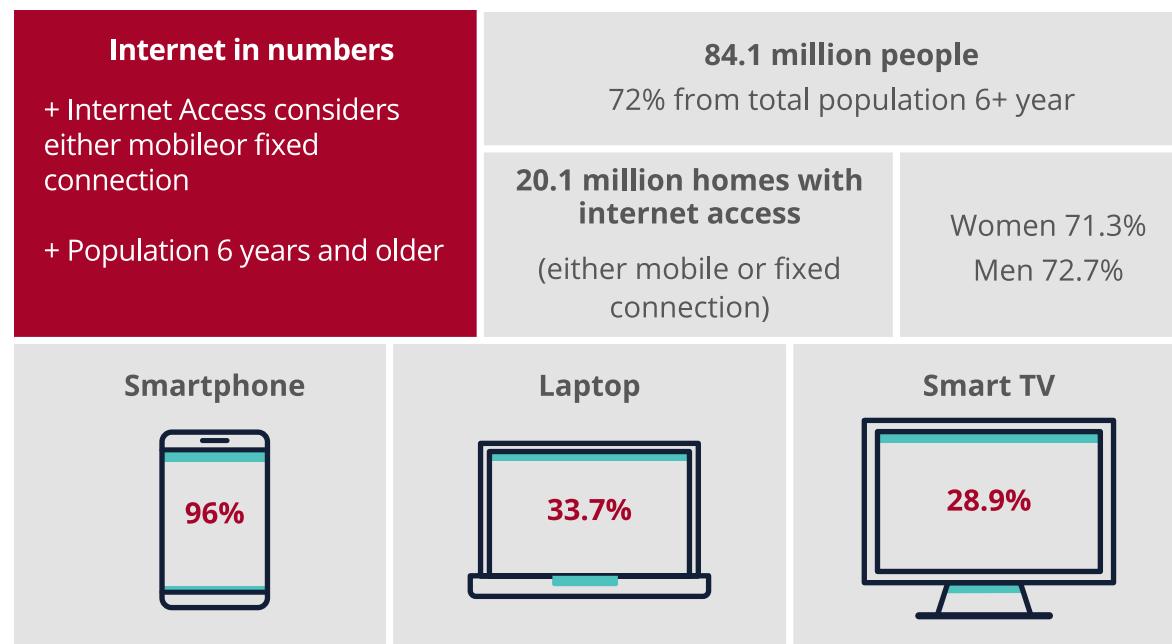
To succeed in the ICT Public Policy objectives, it is desirable to:

- Guaranty investment in infrastructure and security at three levels: organization, legal framework (national, local, municipality), and technical conditions (cloud, information, privacy, and personal data protection, among others)
- Clean data (currently data warehouse is filled with non-structured data, semi-structured data, and structured data)
- Harmonization of coding protocols and coding languages and structure.
- Training, reorganizing, and empowering development areas
- Data science, data mining, visualization, analysis of information
- Note: To consult the current framework agreements list on ICT; please refer to Annex I, Table. 2 Framework Agreements.

1.3 Internet access

According to the National Institute of Statistics and Informatics (INEGI), in collaboration with SCT and IFT, the National Survey of Internet Use at Home (ENIUTH) 2020 report showed Mexico has 84.1 million internet users and 88.2 million mobile users; from where 78.3% of the urban population is an internet user, while in rural areas, the user population is located at 50.4 percent, being women the ones who reflect major users with a 71.3% of activity on Internet, compared to a 72.7% of men internet users.¹⁸

Table 3. Internet, ENIUTH 2020



*Own elaboration with information of ENIUTH 2020 report.

Mexicans' internet preferences are as follows, communication 93.8%, search for information 91%, and social network 89 %.

The report revealed that 9 out of 10 mobile users own a smartphone. In addition, access to the Internet through Wi-Fi increased from 9.4% in 2019 to 13.7% in 2020; mobile users informed they use their smartphones to connect to the Internet.

It is important to highlight the dramatic variation of preference of use, possibly related to the effects of the sanitary emergency SARS COVID-19 in 2020. While in 2019, the main activities of internet users corresponded to entertainment (91.5%), search for information (90.7%), and communication (90.6%)¹⁹. In 2020, among the main activities that the report carried out are: to communicate (93.8%), search for information (91.0%), access to a social network (89.0%), schoolwork (54.9%), work (42.8%), online training (30.6%).²⁰

The purchase of products or services showed significant growth of 5.6 percentile points in 2020 (27.7%) compared to 2019 (22.1%). Other activities that present considerable change compared to 2019 are sales on the Internet with a growth of 2 percentile points (11.3% in 2020), use of services in the cloud with an increase of 2 points (21.4% in 2020), and online banking operations with the growth of 4.9 points (21.7% in 2020).²¹

¹⁸ Press Release, ENIUTH report 2020. INEGI-IFT-SCT. June 22, 2020.

https://www.inegi.org.mx/contenidos/saladeprensa/boletines/2021/OtrTemEcon/ENDUTIH_2020.pdf

¹⁹ Press Release, ENIUTH report 2019. INEGI-IFT-SCT. February 17, 2020.

http://www.ift.org.mx/sites/default/files/comunicacion-y-medios/comunicados-ift/comunicadoendutih_0.pdf

²⁰ Press Release, ENIUTH report 2020. INEGI-IFT-SCT. June 21, 2021.

https://www.inegi.org.mx/contenidos/saladeprensa/boletines/2021/OtrTemEcon/ENDUTIH_2020.pdf

Internet Penetration by State

States with higher proportion of Internet users (above 80%) were Nuevo León (84.5%), Mexico City (84.4%), Baja California (84.3%) and Sonora (82.9%), Colima (81.8%), Baja California Sur (81.6), Quintana Roo (80.9%), and Tamaulipas 80.1 percent.

States that registered the lowest proportion of Internet users (less than 60%) were Chiapas (45.9%), Oaxaca (55.0%), and Veracruz with 58.9 percent.

National average is 72%. States are above the National average and below 80% were Tlaxcala, Morelos, Yucatán, Sinaloa, Jalisco, Querétaro, Coahuila, Durango, Jalisco, Aguascalientes, Mexico with a range between 72.7% to 78.6 percent.

To consult further details of the Internet Penetration National average by State, please refer to ANNEX II. GRAPHICS. Graph. 1 National Internet Penetration.

1.4 It clusters

The ICT sector has grown and developed a strong network of IT development clusters with 25 Clusters nationwide. There are 18

Active ICT clusters in Mexico; 11 are certified (1 gold, two silver, and eight bronze).

Table 4. IT Clusters in Mexico

Cluster	State	Status		Certification Level*		
		Active	Inactive	Gold	Silver	Bronze
Innovatia	Aguascalientes					
Clúster IT Baja	Baja California					
Clúster de TI Chiapas	Chiapas					
Chihuahua IT Clúster	Chihuahua					
AIETIC (Colima)	Colima					
CTI Laguna (Coahuila)	Coahuila					
Prosoftware	Mexico City					
Clúster de Innovación y Tecnología XIXIM	Durango					
CLUTIG	Guanajuato					
Clúster TI Guerrero	Guerrero					
IJALTI (Jalisco)	Jalisco					
CIA	Jalisco					
Csoftmty	Nuevo León					
Monterrey IT Cluster	Monterrey					
Monterrey Interactive Media & Entertainment Clúster (MIMEC)	Monterrey					
Clúster TIM	Michoacán					
Clúster de TI	Oaxaca					
Clúster TIC	Puebla					
InteQsoft	Querétaro					
FidSoftware	Sinaloa					
CITI Tabasco	Tabasco					
Clústec de TEC	Tlaxcala					
CITI Yucatán	Yucatán					
Heurística	Yucatán					
DITIZAC	Zacatecas					

*The certification is voluntary

²¹ Op cit.



1.5. Special considerations

Mexico has plenty of opportunities for ICT Business, specifically when it is related to governments. Despite the fact, there is no public policy on the way to Smart. Therefore, there is a need to invest in technology to achieve federal and local objectives. Government concentrates investment in three primary levels:

- **ICT infrastructure.** The government at federal and local levels must invest to achieve main projects, such as Maya Train, Santa Lucía Airport, CFE, PEMEX, and Baseball fields and schools.
- **ICT related to public services.** ICT of public services, traceability may help consolidate public purchase of medication, supplies, and other; GPS for supervision.
- **ICT related to government operation.** ICT related to government operation, cybersecurity, electronic files, anti-corruption, among others.

Since 2019, the government of Mexico has privileged investment on ITC that developed in secure open-source or jointly developed with companies and government human resources.

+ Smart Cities Ecosystem in Mexico

2.1 Business environment

The services sector in Mexico is the base of the economy. They contributed 59.9 percent of the GDP in 2019; workers related to this sector are around 61.3 percent of the total employed workforce, all in wholesale and retail trade (including hotels and restaurants), transportation, governmental, financial, professional, and personal services (education, health care, and real estate).

Therefore, we suggest considering different levels to the Smart transformation in Mexico:

- Smart City approach. To be adopted in cities with potential ICT infrastructure and conditions to start; public policy to be considered as part of the projects; political and technical capacity for deploying smart solutions.
- Smart Region. These areas have a share of needs, priorities, and opportunities. The ICT infrastructure and conditions are ready to start. Even though there is no public policy-related, the adoption and implementation of smart solutions will benefit the region.
- Smart solution refers to potential solutions for a particular region, city, location, or point of interest to become the first step on the way to becoming smart.
- Smart District by selecting a particular district to attend to specific needs or priorities such as energy efficiency, renewables, mobility efficiency, and quality of infrastructure. The success of the

smart district may become replicable in other communities of the territory of the city.

- Smart Project is defined to attend opportunity niches.

Smart transformation process identified...



Another relevant aspect to consider is the primary goal of doing business with the potential cities identified. Is the solution aimed just to do business, or is it aimed to do business and determine its replication potential and up-scaling for other cities, regions, or areas as a success case in Mexico?

To classify the option selected, we suggest measuring according to the implementation level:

It is essential to consider some alternatives to guarantee financing and continuity to do business in Mexico successfully. In the Database presented in this study, we include the financial certification level of the cities analyzed.

To each circumstance, the smart transformation process must select alternatives to involve citizens and other stakeholders, the suggested business models such as based on data use, transformation, digital services and technology, well-being, and economic growth.

- **Use of data.** The use of data is the primary objective of the transformation process.
- **Transformation.** Projects to benefit the citizens through public services like street lighting, waste, or renewable energy.
- **Digital services and technology.** Fast transformation of digital services with high demand and profit may fund the conversion of substantive public services.
- **Well-being and economic growth.** These will consider sectors such as communities conformed by women or in regions where empowering women by digital inclusion will represent the opportunity to reduce sexual violence or economic inclusion for people who can be economically active, but certain conditions exclude them.

Mexico has strong potential to do business, and many are related to tourism and the semi-permanent population, better known as snowbirds. According to Canada's Consular information, in Mexico, live permanently 50,000 Canadians live permanently in Mexico; 2.5 M visited Mexico and 1M Riviera Maya from 2010-2017.²²



²² Information obtained from the website of Canadian Consular Services in Mexico

2.2 Cities Statistics

The study presents a comprehensive statistical analysis of the top 58 cities in Mexico to identify the market characteristics and the various components of urban development ([Annex II](#)). The selection process considered cities' relevance by population and the availability of information in official sources.



Population and demographic composition.

Companies will be able to see the population dynamics and the growth of cities. Some of the cities show accelerated growth, such as Los Cabos, Cancun, and Querétaro.

Also, this section presents the age distributions in cities from 0-14 years, 15 to 64, and over 60. Although, in general, the population in Mexico can be considered young, there are differences between the cities ranging from Reynosa in Tamaulipas with an average age of 32 years to Veracruz with 39 years.

Digital Access and Target Addressable Market (TAM)

The section of Digital Technologies presents an estimate of the market size by city according to a national survey on Internet use.

Industrial Composition

The grouping of Industrial Composition data presents the dynamics of international trade of the cities, the main products exported, the proportion of services in the economy, and the economic complexity index of the city (degree of sophistication of the local economy). It also presents the IT clusters in the city and the degree of maturity of the cluster evaluated from the perspective of the consultants and the certification by the European Cluster Agency.

Economic Development

The Economic Development section presents variables related to the distribution of wealth, GDP per capita, education, security and competitiveness indices developed by internationally qualified agencies, such as the competitiveness and ad sustainability indices. It also presents information related to mobility, mainly by car, average travel times,

% of vehicles in the population, and type of transport; this can help mobility companies identify potential markets.

Urban Infrastructure Development

The Urban Infrastructure Development section allows visualizing variables related to the size and population density of the city and the quality of the infrastructure. Also included are indices developed by the UN Habitat program in Mexico associated with the quality of life in cities, sustainability, urban policies, and inclusion. It also provides information on the smart cities agenda (if any) in the city and whether the city is part of the UN's network of creative cities. In this section the study includes international credit ratings, this information will help financing decisions related to infrastructure projects.

Tourism

Finally, in the group of tourism variables, it will be possible to evaluate the cities from the perspective of the flow of tourists, the availability of rooms, the number of international flights, or if the city has denominations such as World Heritage or Magic Town.

All these variables were analyzed to determine correlations and group them into archetypes that could facilitate the identification of potential markets by city.

2.3 Urban Centers Archetypes

With the information presented, we analyzed the variables and clustered the data to identify the main correlations. This clustering and the assignment of weights to the variables by the experts allowed us to define a set of archetypes that explain common characteristics of cities. These archetypes will enable the definition of replicable business models for that set of cities.

In Annex III we present an example of a correlation matrix related to competitiveness. We can observe that many variables are correlated with a complex index, this can serve as a grouping method defining a degree of belonging to an archetype.

Tier 1 Urban Center

We define "Large Metropolitan Center" as an agglomeration of population centers with over 2.5 million inhabitants. These are the key urban areas in the country and are typically highly dense and sophisticated urban centers with fairly well-developed infrastructure systems. Their scale however brings a series of challenges, particularly in terms of public transportation systems and mobility, air quality, water and power distribution as well as improving public services and safety. Given the size and scale of these urban centers, a wide range of socio economic and productive activities are spread around their territory but are generally considered to be the main hubs of economic and political activity in the country and have the highest average income brackets in the country.

Tier 2 Urban Center

For this report, we've defined cities between 1 - 2.5 million inhabitants as 2nd Tier Urban Centers. In urban terms, these are the cities that usually play a regional development leading role and are fairly well distributed throughout the different regions of the country. Amongst these cities are typically several state capitals and/or middle-sized industrial hubs. These cities have a good quality of basic infrastructure but are increasingly pressured by an average faster pace of urbanization than the largest cities in the country, and as such many of them need revamping or retrofitting many of their key infrastructure and urban systems in order to cater to the demands of their populations. These cities are industrial and/or commercial centers that mostly cater the regional markets with a few industries of national scale.

Middle Size Urban Center

Cities between 500 thousand and 1 million inhabitants are considered medium sized cities for the purposes of this study. At this scale we find many urban centers dispersed throughout the country, with presence in virtually all of the different Mexican states. While local geographic conditions bring a great variety, they do share a series of commonalities such as underdeveloped infrastructure, lower penetration of urban centric digital solutions and middle levels of average income and economic development in comparison to the larger typologies described prior. A combination of industrial, agricultural and services mix makes for their economic output. However, even with these conditions, some of the fastest growing urban centers in the country sit within this archetype group.

High Growth Urban Center

Irrespective of their urban size, the rate at which an urban center grows in scale and density are important factors in determining a degree of dynamism and potential opportunities. For this report, we consider a High Growth Urban Center as one that has had a compounded population growth greater than 30% in the last 12 years. While such growth can be explained by demographic shifts alongside conditions for positive economic development, it also places stress in the city's capacity to regulate and develop their infrastructure and institutions. Simultaneously, these are seen as new economic opportunities, investment, and talent attraction. Some, but not all these cities are also considered to be adjacent centers to larger urban settlements, or form part of specific regions or projects tied to strategies of urban development in the country.

Highly Developed Urban Center

It is common for urban centers in Mexico to simultaneously present different conditions of social and economic development. For our archetype's classification, Highly Developed Urban Centers are the cities with the highest levels of per-capita income. These are cities with primarily service economies as well as a highly complex industrial composition with state-of-the-art manufacturing capabilities. High Developed Urban Centers are also where the largest Mexican companies as well as global companies operating in the country maintain their national and regional headquarters, as well as core administrative operations. In addition to their sophisticated economies, these cities host many of the country's most prestigious universities, centers of learning and research, and are the country's main gravitational centers of talent. In parallel to their developed economies these cities have a good penetration of digital infrastructure, with good rates of internet connectivity, broadband and smartphone adoption by the population.

Mid-Developed Urban Center

Cities within this archetype are those whose per-capita income and other economic and social development variables fall within ranges close to what is considered average for urban centers in Mexico. Except for Guadalajara, who falls under the scored thresholds but who presents certain differences in complexity to the rest due to its scale, the cities within this group function as regional or state level economic production hubs. Many possess mixed economies of primary, secondary and tertiary activities; however they usually present a strong concentration of a few types of industries as the key drivers to local growth. These cities will also host a mix of national universities and satellite campuses, as well as local universities that cater regional markets. The cities in this group have been consistently improving their infrastructure and services, but still face the challenges brought by historic underinvestment, making the quality and coverage of public services such as transportation networks, public transportation systems, water and energy supply, trash collection and digital connectivity uneven, and while many do possess a planning board or civil organization in charge of urban development they often lack the resources, alongside city hall, needed to do so properly.

Low-Developed Urban Center

Low-Developed Urban Centers in Mexico usually present lower than average per-capita incomes and lesser degrees of social inclusion and competitiveness as compared to other cities in the country, alongside with a less complex economic mix. While some of the cities in the group do possess industries of national and international relevance (ex. Puebla), most of them present economic engines typically centered on one or a few key industries, alongside with inward facing local services and goods markets. Low-Developed Urban Centers possess areas with good infrastructure development, but also have large swaths of underdeveloped zones where chronic underinvestment has been prevalent, even in basic services supply. Additionally, their population's adoption of digital technologies tends to be lower than average as compared to the other cities in this analysis.

Global Tourist Magnet

The cities that are part of this group are the main foreign tourist destinations in the country. These are very well-developed urban centers capable of providing services and entertainment for all ranges of tourists, providing them options from cheap hostels and AirBNB to some of the most luxurious hotel complexes in the world. These centers have a wide range of leisure activities, from global brands shopping, to events, cultural and dining options as well as nearby natural destinations. They also function as destinations for business and conferences related to tourism with available large, specialized facilities. These cities have very good international air connectivity, with direct flight access to several continents. Many of the services provided cater strictly to a foreign market that may even operate on a dollar-based economy.

"Mexico shares a 3,000 km border with the United States, and the daily transit of people and goods make this one of the most heavily active borders in the world..."

Domestic Tourist Magnet

These are the cities that cater primarily to domestic tourists. As tourist destinations these cities possess a good quality of amenities and dedicated facilities but unlike the global cities magnet the catering of services has a lesser presence of global brands and is less varied than larger destinations. These cities do not have such comprehensive international connectivity, and have a larger share of domestic flights, but often have excellent road connectivity to the rest of the country. Public and private urban infrastructure investments are smaller, and the overall cost of services and goods is cheaper than the global tourist magnets, but still have a good quality of life in relation to many cities throughout the country.

Historic - Cultural Center

These are important tourism destinations that are considered the holders of Mexican cultural and architectural symbols, as well as many of the country's main historic sites. As such, cities in this archetype have received specific distinctions such as UNESCO World Heritage sites, or Pueblo Mágico certification, which helps them to attract both domestic and foreign tourists. Cities and settlements that are part of this group play an important role in the tourist offer mix of the country, with most of them centering on cultural, rather than beach centered leisure activities and as such they cater to a wider range of tourist interests, ranging from history, museums, gastronomy, architecture, and the art scenes. While some of these destinations are also global tourist attractors, some others cater to a series of niche and specialized markets and may not be easily accessed through direct international air routes.

Snowbirds / Expat Center

These cities are recognized as being an important attractor of foreign residents that live in the country either permanently or temporarily. While expat composition varies within the cities mix, in a large part of these they comprise retirees, or semi-retirees' individuals who come to Mexico for specific weather conditions, cost of living and health services. Proximity to the US border or ease of air connectivity to the US or Canada is a key feature of most, but not all the cities in this group. Still, some of the larger cities in this group also have important communities of professional expatriates who come to the country for work related opportunities. To cater to both these communities, archetypal snowbird centers do provide a series of specialized services both in leisure, real estate, health, and others that are tailored to global residents.

Border Cities

Mexico shares a 3,000 km border with the United States, and the daily transit of people and goods make this one of the most heavily active borders in the world. Several urban centers are in the border region forming a network of important logistical and manufacturing nodes. Cities located on the border have an increased manufacturing base than average in comparison with cities further inland, and typically have complex economies with a good mix of manufacturing and services. Additionally, their population dynamics differ from non-border cities, maintaining more temporary residents, both nationals with the intent to migrate into the US, as well as foreigners. Their economies are largely intertwined with their counterpart cities across the border making them unique binational productive and social systems. In most cases cities located within the border have better than average infrastructure, however, given the rate of temporary residents they also have large swaths of informal settlements.



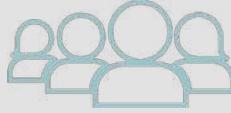
2.4 Scorecards for Selected Cities

Additionally, for 13 representative cities, the study presents scorecards to facilitate analysis. The scorecards follow the same grouping model as the previous statistics. In extension, they include a radar plot with the degree of belonging of each city to the archetypes presented.

1st Tier Metropolis		2nd Tier Metropolis		Medium Size Cities		High Growth Urban Centers		High Development Level		Medium Development Level		Low Development Level	
Mexico City	8.98	Toluca	6.99	Villahermosa	6.39	Los Cabos	6.20	Monterrey	9.19	Guadalajara	7.87	Tepic	7.57
Guadalajara	8.94	Tijuana	5.77	Morelia	6.30	Monterrey	5.20	La Paz	8.90	Colima	7.84	Pachuca	7.21
Monterrey	8.28	León	5.25	Culiacan	6.02	Querétaro	4.54	Mexico City	8.67	Mexicali	7.65	Campeche	6.98
Puebla	5.21	Querétaro	5.88	Aguascalientes	6.14	Cancun	4.39	Saltillo	8.59	León	7.45	Xalapa	6.96
-		Merida	5.65	Chihuahua	6.06	La Paz	3.94	Monclova	8.52	Mérida	7.35	Morelia	6.86
-		Juarez	4.94	Veracruz	6.21	Tijuana	3.78	Hermosillo	8.49	Durango	7.34	Cuernavaca	6.76
-		San Luis Potosi	4.61	Hermosillo	5.99	Toluca	3.72	Querétaro	8.39	Culiacan	7.33	Puebla	6.73
-		La Laguna	4.07	Tampico	5.67	Pachuca	3.35	Cancún	8.27	Nuevo Laredo	7.33	Villahermosa	6.71
-		Mexicali	3.43	Oaxaca	5.50	Reynosa	3.30	Chihuahua	8.10	Zacatecas	7.32	Oaxaca	6.32
-		Cuernavaca	3.93	Saltillo	5.49	León	3.27	Juarez	8.06	Matamoros	7.29	Toluca	6.3



MEXICO CITY



20,507,745

Population 2018

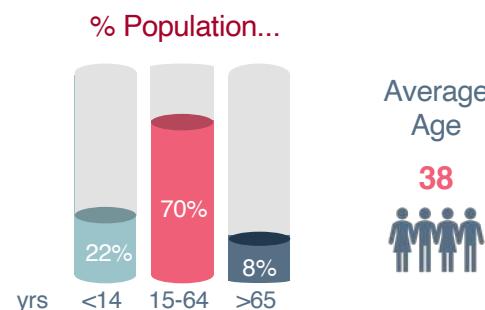
Compounded Population Growth
(2005-2018): 16.7%

Demographic Composition

Gender Disparity Rate



% Population...



Average Age
38



Average Household Member Composition: 3.3

Number of Households: 6,214,468



Smartphones market size:

17,103,459



Connected Households market size:

2,945,658

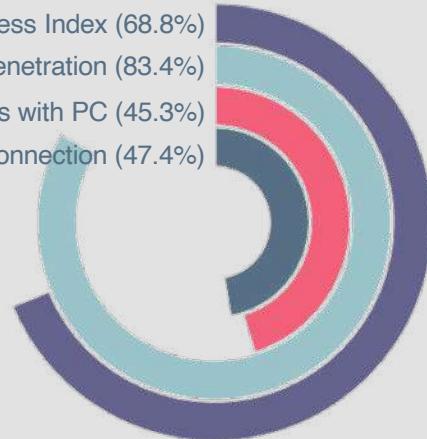
Digital Technologies / TAM Consumer

Digital Access Index (68.8%)

Smartphone Penetration (83.4%)

Households with PC (45.3%)

Internet Connection (47.4%)



Urban Infrastructure Development



Urbanization Footprint (Sq. Kms.):

1,408

Urban Density (citizen/Km²):

14,565

*Infrastructure

66.91

*Quality of Life:

68.26

*Social Inclusion:

73.19

* Sustainability:

39.37

Governance and Urban Policy:

33.36

Productivity:

65.22

Smart Cities Agenda:

SECTEI

Unesco Creative Cities Network:

Design

*CPI UN

Industrial Composition

Exports \$71.80 \$BU\$SD

Imports \$106.0 \$BU\$SD

Total Trade
\$177.8 \$BU\$SD

Per Capita Trade
\$8.7

Industrial Linkage Ratio
(Economic Complexity Index)
0.71

Industrial Typology
Transport and MachineryServices Typology
(Labor force in Services and commerce)
79.50%ITC Cluster Score (0-5)
4Main ITC Cluster Name
PROSOFTWARE
www.prosoftware.org.mx

Mexico City is such a complex and diverse productive ecosystem that it includes practically to some degree all the defined archetypes. Some municipalities in the city may be larger than many of the cities analyzed. Because of this it is advisable to analyze Mexico City in a fragmented way and from the perspective of the needs of each municipality and region within the city.

CDMX Top Municipalities	Pop. 2018	% Female 2019	Number of Households	Internet Connection	Households with PC	Smartphone Penetration	TAM Smartphones	TAM Connected Households	Extreme Poverty Rate	Moderate Poverty Rate	Average Commute Time	% Pop.with >1 hr Commute
Iztapalapa	1,835,486	51.60%	556,208	69.30%	49.10%	90.40%	1,659,279	273,098	1.72	33.2	48	9.7%
Ecatepec de Morelos	1,645,352	51.50%	444,690	64.90%	45.10%	89.60%	1,474,235	200,555	4.91	37.8	51.9	9.5%
Gustavo A. Madero	1,173,351	51.90%	355,561	72.50%	54.60%	90.30%	1,059,536	194,136	1.15	27.2	46.1	9.4%
Nezahualcóyotl	1,077,208	51.70%	291,137	68.70%	46.70%	89.30%	961,947	135,961	3.53	35.1	51.5	11.7%
Naucalpan de Juárez	834,434	51.80%	225,523	66.80%	51.40%	91.20%	761,004	115,919	3.86	33.2	45.6	8.4%
Álvaro Obregón	759,137	52.40%	230,042	77.20%	61.60%	92.70%	703,720	141,706	1.07	26.8	48.4	11.3%
Chimalhuacán	705,193	51.10%	190,593	51.00%	27.10%	86.20%	607,876	51,651	9.17	52.3	59.1	6.9%
Tlalpan	699,928	52.20%	212,099	75.10%	59.60%	93.20%	652,333	126,411	1.79	30.3	53.8	12.1%
Tlalnepantla de Baz	672,202	51.40%	181,676	70.60%	54.40%	90.50%	608,343	98,832	3.23	31.6	42.1	6.1%
Coyoacán	614,447	52.90%	186,196	82.60%	69.90%	93.70%	575,737	130,151	0.58	19.2	40.2	6.0%

Socioeconomic Development



Avg. Per Capita Income: \$13,564.7 USD

Extreme Poverty Rate: 3.5

Moderate Poverty Rate: 33.7

Competitiveness Index IMCO: 55.9

Mobility



Average Commute Time: 46.4 min

% Pop. with >1hr Commute: 24.3%

Automobiles as % of population: 44.5%

Public Transportation Users: 52.9%

Education



Population Bachelor Degree 15+: 3,590,000

% Population Bachelor Degree: 17.5%

Delinquency



Homicide Rate per 100,000: 18

Tourism Variables



Magical Town Destination:
(less than 30 mins from main city)

Tepotzotlán, San Juan Teotihuacan

International Passenger Traffic (2019):

17,643,753

Number of Flights:

85,397

Number of International Flights:

26,274

Canadian Consular Point:

Yes

Available Hotel Rooms:

51,275

Hotel Rooms (per 100,000 hab):

250

World Heritage Sites:

Yes

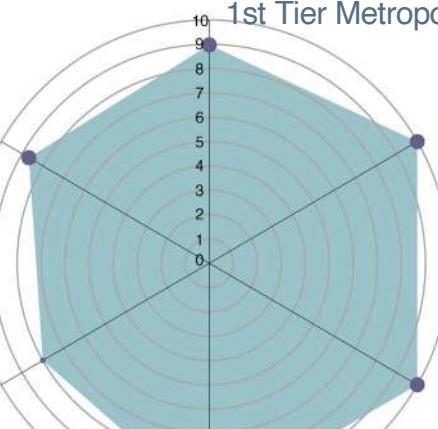
Close to US Border (<100 Km)

No

Archetypes Scores

High Development Level

Snowbirds / Retirees Magnet

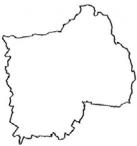


1st Tier Metropolis

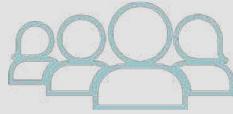
Global Tourism Magnet

National Tourism Magnet

Cultural / Historic Center



GUADALAJARA



Population 2018

5,162,894

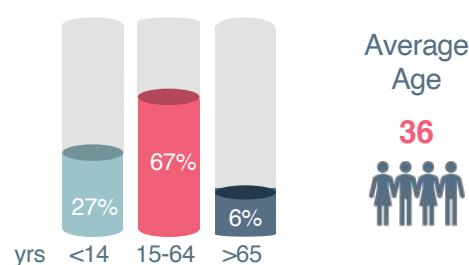
Compounded Population Growth
(2005-2018): 28.3%

Demographic Composition

Gender Disparity Rate



% Population...



Average Household Member Composition: 3.6

Number of Households: 1,434,137



Smartphones market size:
4,631,116

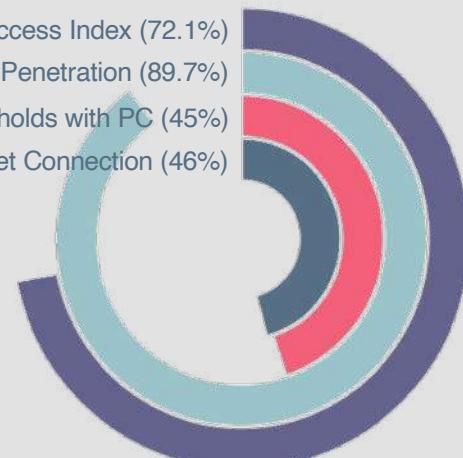
Digital Technologies / TAM Consumer

Digital Access Index (72.1%)

Smartphone Penetration (89.7%)

Households with PC (45%)

Internet Connection (46%)



Connected Households market size:
659,703

Urban Infrastructure Development



Urbanization Footprint (Sq. Kms.):

536

Urban Density (citizen/Km²):

9,632

*Infrastructure

66.29

*Quality of Life:

65.9

*Social Inclusion:

74.86

* Sustainability:

89.65

Governance and Urban Policy:

37.42

Productivity:

62.09

Smart Cities Agenda:

Ciudad Creativa Digital

Unesco Creative Cities Network:

Media Arts

*CPI UN

Industrial Composition

Exports \$18.00 \$BU\$SD

Industrial Typology
Machinery and Instruments

Imports \$21.1 \$BU\$SD

Services Typology
(Labor force in Services and commerce)
71.0%

Total Trade
\$39.1 \$BU\$SD

ITC Cluster Score (0-5)
5

Per Capita Trade
\$7.6

Main ITC Cluster Name
IJALTI
www.ijalti.org.mx/home/

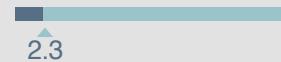
Industrial Linkage Ratio
(Economic Complexity Index)
1.29

Socioeconomic Development



Avg. Per Capita Income: \$11,563.7 USD

Extreme Poverty Rate:



Moderate Poverty Rate:



Competitiveness Index IMCO:



Mobility



Average Commute Time: 36.1 min

% Pop. with >1hr Commute:



Automobiles as % of population:



Public Transportation Users:



Education



Population Bachelor Degree 15+: 859,0000

% Population Bachelor Degree:



Delinquency



Homicide Rate per 100,000: 35

Tourism Variables



Magical Town Destination:
(less than 30 mins from main city)

Ajijic

International Passenger Traffic (2019):

4,347,331

Number of Flights:

22,979

Number of International Flights:

6,356

Canadian Consular Point:

No

Available Hotel Rooms:

21,470

Hotel Rooms (per 100,000 hab):

416

World Heritage Sites:

Yes

Close to US Border (<100 Km)

No

Archetypes Scores





MONTERREY



Population 2018

4,893,288

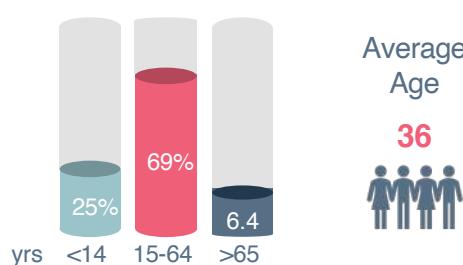
Compounded Population Growth
(2005-2018): 34.0%

Demographic Composition

Gender Disparity Rate



% Population...



Average Household Member Composition: 3.5

Number of Households: 1,398,082



Smartphones
market size:

4,335,453



Connected
Households
market size:

736,789

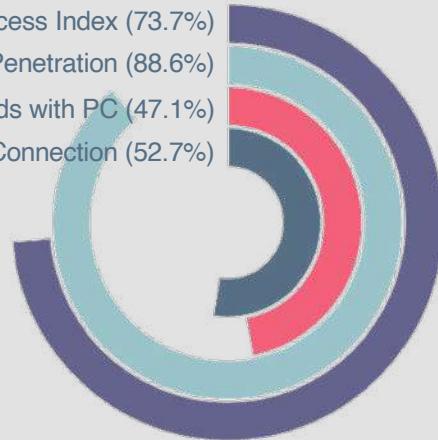
Digital Technologies / TAM Consumer

Digital Access Index (73.7%)

Smartphone Penetration (88.6%)

Households with PC (47.1%)

Internet Connection (52.7%)



Urban Infrastructure Development



Urbanization Footprint (Sq. Kms.):

479

Urban Density (citizen/Km²):

10,216

*Infrastructure

60.21

*Quality of Life:

66.67

*Social Inclusion:

77.3

*Sustainability:

48.64

Governance and Urban Policy:

39.95

Productivity:

66.09

Smart Cities Agenda:

CSOFTMTY

Unesco Creative Cities Network:

*CPI UN

Industrial Composition

Exports \$24.4 \$BU\$SD

Imports \$29.7 \$BU\$SD

Total Trade 54.1 \$BU\$SD

Per Capita Trade
\$11.10

Industrial Linkage Ratio
(Economic Complexity Index)
2.18

Industrial Typology
Machinery and Metal-mechanics

Services Typology
(Labor force in Services and commerce)
67.3%

ITC Cluster Score (0-5)
5

Main ITC Cluster Name
Csoft MTY - IT Cluster
www.csoftmty.org

Socioeconomic Development



Avg. Per Capita Income: \$17,886.7 USD

Extreme Poverty Rate: 1%

Moderate Poverty Rate: 16%

Competitiveness Index IMCO: 45.4

Mobility



Average Commute Time: 38 min

% Pop. with >1hr Commute: 14.1%

Automobiles as % of population: 30.8%

Public Transportation Users: 40.1%

Education



Population Bachelor Degree 15+: 793,000

% Population Bachelor Degree: 16.2%

Delinquency



Homicide Rate per 100,000: 21

Tourism Variables



Magical Town Destination:
(less than 30 mins from main city)

No

International Passenger Traffic (2019):

1,419,989

Number of Flights:

20,855

Number of International Flights:

4,147

Canadian Consular Point:

Yes

Available Hotel Rooms:

14,060

Hotel Rooms (per 100,000 hab):

287

World Heritage Sites:

No

Close to US Border (<100 Km)

No

Archetypes Scores

1st Tier Metropolis

High Development
Level

Global
Tourism Magnet

High Growth
Urban Centers

National Tourism
Magnet

Snowbirds / Retirees Magnet



PUEBLA



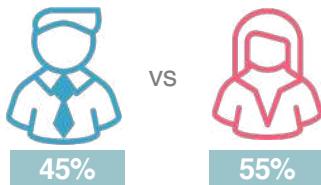
2,756,034

Compounded Population Growth
(2005-2018): **27.6%**

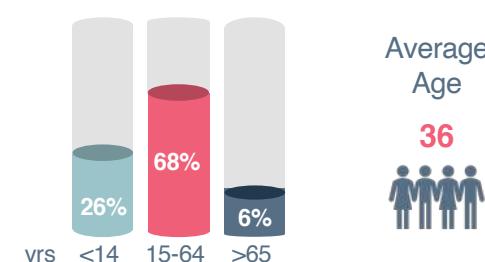
Population 2018

Demographic Composition

Gender Disparity Rate



% Population...



Average Age

36



Average Household Member Composition: **3.8**

Number of Households: **725,272**



Smartphones market size:

2,235,144

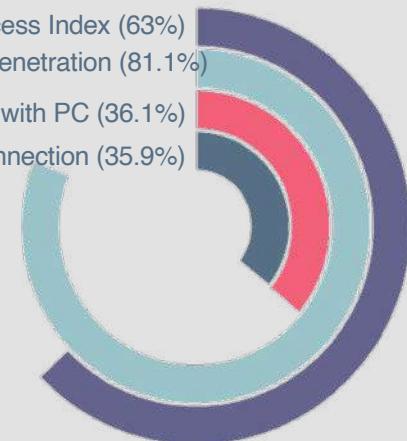
Digital Technologies / TAM Consumer

Digital Access Index (63%)

Smartphone Penetration (81.1%)

Households with PC (36.1%)

Internet Connection (35.9%)



Connected Households market size:

260,373

Urban Infrastructure Development



Urbanization Footprint (Sq. Kms.):

301

Urban Density (citizen/Km²):

9,156

*Infrastructure

59.89

*Quality of Life:

65.05

*Social Inclusion:

64.25

*Sustainability:

58.04

Governance and Urban Policy:

30.01

Productivity:

61.95

Smart Cities Agenda:



Barriosmartpuebla

Unesco Creative Cities Network:



Design

*CPI UN

Industrial Composition

Exports **\$3.22** \$BU\$SD

Imports **\$5.80** \$BU\$SD

Total Trade **\$9.02** \$BU\$SD

Per Capita Trade **\$3.3**

Industrial Linkage Ratio
(Economic Complexity Index)
0.04



Industrial Typology
Transport and Machinery



Services Typology
(Labor force in Services and commerce)
70.90%



ITC Cluster Score (0-5)
3



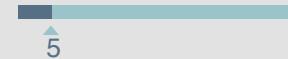
Main ITC Cluster Name
Cluster TIC Puebla /
Tlaxcala Clustec
<http://www.clusterpuebla-tic.mx/sitio/home/>

Socioeconomic Development



Avg. Per Capita Income: \$8,147.3 USD

Extreme Poverty Rate:



Moderate Poverty Rate:



Competitiveness Index IMCO:



Mobility



Average Commute Time: 34.9 min

% Pop. with >1hr Commute:

10.8%

Automobiles as % of population:

25.2%

Public Transportation Users:

49.2%

Education



Population Bachelor Degree 15+: 534,0000

% Population Bachelor Degree:

19.4%

Delinquency



Homicide Rate per 100,000: 13

Tourism Variables



Magical Town Destination:
(less than 30 mins from main city)

Atlixco and Cholula

Canadian Consular Point:

No

Available Hotel Rooms:

9,515

Hotel Rooms (per 100,000 hab):

345

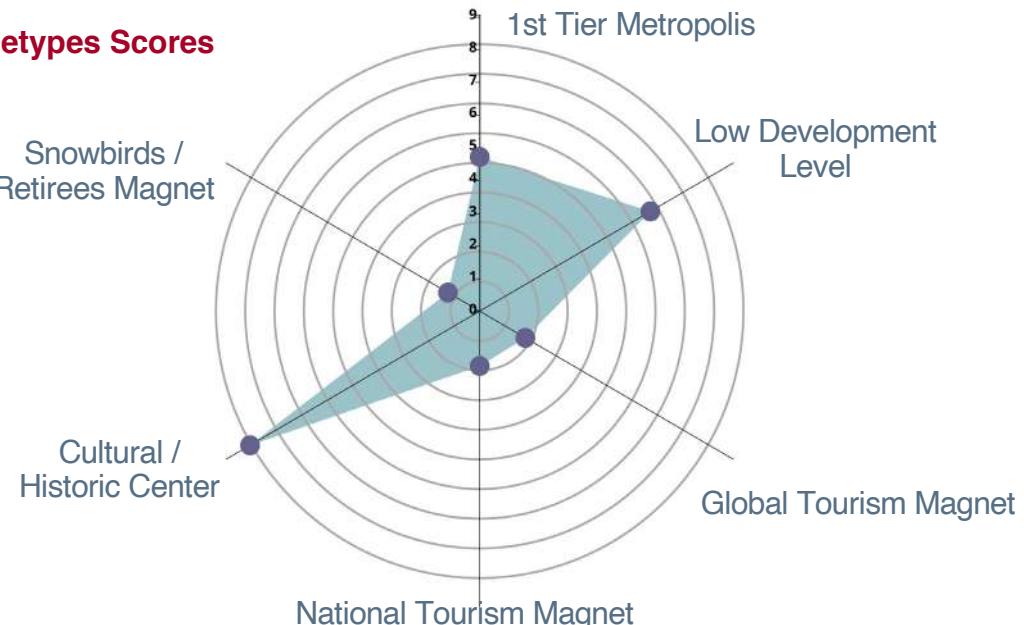
World Heritage Sites:

Yes

Close to US Border (<100 Km)

No

Archetypes Scores





TIJUANA



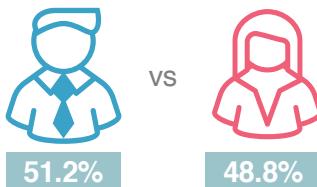
1,736,099

Population 2018

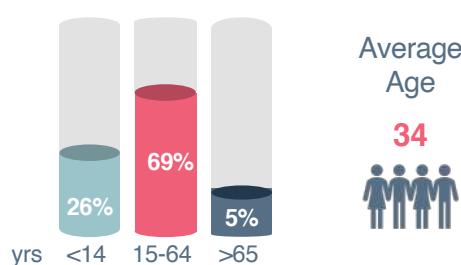
Compounded Population Growth
(2005-2018): 35.6%

Demographic Composition

Gender Disparity Rate



% Population...



Average Age
34



Average Household Member Composition: 3.3

Number of Households: 526,091



Smartphones market size:

1,571,170

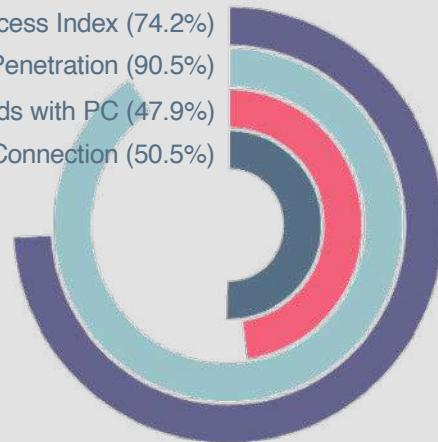
Digital Technologies / TAM Consumer

Digital Access Index (74.2%)

Smartphone Penetration (90.5%)

Households with PC (47.9%)

Internet Connection (50.5%)



Connected Households market size:

265,676



Urban Infrastructure Development

Urbanization Footprint (Sq. Kms.):

223

Urban Density (citizen/Km²):

7,785

*Infrastructure

56.7

*Quality of Life:

57.94

*Social Inclusion:

72.55

*Sustainability:

39.91

Governance and Urban Policy:

58.73

Productivity:

61.98

Smart Cities Agenda:



Unesco Creative Cities Network:



*CPI UN

Industrial Composition

Exports \$21.3 \$BU\$SD

Imports \$23.7 \$BU\$SD

Total Trade
\$45.0 \$BU\$SD

Per Capita Trade
\$25.9

Industrial Linkage Ratio
(Economic Complexity Index)
1.98

Industrial Typology
Machinery and Instruments

Services Typology
(Labor force in Services and commerce)
57.60%

ITC Cluster Score (0-5)
2

Main ITC Cluster Name
IT Baja <https://itbaja.org/>

Socioeconomic Development



Avg. Per Capita Income: \$12,560.9 USD

Extreme Poverty Rate: 1.9

Moderate Poverty Rate: 27.9

Competitiveness Index IMCO: 45.3

Mobility



Average Commute Time: 31.5 min

% Pop. with >1hr Commute: 7.8%

Automobiles as % of population: 32.9%

Public Transportation Users: 46%

Education



Population Bachelor Degree 15+: 215,000

% Population Bachelor Degree: 12.4%

Delinquency



Homicide Rate per 100,000: 106

Tourism Variables



Magical Town Destination:
(less than 30 mins from main city)

NO

Number of Flights:

11,548

Canadian Consular Point:

Yes

Available Hotel Rooms:

5,363

Hotel Rooms (per 100,000 hab):

309

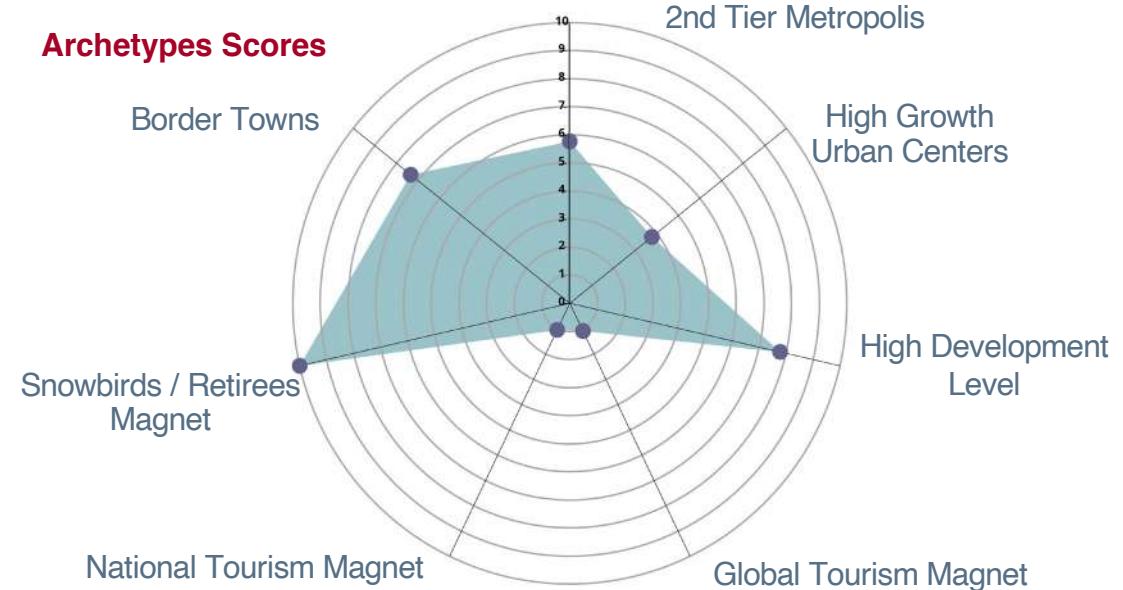
World Heritage Sites:

No

Close to US Border (<100 Km)

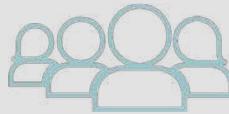
Yes

Archetypes Scores





QUERETARO



1,618,062

Population 2018

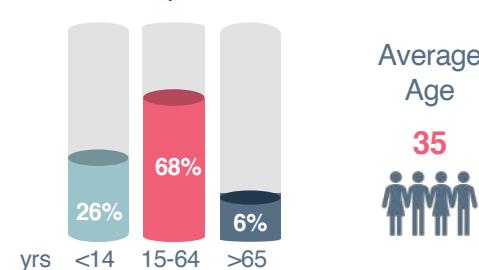
Compounded Population Growth
(2005-2018): **43.7%**

Demographic Composition

Gender Disparity Rate



% Population...



Average Household Member Composition: **3.5**

Number of Households: **462,303**



Smartphones market size:

1,449,784



Connected Households market size:

224,217

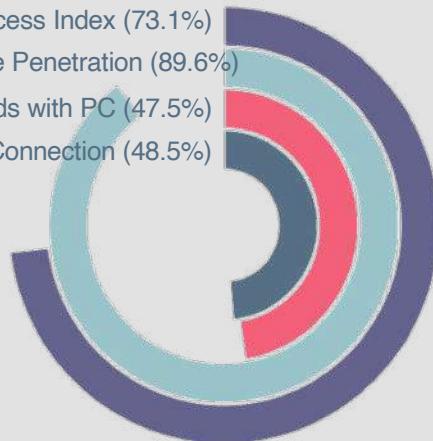
Digital Technologies / TAM Consumer

Digital Access Index (73.1%)

Smartphone Penetration (89.6%)

Households with PC (47.5%)

Internet Connection (48.5%)



Urban Infrastructure Development



Urbanization Footprint (Sq. Kms.):

272

Urban Density (citizen/Km²):

5,949

*Infrastructure

64.31

*Quality of Life:

63.26

*Social Inclusion:

70.63

*Sustainability:

42.27

Governance and Urban Policy:

39.67

Productivity:

65.12

Smart Cities Agenda:



Ciudad Maderas

Unesco Creative Cities Network:



Design

*CPI UN

Industrial Composition

Exports **\$7.09** \$BU\$SD

Imports **\$8.93** \$BU\$SD

Total Trade **\$16.02** \$BU\$SD

Per Capita Trade **\$9.9**

Industrial Linkage Ratio
(Economic Complexity Index)
1.92

Industrial Typology
Transport and Machinery

Services Typology
(Labor force in Services and commerce)
73.30%

ITC Cluster Score (0-5)
4

Main ITC Cluster Name
VÓRTICE
<https://vorticeit.mx/>

Socioeconomic Development



Avg. Per Capita Income: \$14,164.3 USD

Extreme Poverty Rate: 1.8

Moderate Poverty Rate: 22.9

Competitiveness Index IMCO: 48.1

Mobility



Average Commute Time: 30.7 min

% Pop. with >1hr Commute: 7.1%

Automobiles as % of population: 20.8%

Public Transportation Users: 58.7%

Education



Population Bachelor Degree 15+: 324,0000

% Population Bachelor Degree: 20%

Delinquency



Homicide Rate per 100,000: 12

Tourism Variables



Magical Town Destination:
(less than 30 mins from main city)

Bernal

Number of Flights:

4,426

Number of International Flights:

1,223

Canadian Consular Point:

No

Available Hotel Rooms:

7,461

Hotel Rooms (per 100,000 hab):

493

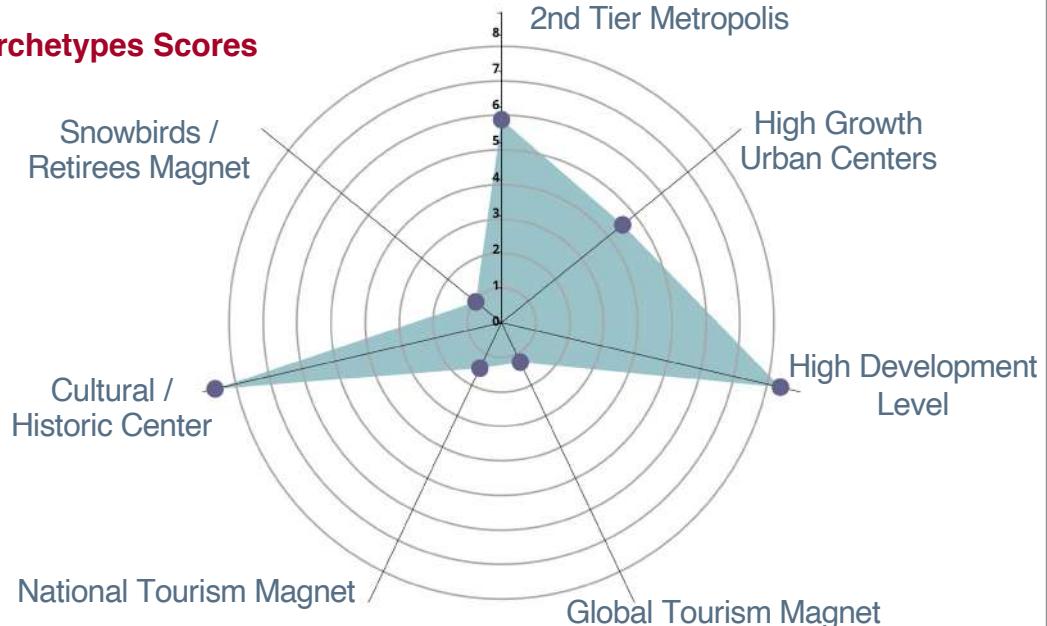
World Heritage Sites:

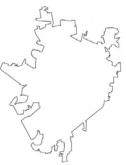
Yes

Close to US Border (<100 Km)

No

Archetypes Scores





MERIDA



Population 2018

1,513,606

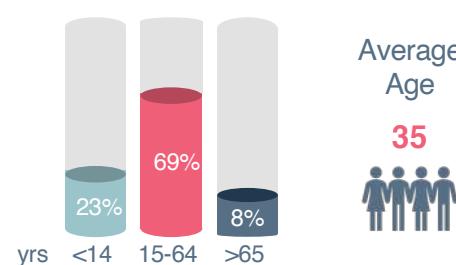
Compounded Population Growth
(2005-2018): 25.7%

Demographic Composition

Gender Disparity Rate



% Population...



Average Household Member Composition: 3.5

Number of Households: 432,459



Smartphones market size:

1,374,354



Connected Households market size:

187,255

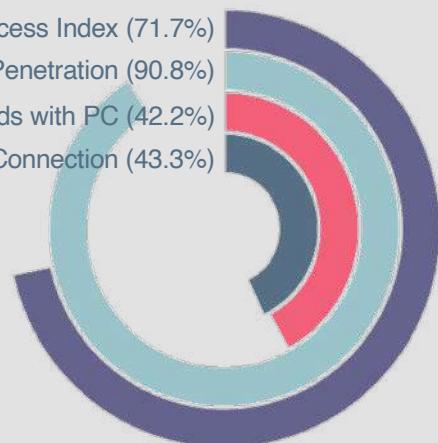
Digital Technologies / TAM Consumer

Digital Access Index (71.7%)

Smartphone Penetration (90.8%)

Households with PC (42.2%)

Internet Connection (43.3%)



Urban Infrastructure Development



Urbanization Footprint (Sq. Kms.):

277

Urban Density (citizen/Km²):

5,464

*Infrastructure

61.88

*Quality of Life:

69.96

*Social Inclusion:

74.93

* Sustainability:

29.54

Governance and Urban Policy:

32.84

Productivity

59.09

Smart Cities Agenda:

In Process

Unesco Creative Cities Network:

Gastronomy

*CPI UN

Industrial Composition

Exports \$0.58 \$BU\$SD

Imports \$0.87 \$BU\$SD

Total Trade \$1.45 \$BU\$SD

Per Capita Trade \$1.0

Industrial Linkage Ratio (Economic Complexity Index) 0.22

Industrial Typology
Machinery and Jewelry

Services Typology
(Labor force in Services and commerce)
77.3%

ITC Cluster Score (0-5)
3

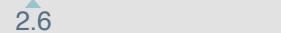
Main ITC Cluster Name
Citi Yucatán / Heuristic

Socioeconomic Development



Avg. Per Capita Income: \$9,518.4 USD

Extreme Poverty Rate:



Moderate Poverty Rate:



Competitiveness Index IMCO:

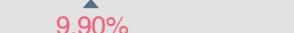


Mobility



Average Commute Time: 33.2 min

% Pop. with >1hr Commute:



Automobiles as % of population:



Public Transportation Users:



Education



Population Bachelor Degree 15+: 241,000

% Population Bachelor Degree:



Delinquency



Homicide Rate per 100,000: 2

Tourism Variables



Magical Town Destination:

(less than 30 mins from main city)

No

Number of Flights:

4,535

Canadian Consular Point:

No

Available Hotel Rooms:

7,139

Hotel Rooms (per 100,000 hab):

521

World Heritage Sites:

No

Close to US Border (<100 Km)

No

Archetypes Scores

2nd Tier Metropolis

Snowbirds /
Retirees Magnet

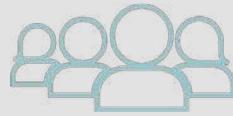
Medium
Development Level

National Tourism Magnet

Global Tourism Magnet



SAN LUIS POTOSI



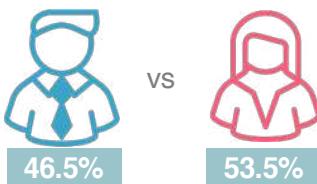
Population 2018

1,371,146

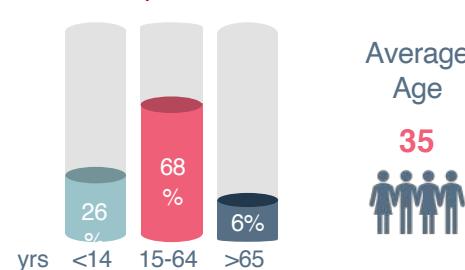
Compounded Population Growth
(2005-2018): 24.3%

Demographic Composition

Gender Disparity Rate



% Population...



Average Household Member Composition: 3.6

Number of Households: 380,874



Smartphones
market size:

1,186,041



Connected
Households
market size:

170,632

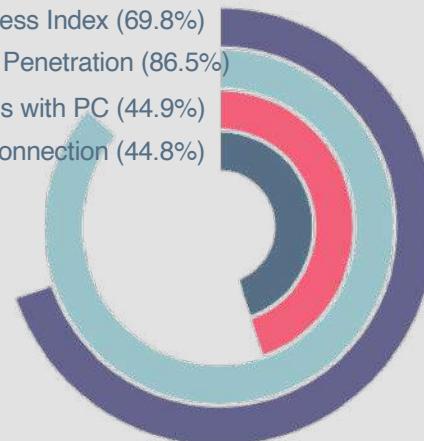
Digital Technologies / TAM Consumer

Digital Access Index (69.8%)

Smartphone Penetration (86.5%)

Households with PC (44.9%)

Internet Connection (44.8%)



Urban Infrastructure Development



Urbanization Footprint (Sq. Kms.):

142

Urban Density (citizen/Km²):

9,656

*Infrastructure

61.46

*Quality of Life:

67.34

*Social Inclusion:

69.95

*Sustainability:

49.92

Governance and Urban Policy:

32.8

Productivity:

61.84

Smart Cities Agenda:



Unesco Creative Cities Network:



*CPI UN

Industrial Composition

Exports \$5.18 \$BU\$SD

Imports \$4.91 \$BU\$SD

Total Trade \$10.09 \$BU\$SD

Per Capita Trade \$7.4

Industrial Linkage Ratio
(Economic Complexity Index)
1.22

Industrial Typology
Machinery and Transport

Services Typology
(Labor force in Services and commerce)
66.6%

ITC Cluster Score (0-5)
0

Main ITC Cluster Name

Socioeconomic Development



Avg. Per Capita Income: \$12,895.2 USD

Extreme Poverty Rate: 1.8

Moderate Poverty Rate: 22.5

Competitiveness Index IMCO: 46.4

Mobility



Average Commute Time: 29 min

% Pop. with >1hr Commute: 6.3%

Automobiles as % of population: 35.5%

Public Transportation Users: 49.9%

Education



Population Bachelor Degree 15+: 238,000

% Population Bachelor Degree: 17.4%

Delinquency



Homicide Rate per 100,000: 18

Tourism Variables



Magical Town Destination:
(less than 30 mins from main city)

No

Number of Flights:

2,609

Number of International Flights:

603

Canadian Consular Point:

No

Available Hotel Rooms:

5,743

Hotel Rooms (per 100,000 hab):

460

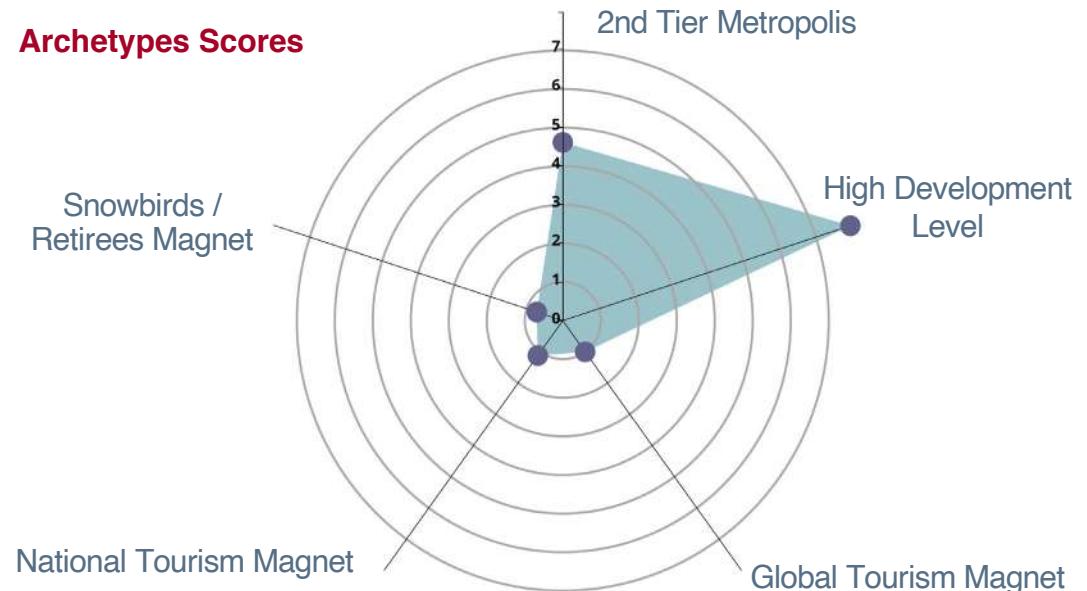
World Heritage Sites:

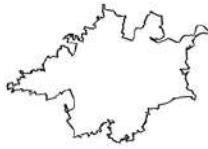
No

Close to US Border (<100 Km)

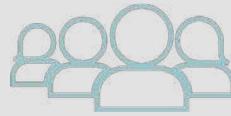
No

Archetypes Scores





MORELIA



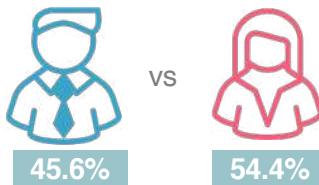
Population 2018

972,194

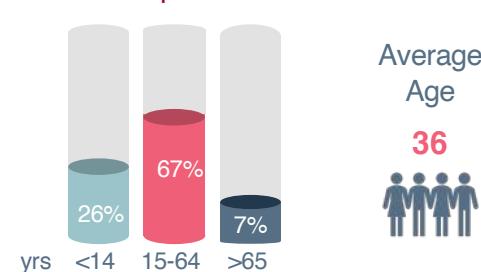
Compounded Population Growth
(2005-2018): 32.1%

Demographic Composition

Gender Disparity Rate



% Population...



Average Age
36



Average Household Member Composition: 3.7

Number of Households: 262,755



Smartphones market size:

846,781



Connected Households market size:

99,584

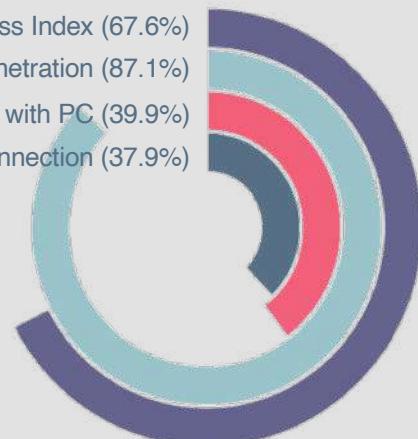
Digital Technologies / TAM Consumer

Digital Access Index (67.6%)

Smartphone Penetration (87.1%)

Households with PC (39.9%)

Internet Connection (37.9%)



Urban Infrastructure Development



Urbanization Footprint (Sq. Kms.):

98

Urban Density (citizen/Km²):

9,920

*Infrastructure

61.77

*Quality of Life:

58.57

*Social Inclusion:

67.28

*Sustainability:

74.47

Governance and Urban Policy:

33.72

Productivity:

54.18

Smart Cities Agenda:

In Process

Unesco Creative Cities Network:

Music

*CPI UN

Industrial Composition

Exports \$0.15 \$BU\$SD

Imports \$0.07 \$BU\$SD

Total Trade \$0.22 \$BU\$SD

Per Capita Trade
\$0.20

Industrial Linkage Ratio
(Economic Complexity Index)
-0.37

Industrial Typology
Food and Agroindustries

Services Typology
(Labor force in Services and commerce)
79.6%

ITC Cluster Score (0-5)
3

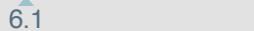
Main ITC Cluster Name
Cluster TIM

Socioeconomic Development



Avg. Per Capita Income: \$8,153.0 USD

Extreme Poverty Rate:



Moderate Poverty Rate:



Competitiveness Index IMCO:

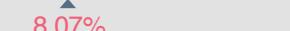


Mobility



Average Commute Time: 32.1 min

% Pop. with >1hr Commute:



Automobiles as % of population:



Public Transportation Users:



Education



Population Bachelor Degree 15+: 192,000

% Population Bachelor Degree:



Delinquency



Homicide Rate per 100,000: 17

Tourism Variables



Magical Town Destination:

(less than 30 mins from main city)

No

International Passenger Traffic (2019):

418,557

Number of Flights:

1,637

Number of International Flights:

820

Canadian Consular Point:

No

Available Hotel Rooms:

3,171

Hotel Rooms (per 100,000 hab):

345

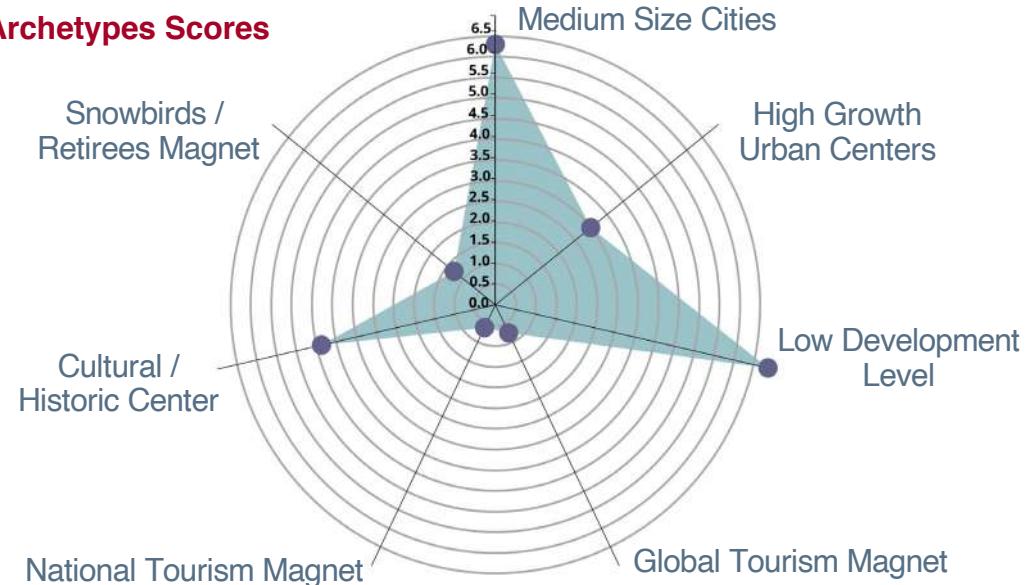
World Heritage Sites:

Yes

Close to US Border (<100 Km)

No

Archetypes Scores





CHIHUAHUA



Population 2018

924,455

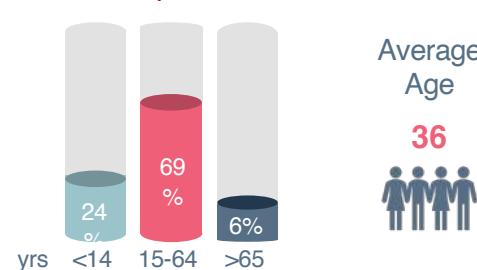
Compounded Population Growth
(2005-2018): 29.8%

Demographic Composition

Gender Disparity Rate



% Population...



Average Age
36



Average Household Member Composition: 3.2

Number of Households: 288,892



Smartphones market size:
853,272

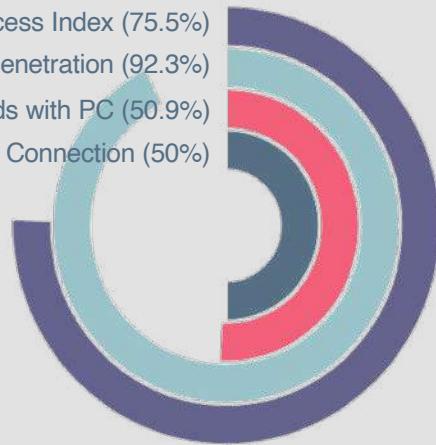
Digital Technologies / TAM Consumer

Digital Access Index (75.5%)

Smartphone Penetration (92.3%)

Households with PC (50.9%)

Internet Connection (50%)



Connected Households market size:

144,446

Urban Infrastructure Development



Urbanization Footprint (Sq. Kms.):

87

Urban Density (citizen/Km²):

10,626

*Infrastructure Development

65.8

*Quality of Life:

62.34

*Social Inclusion:

75.9

* Sustainability:

46.88

Governance and Urban Policy:

29.59

Productivity:

58.81

Smart Cities Agenda:

Chihuahua Futura

Unesco Creative Cities Network:

*CPI UN

Industrial Composition

Exports → \$5.99 \$BU\$SD

Imports ← \$6.98 \$BU\$SD

Total Trade \$12.97 \$BU\$SD

Per Capita Trade
\$14.0

Industrial Linkage Ratio
(Economic Complexity Index)
1.22

Industrial Typology
Machinery and Transport

Services Typology
(Labor force in Services and commerce)
66.4%

ITC Cluster Score (0-5)
2

Main ITC Cluster Name
Chihuahua IT

Socioeconomic Development

Avg. Per Capita Income: \$12,475.9 USD

Extreme Poverty Rate: 0.6

Moderate Poverty Rate: 19.4

Competitiveness Index IMCO: 45.5

Mobility

Average Commute Time: 31.9 min

% Pop. with >1hr Commute: 4.68%

Automobiles as % of population: 40.7%

Public Transportation Users: 60%

Education

Population Bachelor Degree 15+: 213,000

% Population Bachelor Degree: 23%

Delinquency

Homicide Rate per 100,000: 35

Tourism Variables

Magical Town Destination:
(less than 30 mins from main city)

No

Number of Flights:

4,041

Number of International Flights:

502

Canadian Consular Point:

No

Available Hotel Rooms:

3,895

Hotel Rooms (per 100,000 hab):

421

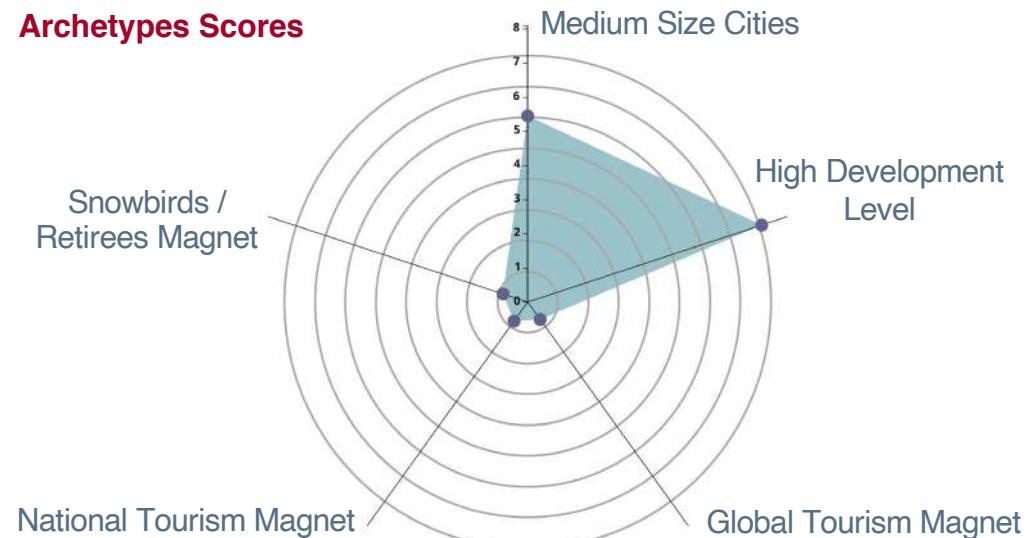
World Heritage Sites:

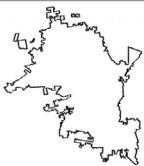
No

Close to US Border (<100 Km)

No

Archetypes Scores





HERMOSILLO



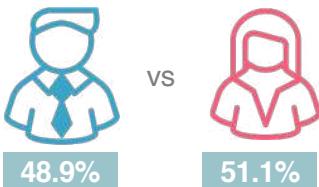
Population 2018

919,332

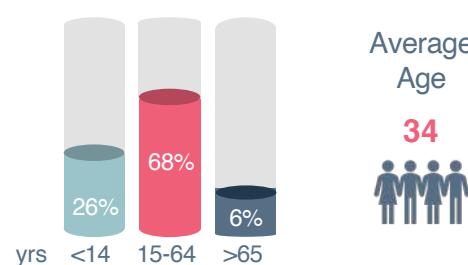
Compounded Population Growth
(2005-2018): 35.6%

Demographic Composition

Gender Disparity Rate



% Population...



Average Age
34



Average Household Member Composition: 3.3

Number of Households: 278,585



Smartphones market size:

866,011



Connected Households market size:

148,765

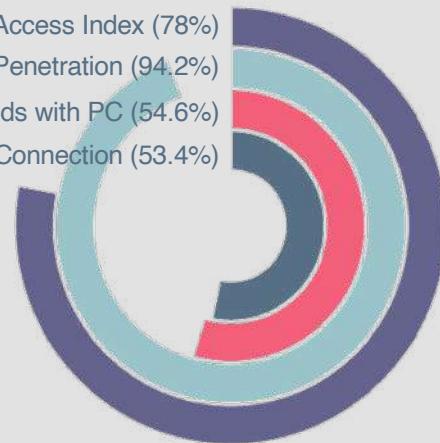
Digital Technologies / TAM Consumer

Digital Access Index (78%)

Smartphone Penetration (94.2%)

Households with PC (54.6%)

Internet Connection (53.4%)



Urban Infrastructure Development



Urbanization Footprint (Sq. Kms.):

84

Urban Density (citizen/Km²):

10,944

*Infrastructure

63.51

*Quality of Life:

64.33

*Social Inclusion:

71.94

* Sustainability:

31.67

Governance and Urban Policy:

46.97

Productivity:

66.86

Smart Cities Agenda:



Unesco Creative Cities Network:



*CPI UN

Industrial Composition

Exports → \$1.77 \$BU\$SD

← Imports \$0.97 \$BU\$SD

Total Trade \$2.74 \$BU\$SD

Per Capita Trade \$3.0

Industrial Linkage Ratio (Economic Complexity Index) 0.9

Industrial Typology
Agroindustry and Machinery

Services Typology
(Labor force in Services and commerce)
68.3%

ITC Cluster Score (0-5)
0

Main ITC Cluster Name

Socioeconomic Development



Avg. Per Capita Income: \$15,382.4 USD

Extreme Poverty Rate: 1.4

Moderate Poverty Rate: 18.1

Competitiveness Index IMCO: 42.9

Mobility



Average Commute Time: 29.2 min

% Pop. with >1hr Commute: 1.25%

Automobiles as % of population: 30.4%

Public Transportation Users: 65.8%

Education



Population Bachelor Degree 15+: 182,000

% Population Bachelor Degree: 19.8%

Delinquency



Homicide Rate per 100,000: 16

Tourism Variables



Magical Town Destination:
(less than 30 mins from main city)

NO

Number of Flights:

3,477

Number of International Flights:

153

Canadian Consular Point:

No

Available Hotel Rooms:

2,800

Hotel Rooms (per 100,000 hab):

326

World Heritage Sites:

No

Close to US Border (<100 Km)

Yes

Archetypes Scores





CANCUN



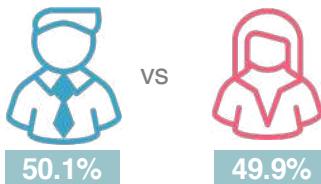
Population 2018

805,997

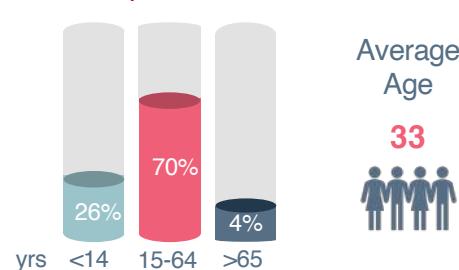
Compounded Population Growth
(2005-2018): 67.8%

Demographic Composition

Gender Disparity Rate



% Population...



Average Age
33



Average Household Member Composition: 3.2

Number of Households: 251,874



Smartphones market size:

763,279



Connected Households market size:

115,106

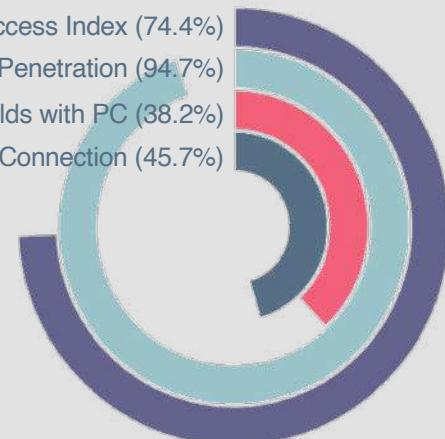
Digital Technologies / TAM Consumer

Digital Access Index (74.4%)

Smartphone Penetration (94.7%)

Households with PC (38.2%)

Internet Connection (45.7%)



Urbanization Footprint (Sq. Kms.):

42

Urban Density (citizen/Km²):

19,190

*Infrastructure

55.21

*Quality of Life:

66.48

*Social Inclusion:

76.03

*Sustainability:

64.97

Governance and Urban Policy:

67.08

Productivity:

67.58

Smart Cities Agenda:



Unesco Creative Cities Network:



Urban Infrastructure Development



Urbanization Footprint (Sq. Kms.):

Urban Density (citizen/Km²):

*Infrastructure

*Quality of Life:

*Social Inclusion:

*Sustainability:

Governance and Urban Policy:

Productivity:

Smart Cities Agenda:

Unesco Creative Cities Network:

*CPI UN

Industrial Composition

Exports → \$0.02 \$BU\$SD

Imports ← \$0.17 \$BU\$SD

Total Trade \$0.19 \$BU\$SD

Per Capita Trade
\$0.20

Industrial Linkage Ratio
(Economic Complexity Index)
0.26



Industrial Typology
Jewelry and Plastics



Services Typology
(Labor force in Services and commerce)
84.3%



ITC Cluster Score (0-5)
0



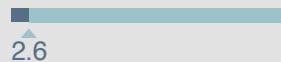
Main ITC Cluster Name

Socioeconomic Development



Avg. Per Capita Income: \$13,739.4 USD

Extreme Poverty Rate:



Moderate Poverty Rate:



Competitiveness Index IMCO:

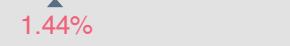


Mobility



Average Commute Time: 43.4 min

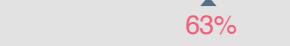
% Pop. with >1hr Commute:



Automobiles as % of population:



Public Transportation Users:



Education



Population Bachelor Degree 15+: 117,000

% Population Bachelor Degree:



Delinquency



Homicide Rate per 100,000: 46

Tourism Variables



Magical Town Destination:
(less than 30 mins from main city)

No

International Passenger Traffic (2019):

16,501,593

Number of Flights:

35,222

Number of International Flights:

23,134

Canadian Consular Point:

Yes

Available Hotel Rooms:

35,114

Hotel Rooms (per 100,000 hab):

4,357

World Heritage Sites:

No

Close to US Border (<100 Km)

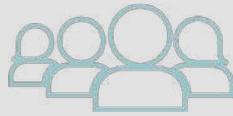
No

Archetypes Scores





TOLUCA



Population 2018

2,332,900

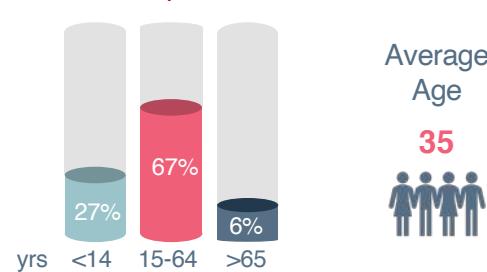
Compounded Population Growth
(2005-2018): 35.5%

Demographic Composition

Gender Disparity Rate



% Population...



Average Age
35



Average Household Member Composition: 3.7

Number of Households: 630,514



Smartphones market size:

1,821,995

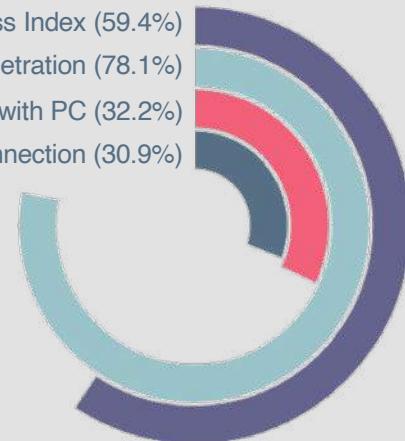
Digital Technologies / TAM Consumer

Digital Access Index (59.4%)

Smartphone Penetration (78.1%)

Households with PC (32.2%)

Internet Connection (30.9%)



Connected Households market size:

194,829

Urban Infrastructure Development



Urbanization Footprint (Sq. Kms.):

212

Urban Density (citizen/Km²):

11,004

*Infrastructure

55.15

*Quality of Life:

67.51

*Social Inclusion:

71.33

*Sustainability:

37.68

Governance and Urban Policy:

31.74

Productivity:

62.44

Smart Cities Agenda:



Toluca Ciudad Inteligente y sustentable



Unesco Creative Cities Network:

*CPI UN

Industrial Composition

Exports \$2.11 \$BU\$SD

Imports \$2.12 \$BU\$SD

Total Trade \$4.23 \$BU\$SD

Per Capita Trade
\$1.8

Industrial Linkage Ratio
(Economic Complexity Index)
0.21

Industrial Typology
Machinery and Transport

Services Typology
(Labor force in Services and commerce)
66.2%

ITC Cluster Score (0-5)
0

Main ITC Cluster Name

Socioeconomic Development



Avg. Per Capita Income: \$6,521.2 USD

Extreme Poverty Rate: 7%

Moderate Poverty Rate: 41.8%

Competitiveness Index IMCO: 43.7

Mobility



Average Commute Time: 37.2 min

% Pop. with >1hr Commute: 13.7%

Automobiles as % of population: 28.5%

Public Transportation Users: 49%

Education



Population Bachelor Degree 15+: 325,000

% Population Bachelor Degree: 13.9%

Delinquency



Homicide Rate per 100,000: 10

Tourism Variables



Magical Town Destination:
(less than 30 mins from main city)

No

Available Hotel Rooms:

3,790

Hotel Rooms (per 100,000 hab):

162

Canadian Consular Point:

No

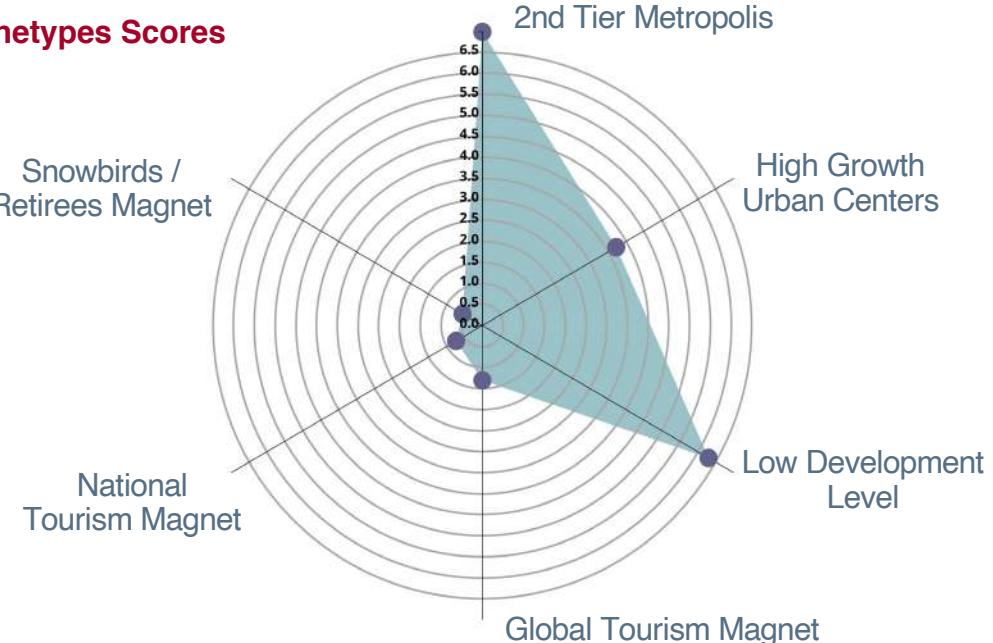
World Heritage Sites:

No

Close to US Border (<100 Km)

No

Archetypes Scores



2.5 Scorecards for Selected Touristic destinations

Next, the study includes scorecards for the country and five selected cities and towns focusing on tourism.

Global Tourism Magnet		National Tourism Magnet		Cultural / Historic Center		Snowbirds / Retirees Magnet		Border Towns	
Mexico City	10	Mexico City	10.00	Mexico City	10	Tijuana	10	Tijuana	7.34
Cancun	6.64	Cancun	6.85	Guadalajara	10	Mexico City	8	Juarez	7.12
Guadalajara	4.77	Puerto Vallarta	4.48	Puebla	9.06	Monterrey	4.9	Mexicali	6.81
Monterrey	3.65	Guadalajara	4.19	Querétaro	8.62	Guadalajara	3.28	Reynosa	6.62
Puerto Vallarta	2.28	Los Cabos	4.09	Zacatecas	8.16	Juarez	2.73	Matamoros	6.41
Los Cabos	2.25	Acapulco	3.67	Morelia	4.37	Puerto Vallarta	2.84	Ensenada	6.4
-		Monterrey	2.74	Oaxaca	4.33	Los Cabos	2.38	Nuevo Laredo	6.32
-		Mazatlan	1.88	Durango	4.26	Mazatlan	2.29	-	
-		Puebla	1.86	Orizaba	ND	Cancun	2.29	-	
-		Quéretaro	1.46	Campeche	4.11	San Miguel de Allende	ND	-	

TOURISM IN MEXICO 2019



7th place
worldwide in
international
tourist arrivals

45 million tourists



The balance for
international travelers
registered a surplus of
1,376 million dollars
48.0% increase vs 2018



16th place worldwide
foreign exchange income
from international visitors
\$ 24.6 billion dollars



In January
2019 most
of the
Canadian
tourists
arrived in
Cancun and
Puerto
Vallarta



Tourism in
2018: 8.7%
GDP

102.5 million passengers
arrived by air
5.3% increase compared
to 2018



January 2019
Arrivals by air of
foreign citizens



Canadian tourist growth in 5.8%
January 2019 vs January 2018.

357, 962 passengers



8.9 million cruise
passengers, an annual
increase of 13.5%.
2,951 cruises represent a
10.5% increase

SECTUR: Compendio Estadístico del Turismo en México 2019 and Resultados de la actividad turística enero 2019

Datatur3 - versionesRAT (sectur.gob.mx)

PUERTO VALLARTA



International Passenger Traffic (2019):

3,127,870



Population 2018

291,805

Compounded Population Growth (2005-2018): 38.1%



*Quality of Life



Available Hotel Rooms

22,948

Hotel Rooms
(per 100,000 hab)

7,864



Productivity
60.93

Number of Flights:

9,504



International Flights

6,103

Average Commute Time:
30.8 min



*Social Inclusion
70.81

Canadian Consular Point



Households with PC
45%



Smartphones market size:
4,631,116



Connected Households market size:
659,703

*Infrastructure Development
60.42



*Sustainability
46.26



Smartphone Penetration
89.7%



Digital Access Index
72.1%



CANCUN



International Passenger Traffic (2019):

16,501,593



Population 2018

805,997

Compounded Population Growth (2005-2018): 67.8%

*Quality of Life
66.48

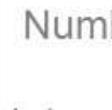


Available Hotel Rooms:
35,114

Hotel Rooms
(per 100,000 hab):
4,357



Productivity
67.58



Number of Flights:
35,222
International Flights
23,134



Average Commute Time:
43.4 min



*Social Inclusion
76.03



Canadian Consular Point



Households with PC
38.2%



Smartphones market size:
763,279



*Infrastructure Development
55.21



*Sustainability
64.97



Smartphone Penetration
94.7%



Digital Access Index
74.4%



Connected Households market size:
115,106

*CPI UN

LOS CABOS



International Passenger Traffic (2019):

3,436,196



Population 2018

312,678

Compounded Population Growth (2005-2018): 102.9%

*Quality of Life

64.22

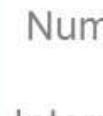


Available Hotel Rooms:
20,961

Hotel Rooms
(per 100,000 hab):
6,704



Productivity
60.26



Number of Flights:
8,987
International Flights
6,146



Average Commute Time:
33.4 min



*Social Inclusion
72.85

Canadian Consular Point



Internet Connection
62.4%

Households with PC
41.2%

Smartphones market size:
297,357

Connected Households market size:
59,125

*Infrastructure Development
74.05



*Sustainability
46.92



Smartphone Penetration
95.1%



Digital Access Index
82%



MAZATLAN



International Passenger Traffic (2019):

313,886



Population 2018

528,899



Compounded Population Growth (2005-2018): 33.2%

*Quality of Life

61.5



Available Hotel Rooms:

9,641

Hotel Rooms (per 100,000 hab):

1,858



Productivity
60.24

Number of Flights:

2,499



International Flights
794

Average Commute Time:
29.3 min



*Social Inclusion
69.68



Canadian Consular Point



Households with PC
40.7%



Smartphones market size:
462,163



*Infrastructure Development
69.39



*Sustainability
57.64



Smartphone Penetration
89.3%



Digital Access Index
70.8%



*CPI UN

CAMPECHE



Arrival of foreign tourists to the state (2019):

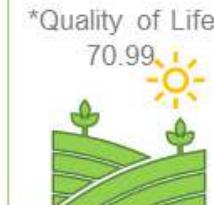
441,776



Population 2018

306,615

Compounded Population Growth (2005-2018): 30.1%



***Quality of Life**

70.99

Total of tourist visits to archaeological sites and museums in the zone

273,559**



Average Commute Time:

33.7 min



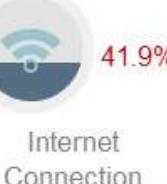
***Social Inclusion**

70.89

World Heritage Sites



16 archaeological zones



Households with PC

40.3%



Smartphones market size:

273,501



Connected Households market size:

35,687

***Infrastructure Development**

70.7



***Sustainability**

28.23



Smartphone Penetration

89.2%



Digital Access Index



70.1%

*CPI UN

**https://www.estadisticas.inah.gob.mx/

CHAPTER 3

Key Players

3.1 Relevant projects

Although several projects are underway in Mexico, such as Ciudad Creativa in Guadalajara and Ciudad Maderas in Querétaro; smart Cities initiatives are scattered in many Mexican cities, even more considering urban digital platforms. In many cases, local groups implement mobility, health, energy, and other digitization projects; but those projects are not labeled as Smart City projects.

From the perspective of intelligent buildings, multiple private companies have invested in developments in Mexico City and Monterrey, primarily due to the added value of the land.

Smart city governance and new tech business are moving in Latin America. Still, building and construction have displayed a comprehensive merging of connectivity, sustainability, and better service, perhaps like no other sector.



Ciudad Creativa Digital.

Perhaps the country's most iconic project since its launch by the federal government in 2010 to position Mexico as a world leader in the creative industries. Since then, creating urban environments of international competitiveness capable of attracting and retaining talent has been defined as a priority challenge for the country.



***“...to position Mexico as a world
leader in the creative industries.”***

Ciudad Maderas.

As an initiative of the TD2035 association, Ciudad Maderas has managed to combine developers, private industry, and government to develop a project to attract the installation of higher education institutions, technology clusters, and living spaces in an effective way. During the pandemic, they had the opportunity to probe technology deployment capabilities, and Oracle, in conjunction with technology companies, developed health and monitoring systems for the population.

Tequila Smart City.

From the point of view of implementation, perhaps the most successful smart urbanization project in Mexico is Tequila, especially for the company José Cuervo who took the project's leadership and, together with the local government have managed to advance the work plan in a very efficient way.



Ciudad Toyota en Guanajuato.

The state government and Toyota developed a plan for intelligent urbanization. The project contemplates the creation of an innovation pole in electromobility.



MGI City Lab Project in Saltillo.

The City Lab team consists of experts from Fraunhofer ISI (management and energy), Fraunhofer IGB (water), Universität Stuttgart IAT (mobility), Fraunhofer IAO, and the local partners Tecnológico de Monterrey and IMPLAN Saltillo. The focus areas are mobility, water, and energy.

Infrastructure Hub for a Smart City, CDMX.

As part of the Innovation Hub of Mexico City activities, a group specialized in urban issues is developing a roadmap for Smart City projects in Mexico City. The city's electromobility roadmap has already been completed and includes projects for the next ten years in Electric Public transport, batteries, last mile logistics, charging stations and infrastructure, electric vehicles manufacturing, and public policy.

3.2 Map of key players and projects

Mexico (Country)

Leaders	Stakeholders	Frameworks
<p>Secretariat of Agrarian, Land, and Urban Development</p> <p>The Mexican Secretariat for Agrarian, Land and Urban Development is the Mexican cabinet agency in charge of agriculture, urban development and living space.</p> <p>https://www.gob.mx/sedatu</p>	<p>IDB Cities Lab</p> <p>IDB Cities Lab leads innovative prototypes that arise from co-design processes between officials of the Inter-American Development Bank and local actors (community, academia, government).</p> <p>https://www.iadb.org/en/urban-development-and-housing/idb-cities-lab</p>	<p>Normative Diagnosis on Mobility Matters</p> <p>The Diagnosis is an analysis and research document that has the objective of unraveling the complex legal network of mobility by exploring the applicable regulations in Mexico regarding mobility.</p> <p>https://www.gob.mx/sedatu/documentos/diagnostico-normativo-en-materia-de-movilidad</p>
<p>Concamin - Smart Cities Commission</p> <p>Comcamin is the confederation on industrial chambers of Mexico and the commission promotes innovative infrastructure projects in growing cities that have a significant impact on industrial development and the quality of their citizens.</p> <p>https://www.concamin.org.mx/nosotros/logros-concamin/60ae6666b25b4a0019ed1431</p>	<p>Senseable Cities Lab - MIT</p> <p>The Senseable Cities Lab at MIT was in charge of the Ciudad Creativa Digital project in Guadalajara.</p> <p>http://senseable.mit.edu/news/pdfs/2014_1002_ElEconomista.pdf</p>	<p>Methodological Guide for the preparation or adaptation of programs for metropolitan areas or conurbations</p> <p>Methodological Guide for the preparation or adaptation of programs for metropolitan areas or conurbations</p> <p>https://www.gob.mx/sedatu/documentos/guia-metodologica-para-la-elaboracion-o-adecuacion-de-programas-de-zonas-metropolitanas-o-conurbaciones?idiom=es</p>
<p>Centro para el Futuro de las Ciudades (Tec de Monterrey)</p> <p>It is a center of thought and action of the Tecnológico de Monterrey, dedicated to the transformation and sustainability of cities, as well as the flourishing of their inhabitants. Our purpose is to generate and disseminate knowledge, create platforms for the exchange of ideas and experiences, as well as influence public policies and projects, linking society, governments, entrepreneurs and universities.</p> <p>https://futurociudades.tec.mx/es?gclid=CiwkCAjwjd0IBhAEiwAHz8xm7x6lmPcktb0IQoBmOn0vn2r82cqo1MjACls27Cre96Cas1lGsjh0czZoQAvD_BWE</p>	<p>Fundación Metrópoli</p> <p>Technological advances on the city of the future, smart city networks, internet of things, sustainability, augmented reality, big data, business intelligence, models and good practices in smart cities, innovations, developments, studies, research . In Mexico they collaborated in Ciudad Creativa Digital, Toyota City in Guanajuato and other projects.</p> <p>https://www.fmetropoli.org/en/</p>	<p>Streets manual: road design for Mexican cities</p> <p>The “Manual of streets: road design for Mexican cities” was prepared by the Secretariat for Agrarian, Territorial and Urban Development (SEDATU) in collaboration with the Inter-American Development Bank (IDB); is the official reference that the federal public administration offers to those interested in the geometric design of a street and the management of road projects in urban areas.</p> <p>https://www.gob.mx/sedatu/documentos/manual-de-calles-diseno-vial-para-ciudades-mexicanas</p>
	<p>UN Habitat</p> <p>UN-Habitat promotes transformative change in cities and human settlements through knowledge, public policy advice, technical assistance and collaborative action, leaving no one and no place behind.</p> <p>https://onuhabitat.org.mx</p>	<p>Simplified guidelines for the preparation of municipal urban development plans or programs</p> <p>They are a strategic element to promote urban planning in Mexico through two ways, in the consolidation of planned and strategic investments, and in ensuring that people are the priority of attention in the strategy of the cities.</p> <p>https://www.gob.mx/sedatu/documentos/lineamientos-simplificados-para-la-elaboracion-de-planes-o-programas-municipales-de-desarrollo-urbano</p>
	<p>Korean Research Institute of Human Settlements (KRIHS)</p> <p>The Global Development Partnership Center of the Korea Research Institute for Human Settlements (KRIHS) held business meetings with the National Housing Commission (CONAVI) and the Secretary of Agrarian, Urban and Territorial Development (SEDATU).</p> <p>http://eng.krihs.re.kr</p>	
	<p>Cisco</p> <p>The Cisco Kinetic platform securely connects city data from all types of devices, sensors, cameras, and applications, in an open, standards-based infrastructure. Find out how to manage that data to improve the lives of citizens. Cisco collaborated in Ciudad Creativa Guadalajara</p> <p>https://www.cisco.com/c/es_mx/solution/sindustries/smart-connected-communities.html</p>	
	<p>Siemens</p> <p>Siemens is part of the Smart City Council of CONCAMIN and the promote digitalization projects for infrastructure, flexible mobility, energy supplies and building control</p> <p>https://new.siemens.com/mx/es/compania/temas-clave/infraestructura-inteligente.html</p>	
	<p>The Mexican Institute of Sustainable and Sustainable Smart Cities (IMCIS)</p> <p>The Mexican Institute of Sustainable and Sustainable Smart Cities (IMCIS) was born at a crucial moment, since the</p>	

Resources		Activities & Engagement	Role Models and entrepreneurs
HUD- Inter American Development Bank	At the Inter-American Development Bank, we strive to help Latin American and Caribbean cities address the New Urban Agenda (Habitat III), aligned with the United Nations Sustainable Development Goals and the Paris Agreement. Our work includes an urban portfolio and a knowledge program focused on sustainability and climate change mainstreaming. plan to prioritize financing and investment that supports the transition to a net zero carbon global economy and helps build a prosperous and resilient future for society and businesses. At the center of the plan is the commitment to reduce the financed emissions of our client portfolio to net zero by 2050 or earlier, in line with the objectives of the Paris Agreement.	IDB Cities Network Prosperous Cities Index Smart City Expo LATAM Congress Ciudades del Futuro Mobility Strategy 4S Ciudad en movimiento: Ciclovías emergentes.(City in movement: emerging bike ways)	Parkimovil Autotraffic Urbvan Econduce
IMCISS	#CIUDADINTELIGENTE must be the center of dialogue, design and development of urban centers, to breathe, live, feed ourselves, work and have fun in an environment with social, environmental and economic health.	http://www.imciss.org.mx	
WRI Mexico Ross Center	It is the Cities program of the World Resources Institute. They coordinate solutions in urban mobility, planning, development and urban efficiency to improve the quality of life in cities. community of sustainable mobility. Thanks to the effort and support of the main public and private entities in the region, we have managed to promote the transformation of our urban reality and consolidate a network that has more than 150 allies and thousands of	https://wriciudades.org	
LATAM Mobility	The Computing Committee of the State and Municipal Public Administration is a civil association that promotes the modernization and innovation of government services.	https://www.latamobility.com/news/?lang=en	
CIAPEM		https://www.ciapem.org/ciapem/	

Mexico City

Leaders	Stakeholders	Frameworks
<p>Secretaría de Educación Ciencia Tecnología e Innovación</p> <p>SECTEI coordinates Mexico's City Innovation Hub and the implementation of Smart City Projects in CDMX. The Urban Management Program defines 5 focus areas: Water management, polluted water treatment, Future Cities, Air Quality and mobility. They have other innovation hubs related to seismic technologies and recycling.</p> <p>https://sectei.cdmx.gob.mx</p> <p>Secretaría de Movilidad</p> <p>Regulate, schedule, guide, organize, control, approve and, where appropriate, modify, the presentation of public, commercial and private passenger and cargo transportation services in Mexico City</p> <p>https://www.semovi.cdmx.gob.mx</p> <p>Secretaría de Desarrollo Económico</p> <p>The Ministry of Economic Development is responsible for defining and coordinating the economic policy of Mexico City so that economic growth and employment are supported by a framework of legal, normative and regulatory certainty that facilitates and encourages competitiveness, innovation, investment and development of economic activities</p> <p>https://www.sedeco.cdmx.gob.mx</p> <p>Agencia Digital de Innovación Pública (Digital Agency of Public Innovation)</p> <p>The Digital Agency for Public Innovation has the responsibility of leading, designing and monitoring the implementation of data management policies, open government, digital government, technological governance and governance of the technological infrastructure in Mexico City.</p> <p>https://adip.cdmx.gob.mx</p>	<p>ATT</p> <p>Mexico City's Ministry of Economic Development (SEDECO) and AT&T signed an agreement to run an Internet of Things (IoT) pilot in a capital's market. This initiative focuses on the development of a Smart City and is part of SEDECO's "Program to Promote and Improve Public Markets in Mexico City".</p> <p>kionetworks.com</p> <p>Citelum</p> <p>Citelum emerged in Paris, France in 1993 due to the need for a company specialized in the management of public lighting, becoming a subsidiary of the Electricité de France (EDF) group.</p> <p>https://citelum.com/mx/</p> <p>Ecomaker Network</p> <p>Made up of companies and 10 higher education institutions of the entity, this network has become a showcase that links educational institutions with industry, investors and research center.</p> <p>https://ecomakerstore.com</p>	<p>Institute for Prospective and Democracy</p> <p>Public body in charge of thinking in the long term, with prospective and democratic agreements, as well as articulating different instruments for the planning of the city, both 20-year plans and government programs of 6 and 3 years.</p> <p>https://www.rutacivica.org/que-es-el-instituto-de-planeacion/</p>
Resources	Activities & Engagement	Role Models
<p>SECTEI Funds for Innovation</p> <p>SECTEI provides funds for innovation, science and technology projects at the entity. They have a mix fund with the national council to support the development of Smart Cities Projects with social and economic impact</p> <p>https://sectei.cdmx.gob.mx/convocatorias-sectei/convocatorias-vigentes</p>	<p>ECOBICI</p> <p>ECOBICI is the public bicycle system of Mexico City that has integrated the bicycle as an essential part of mobility, it is a mode of transport aimed at the inhabitants of the capital, its surroundings and tourists. It allows registered users to take a bicycle from any cycle station and return it to the one closest to their destination in unlimited 45-minute journeys. Those who want to access the ECOBICI System can pay a subscription for one year, one week, three days or one day. The ECOBICI system has been adopted as an effective alternative to travel in Mexico City, not only because it complements the mass transport network, but also because of the benefits it brings to health, the environment, saving travel times and improving quality of life.</p> <p>https://www.ecobici.cdmx.gob.mx</p> <p>Mexico City Subway (Metro)</p> <p>It is the fifth most extensive subway system in the world and the third by usage. The Metro has 184 stations and serves 1647 million passengers a year. In 2006, it ranked third in the world in attracting users, transporting an average of 3.9 million passengers per day (sometimes surpassed by the subways in New York, Moscow and Tokyo).</p> <p>https://www.metro.cdmx.gob.mx</p>	

Metrobus (BRT)	Metrobús is a transport system, based on high-capacity buses and state-of-the-art technology, which provides urban mobility quickly and safely through the integration of a preferential infrastructure, fast and frequent operations, an automated payment system and excellence in quality in the service.	https://www.metrobus.cdmx.gob.mx
Trolebus	It is a fleet of 384 electric vehicles (trolleybus and electric light rail) with an electric network covering 285 km and 27 for the light rail system	https://www.ste.cdmx.gob.mx
Programa Comunitario de Mejoramiento Barrial - Tequio Barrio (Neighborhood Improvement Program)	It is a neighborhood improvement program promoted through a participatory strategy to improve public spaces, especially in those neighborhoods with high levels of social conflict, marginalization or urban deterioration. The projects developed through the program include lighting, provision of recreational, community and sports facilities, drainage systems and small parks, as well as rainwater collection and recycling works.	https://sibiso.cdmx.gob.mx/programa-mejoramiento-barrial-y-comunitario
Programa Basura Cero	The new MSW management model is made up of two parts: the first is the Zero Waste program, which consists of generating an economy model through the separation and recycling of MSW; The second project is the thermo-valorization that will operate in Mexico City and which consists of five stages: 1) Reception of urban waste, 2) Homogenize the waste and feed it to the ovens, 3) Thermal decomposition of the waste in ovens grill type, through a combustion process. 4)	https://www.sedema.cdmx.gob.mx/stora/app/media/DGCPA/InventarioDeResiduosSolidosDeLaCiudadDeMexico_2019.pdf
Electromobility Roadmap	With an estimated population of 21 million people in 2010 the Metropolitan Area of the Valley of Mexico (ZMVM) is one of the most populated metropolis of the planet. The fundamental challenge of the ZMVM is how to ensure urban development orderly, compact and sustainable that allows its inhabitants to continue enjoying a high level quality of life. The social integration, citizen security, mobility and sustainability are permanent challenges which require an approximation to the city to be resolved effectively through a coordinated City Project.	https://www.queretaro.travel/es/blog/publicacion/57/quandoinfo/
Ciudad de Mexico City Innovation Corridor Project	Mexico City, through BEA was able to implement new building regulations. "The SE4All Building Efficiency Accelerator (BEA), led by the WRI Ross Center for Sustainable Cities provided support for the new regulations, specifically for the adoption of energy-efficiency components. The BEA also helped the Mexican Government establish a national building energy code, which provided a solid foundation for Mexico City's energy-efficiency work in buildings.	https://www.fmetropoli.org/en/cities-lab/cities/ciudad-de-mexico-proyecto-ciudad/
Building Efficiency Accelerator		https://buildingefficiencyinitiative.org/taxonomy/term/47

<p>Infrastructure, Capability and Community</p> <p>Comparative projections for the year 2025, carried out by laboratories such as CityScope, anticipate that CDMX may reach the eighth place in the world for the number of children, the ninth for the total population, the tenth for total households with a middle income level, and the twentieth for its Gross Domestic Product, a GDP similar to that of countries such as Taiwan or Argentina. Some of these factors underpin CDMX as the seventh global economic pole. Almost 10% of Latin America's growth in the coming years will come from CDMX, which could become the most important creative hub in the region. UNAM (the University with the most patents in Latin America) is based in Mexico City. One third of the researchers from the National System of Researchers (SNI) are in the City. In addition, 41% of the patents granted to Mexicans are to residents of the CDMX. In 2018, 61% of Fintech Startups were started in the Mexican capital, so innovation will be the engine of development of the City in the coming years.</p>	<p>Walkable Madero Street CDMX redesigned Francisco I. Madero Street in the Historic Center, to make it 100% pedestrian, making it the busiest in the country for almost 400,000 people daily. https://www.ciudadanos.cdmx.gob.mx/vive-cdmx/post/calle-madero</p> <p>Intelligent Infrastructure Roadmap Map of Public Transport Routes The city has managed to draw the complete transport map urban through a platform that collects routes, schedules, stops and other important data, thanks to which they can better plan supply and demand in combination with other data from the census and cadastre. https://www.rtp.cdmx.gob.mx/red-de-cotas</p> <p>Mexico City Smart Buildings</p>
<p>Culture</p>	

Guadalajara

Leaders	Stakeholders	Frameworks
<p>Ciudad Creativa Digital Ciudad Creativa Digital stems from a federal government initiative launched in 2010 to position the country as a relevant player in the digital audiovisual content industry, through the development of a global digital audiovisual and technological production pole / district within the a smart city prototype. https://ciudadcreativadigital.mx</p> <p>IJALTI Institute of Information Technologies of Jalisco Insert Jalisco in the economy of the future through the promotion of innovation, science, technology and higher education. https://www.ijalti.org.mx https://sicvt.jalisco.gob.mx</p> <p>state Ministry of Innovation, Science and Technology</p>	<p>Universidad Autónoma de Guadalajara The Autonomous University of Guadalajara was the first private and autonomous university in Mexico, located in Guadalajara, Jalisco, Mexico. https://www.uag.mx/</p> <p>Tecnológico de Monterrey en Guadalajara The Instituto Tecnológico de Estudios Superiores de Monterrey, Campus Guadalajara is one of the campuses Didi chose Guadalajara to implement its intelligent transport project in which, with travel data and connected traffic lights, they will seek to reduce traffic between 10 and 20%. https://tec.mx/en/guadalajara-campus</p> <p>Didi</p> <p>Jalisco Talent Land Jalisco Talent Land Digital 2021 is the largest event for connection and interaction between young talent, specialists, companies and the government for the development of technology, innovation and entrepreneurship projects. A project proposal from Dr. Víctor M. Larios at the Intelligent Cities Innovation Center has been selected for the MIT Seed Funds in agreement with the Zapopan Municipality to work on Smart Food. https://www.talent-land.mx/en/home/</p> <p>Universidad de Guadalajara Smart Cities Innovation Center http://dti.cucea.udg.mx/es/noticia/mit-media-lab-y-ciudades-inteligentes-centro-de-innovacion-cucea-trabajara-junto-traves-de</p>	<p>Municipal Planning Institute In our city there is a transport-oriented development model that integrates mass transport systems, promotes non-motorized mobility and intermodality, and allows efficient travel to different parts of the city. https://www.imeplan.mx/en/home</p>

Resources	Activities & Engagement <p>MIBICI Public Bicycle System of the Guadalajara Metropolitan Area that encourages free and ecological mobility around the city; perfect for residents and tourists to travel short distances and complement with other transport systems of "Mi Movilidad". https://mibici.net</p> <p>Internet of People Jalisco The Jalisciense Institute of Information Technologies (IJALTI), the University of Guadalajara through its Center for Innovation in Smart Cities, the Institute of Electrical and Electronic Engineers (IEEE) and its Internet of Things initiative (IoT), hand in hand with the Ministry of Innovation, Science and Technology (SICyT), promote the project Internet of People (IoP) Jalisco, which seeks to turn the state into the first and true region of "connected people" in the world. https://sicyt.jalisco.gob.mx/prensa/noticia_1966</p> <p>Sistema del Tren Eléctrico Urbano Alstom has officially delivered Line 3 of Guadalajara urban transportation network, a new line expected to carry around 230,000 passengers daily. The line covers nearly 21 kilometres, covering 18 stations through the cities Zapopan, Guadalajara and Tlaquepaque. It will be operated by the local operator SITEUR (Sistema del Tren Eléctrico Urbano - Urban Electric Train System). http://www.siteur.gob.mx</p> <p>Resiliient Cities Network Resilient Cities Network is a city-led organization comprising of 97 member cities in over 40 countries, that drives urban resilience action to protect vulnerable communities from climate change and other physical, social and economic adversities https://resilientcitiesnetwork.org</p>	Role Models
Infrastructure, Capability and Community <p>Guadalajara is known as the Mexican version of Silicon Valley. IBM, HP, Intel, and all the major US technology players were front-line players in the development of the region's technology sector. Guadalajara is a geek city with over 600 tech startups and increasing, the city is home to Voxfeed, WePow, Yotepresto, Ooyala, Kueski. Many software companies operate out of Guadalajara: iTeXico, Blue Trail Software, Neubox,Luxoft, Wizeline, Cognizant, Tiempo. Intel's only Latin American research laboratory is in Guadalajara. Additionally, in 2012, IBM inaugurated Mexico's first smart data centers in Guadalajara. State and municipal governments have developed favorable conditions for the development of new technology companies. The city invested in technological poles, data centers and in the development of a Smart City to place itself at the forefront of the digital revolution in Mexico.</p>	Culture	

Queretaro

Leaders		Stakeholders		Frameworks
TD2035	<p>A multi-stakeholder collaborative initiative that seeks and integrates the different efforts and visions of all productive sectors in the state of Querétaro to reach a knowledge economy by the year 2035.</p> <p>https://www.td2035.info</p>	Microsoft	<p>Microsoft chooses Querétaro for the installation of its new data center region. One year after the company announced a comprehensive investment plan "Innovar por México", which aims at the digital transformation of the country and contemplates the investment of more than 1,100 million dollars, the Bajío is promoted as the headquarters of the construction of its center.</p> <p>KIO NETWORKS was founded in 2002, with 100% Mexican capital. Their experts offer a broad portfolio of mission-critical information technology infrastructure and services, with the highest level of quality and comprehensive integration of international processes. They have 40 High-Density and High-Availability Data Centers distributed across Mexico, Central America, the Caribbean and Europe, making us one of the important provider in the region.</p> <p>Citelum emerged in Paris, France in 1993 due to the need for a company specialized in the management of public lighting, becoming a subsidiary of the Electricité de France (EDF) group.</p>	<p>The Municipal Planning Institute is in charge of defining the comprehensive and sustainable development plan of the city whose growth horizon is 2031, the date on which the 500th anniversary of the founding of the city of Querétaro will be completed.</p>
Vórtice IT	<p>Vórtice IT Clúster Querétaro comprises technology-based companies, academic institutions, research centers, and governments that create a unique collaboration network.</p> <p>https://vorticeit.mx</p>	KIO Networks	<p>https://www.kionetworks.com/en/</p>	<p>Secretaría de Desarrollo Agrario, Territorial y Urbano</p> <p>https://www.gob.mx/sedatu</p>
Queretaro Municipality	<p>Queretaro is the main municipality of the City of Queretaro (the Metropolitan zone is conformed together with Corregidora and el Marques municipalities)</p> <p>https://www.municipioqueretaro.gob.mx</p>	Citelum	<p>https://citelum.com/mx/</p>	
Ciudad Maderas - IQ Smart City	<p>France is the one who begins with the conceptual development of the IQ Smart City, approving the document MECA Mexico in the economy of applied knowledge. Contributing 25 Recommendations to consider through an official Document called: The Queretaro Paradigm</p> <p>https://centromariomolina.org/wp-content/uploads/2015/03/6.-Ing.-Jorge-Buitrón.pdf</p>	Ecomaker Network	<p>Made up of companies and 10 higher education institutions of the entity, this network has become a showcase that links educational institutions with industry, investors and research center.</p> <p>https://ecomakerstore.com</p>	
		Universidad Mondragón	<p>It is a Spanish University at the core of Ciudad Maderas. They support the Smart City project with education and training programs related to digital transformation.</p> <p>https://mondragonmexico.edu.mx/</p>	
		Monterrey Tech Institute Queretaro	<p>Tecnológico de Monterrey is a prestigious Mexican University. In Queretaro many researchers work in Themes related to smart Cities.</p> <p>https://research.tec.mx/</p>	
		Center for Engineering and Industrial Development (CIDESI)	<p>Cidesi is a public research center of the Conacyt System. CIDESI creates solutions based on development, research and technological innovation. They have experts in automation, IoT and, advanced materials</p> <p>https://www.cidesi.com/site/</p>	

Resources	Activities & Engagement	Role Models	
Queretaro's Council of Science and Technology CONCYTEQ provides funds for innovation, science and technology projects at the entity. They have a mix fund with the national council to support the development of Smart Cities Projects with social and economic impact http://www.concytec.edu.mx/concytec/concatorias	Alianza Smart Latam Cooperation Agreement to develop a Smart City Project in Queretaro Beacons TD 2035 Smart City Meetings IQ Foresight 2025	Quandoinfo Parkimovil	
Sustainable Development Secretariat SESEDU coordinates an innovation Fund to support projects implemented by Queretaro's based companies https://www.queretaro.gob.mx/sedesu/cont_gnido.aspx?g=0P7NpIeTMwykTeimkOH7UBFDwGVQelwCMkndVVWVm8c=		It is a Mexican company that since 2011 innovatively solves the supply, registration, collection and control of parking lots, spaces and public or private accesses. https://quando.info	
Infrastructure, Capability and Community		Culture	
<p>Located just over 2 hours by car (250 km) north of Mexico City, Querétaro is in the center of the country. The region is economically driven by the "NAFTA highway" and centralizes many of the activities at the national level that are part of this agreement. This led to the development of aerospace activities in the area, making Querétaro a new center for the aerospace industry in Mexico. In 2014, Chinese technology maker Huawei announced a \$ 1.5 billion investment plan to build 4 ICT facilities in Querétaro, China's largest investment in Mexico! Daewoo followed a year later with an investment of \$ 100 million to build a new platform in the metropolitan area. In 2017, Deloitte chose Querétaro in Mexico to establish its fourth regional technology service center around the world. Ericsson from Sweden and Safran from France started operations in Querétaro in 2013, where Tata Consulting has already been established. In 2020 Microsoft and Amazon decided to establish their LA Data Centers in Queretaro</p>		<p>The city of Querétaro is one of the most important in the country due to its historical and cultural tradition, which is why its historic center is a UNESCO World Heritage Site, an appointment that has represented an opportunity for the development of tourist activity.</p>	

Puebla

Leaders		Stakeholders	Frameworks
<p>Ayuntamiento de Puebla</p> <p>The Municipality of Puebla is one of the 217 municipalities into which the Mexican state of Puebla is divided for its internal regime, its municipal seat - the city of Puebla de Zaragoza - is in turn the capital and the most populated city of the state, located in its central region, it is the main member of the Puebla-Tlaxcala Metropolitan Area.</p> <p>Fab Foundation</p> <p>Fab lab Puebla is located within the 91 500+ sq ft of the Institute for Design and Technology located at Iberoamericana University at the Mexican city of Puebla.</p>		<p>Massachusetts Institute of Technology (MIT)</p> <p>IDB Cities Lab leads innovative prototypes that arise from co-design processes between officials of the Inter-American Development Bank and local actors (community, academia, government).</p> <p>Universidad Iberoamericana de Puebla</p> <p>Ibero University coordinates an open innovation ecosystem. They participate in many Smart City projects of Puebla</p> <p>Consejo de Ciencia y Tecnología del Estado de Puebla</p> <p>Parkimovil</p> <p>It is a Mexican company that since 2011 innovatively solves the supply, registration, collection and control of parking lots, spaces and public or private accesses.</p>	<p>https://www.pueblacapital.gob.mx</p> <p>https://www.fablabs.io/labs/fablabpuebla</p> <p>https://www.iadb.org/en/urban-development-and-housing/idb-cities-lab</p> <p>https://www.iberopuebla.mx/site-idit/index.php/home</p> <p>https://www.concytep.gob.mx</p> <p>https://parkimovil.com</p>
Resources		Activities & Engagement	Role Models
<p>HUD- Inter American Development Bank</p> <p>At the Inter-American Development Bank, we strive to help Latin American and Caribbean cities address the New Urban Agenda (Habitat III), aligned with the United Nations Sustainable Development Goals and the Paris Agreement. Our work includes an urban portfolio and a knowledge program focused on sustainability and climate change mainstreaming.</p>		<p>Ayuntamiento de Puebla</p> <p>In the municipality of Puebla, it is intended to implement 10 FabLab's in the most vulnerable areas of the city. The first FabLab began operations in March 2018 in the Analco neighborhood, in the Historic Center. The project aims to replicate the FabLab Analco model in other vulnerable areas of the city.</p> <p>Peter Bloom</p> <p>It is a civil association that provides access to cell phone service to indigenous and rural communities in Mexico that, due to their remoteness and size (400 to 5000 inhabitants), do not receive service from the large operators because they consider it too expensive to connect them. They have a technical team that supports and educates individuals and communities seeking to build, manage, and operate their own cellular communication networks. The average cost is 40 pesos (2.15 USD) per month.</p>	<p>https://www.iadb.org/en/urban-development-and-housing/housing-and-urban-development</p> <p>https://www.iadb.org/en/urban-development-and-housing/idb-cities-network</p> <p>https://smartcityexplolatam.com</p>

+ Technology needs in Mexico/ opportunities for Canadian Companies

4.1 Technology Horizons for Smart Cities in Mexico

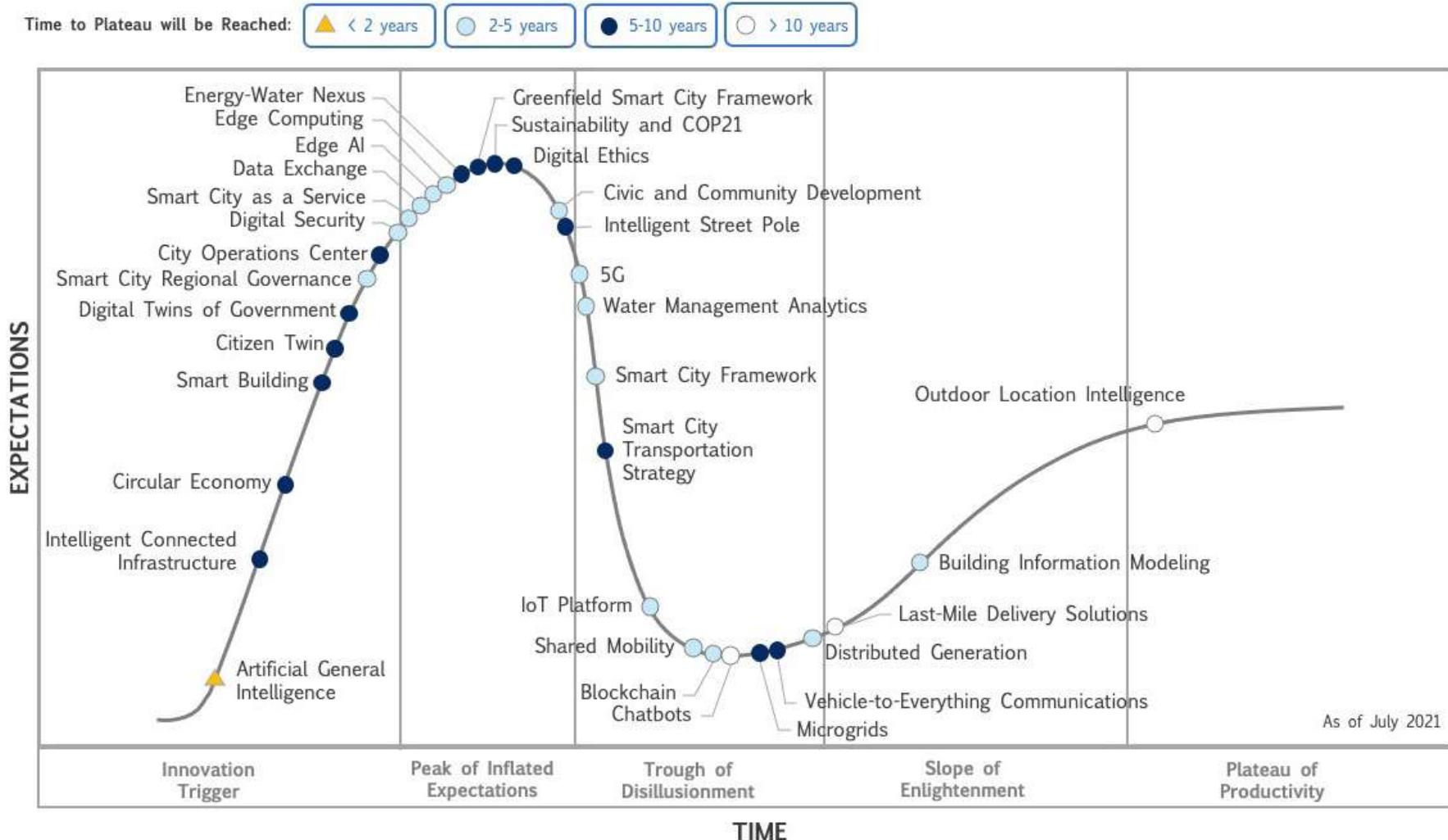
The purpose of this report is to assess the possibilities and opportunities of smart city applications within the Mexican urban context. As shown in the report, there is a great deal of difference between urban centers in the country, due to reasons such as regional development, geography, demographics, and scale, among others. Due to these differences, using a “One Size Fits All” approach to solutions design, marketing and implementation would be both unproductive and inefficient.

In order to propose a fitting match between a wide array of technological solutions with such urban diversity, we developed a two-pronged approach focusing on salient urban characteristics as defined by their archetypes, as well as a deep dive on smart cities technologies and solutions.

We first performed an analysis of current and future technologies related to the field of “smart cities”. We used the latest Gardner’s technology hype-cycle diagram to smart cities as a starting point to understand the projections of maturation of several technologies in use and development in the field.

*...using a “One Size Fits All” approach
to solutions design, marketing and
implementation would be both unproductive
and inefficient.*

HYPE CYCLE



Source: Gartner 2021

We then performed research in relation to smart cities applications, to create a wide-ranging catalogue of 100 applications. While this catalogue is non-comprehensive, due to the ever-increasing solutions brought to market, it is thorough enough for the purposes of this study. We categorized the solutions based on the following seven categories:

- 1. Mobility:** Solutions in this category address advances in transportation and urban mobility, which aim to increase service quality and coverage of mobility options, while decreasing the associated financial costs, environmental pollution, traffic conditions and wasted time. These solutions range from micro mobility options to smart dispatch systems, intelligent parking systems and others.
- 2. Infrastructure:** This category refers to the increasing digitization of urban infrastructure systems and their reconversion as data collectors for cities and for optimization purposes. Technologies and solutions in this category range from smart streetlights to energy monitoring and new technologies for the built environment, and data processing related among others.
- 3. Smart Operations:** This category focuses on solutions aimed towards optimizing existing urban operations and increasing the quality and convenience of public services. Applications in this category range from smart waste collection systems to water flows optimization, urban analytics, public services fleet management and others.
- 4. Green Tech/Health:** These are technologies focused on improving the quality of urban environments, as well as curbing the footprint of carbon and other chemical emissions to our air and water systems, which could be detrimental to people's health. We've also included other health related applications and services such as telemedicine, smart medical records and better food production systems.

5. e-Gov: For this category, we looked at solutions aimed at improving the interfaces between city hall and citizens for purposes of improving accessibility of public services, accountability and transparency and public participation. Amongst the applications in this group we've included ones such as blockchain records certifications, GIS platforms, mobile payment systems and others.

6. Public Safety: These solutions aim at using digital technologies to improve the quality, availability, expediency and transparency of public safety and emergency related services for the population. Blue button systems, automatic shot detection systems and AI powered video analytics are some of the applications included in this group.

7. Smart Tourism: Given the requirements for this study, we have also included a classification of solutions that specifically cater the tourism industry, to increase the quality of their hospitality and leisure services. Included in this category, we find applications such as integrated booking systems and micro leasing apps, AR/VR experiences technologies and smart ticketing solutions among others.

Each of the analyzed applications was then matched to their primary and secondary categories of impact, to map the possibilities of an application ecosystem.

For each of the twelve urban archetypes used to score and classify the cities in this report, we proposed a general mix of smart city solutions based on the seven described categories at a general category level. We then proceeded to match each of the scored cities as they appeared in our rankings to the appropriate combination of potential applications for each market, finally we looked at each case individually and discussed whether the specificity of each case matched the choices selection, to fine tune accordingly. We mapped the results in a multidimensional diagram that within a single view allows us to visualize all this information, from urban archetypes, to scored cities, smart solutions categories, and specific solutions. The resulting diagram is the following.

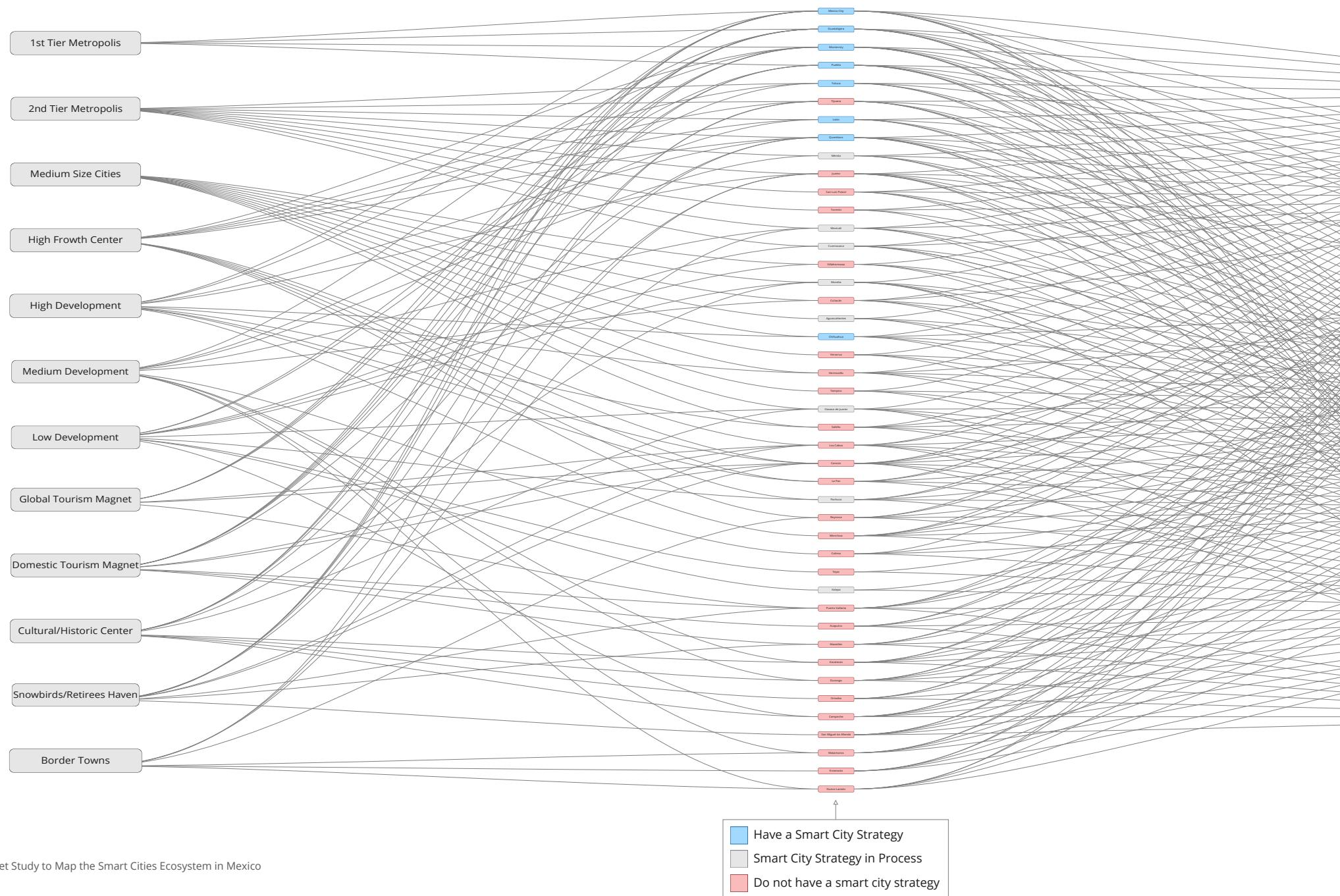
This diagram serves as a detailed map of smart applications opportunities for the most relevant cities as detected and analyzed for this study. It should be treated as a living document, as it is natural for conditions on the ground and needs in cities to change and evolve over time. However, it represents a research synthesis showcasing a myriad of opportunities for Mexican cities and their partners today.



Smart City Technologies & Archetypes

Urban Archetype

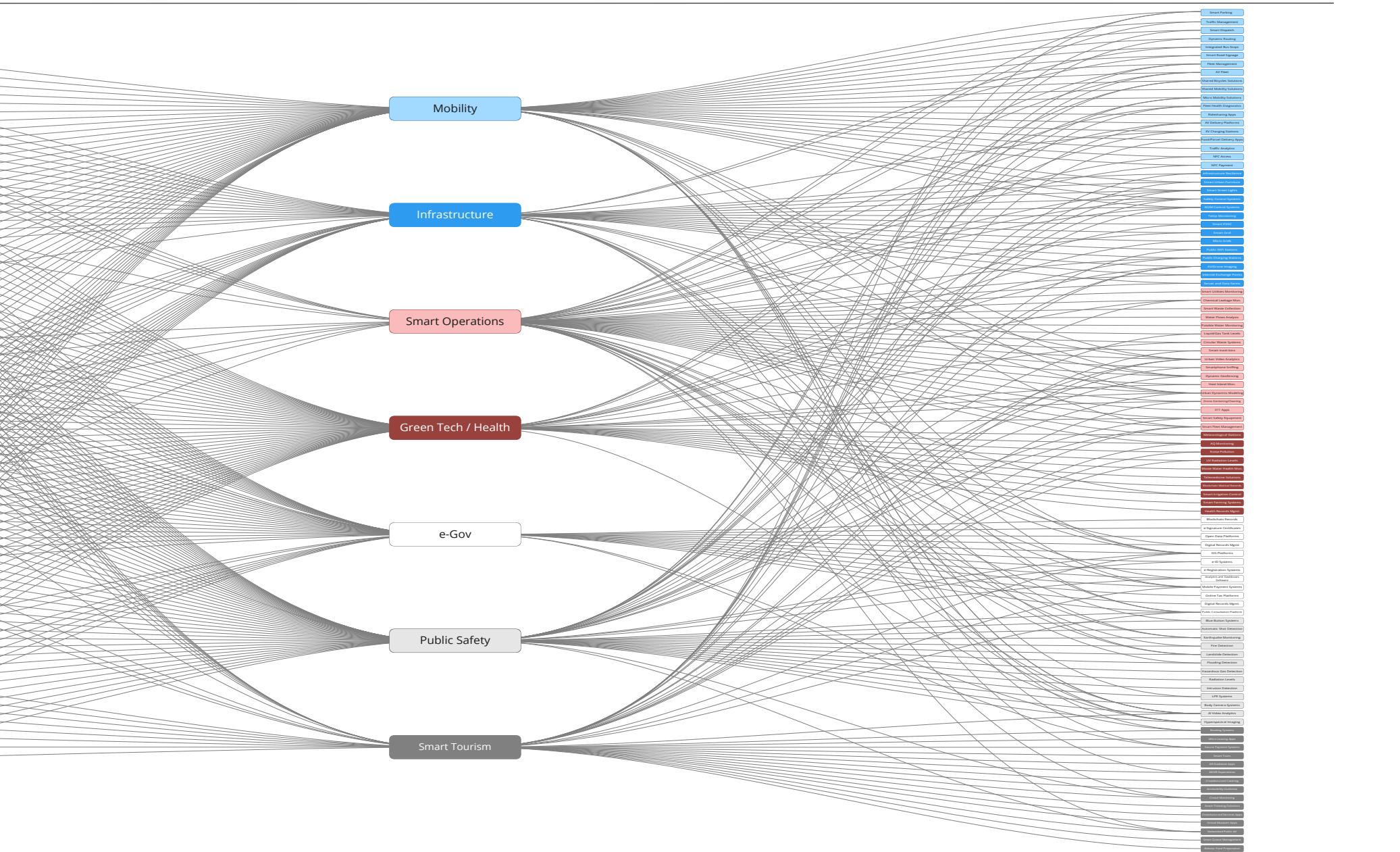
Urban Center



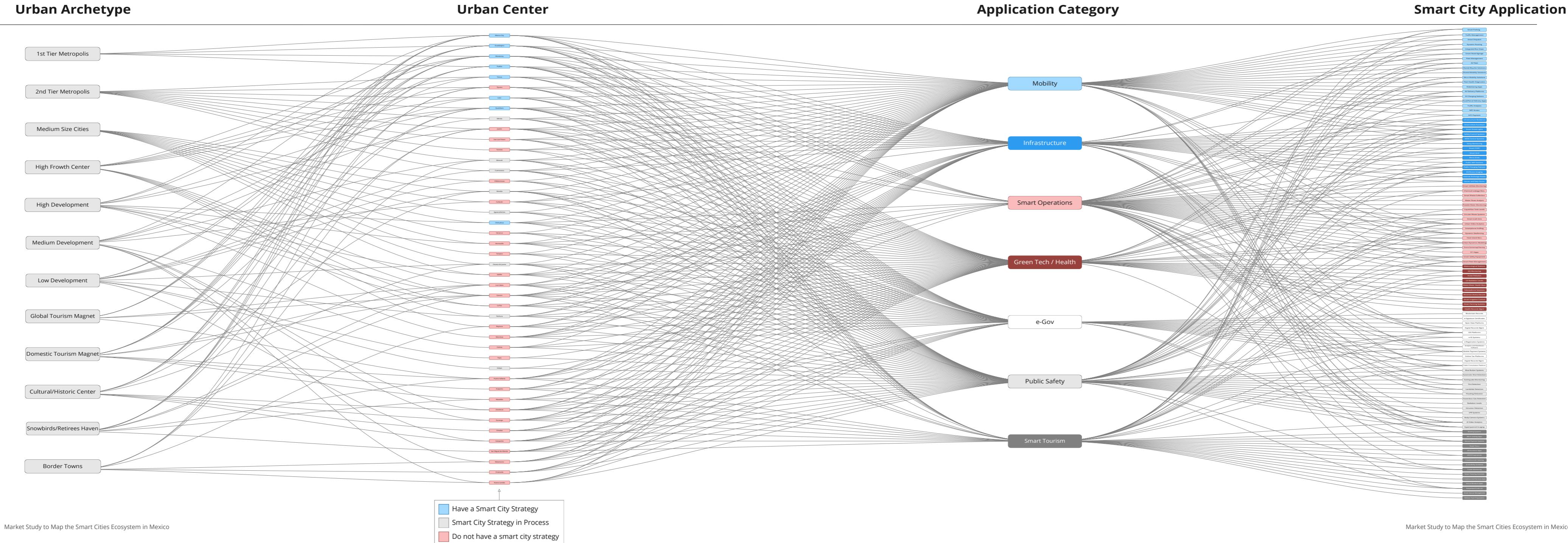
Fit for Key Urban Areas in Mexico

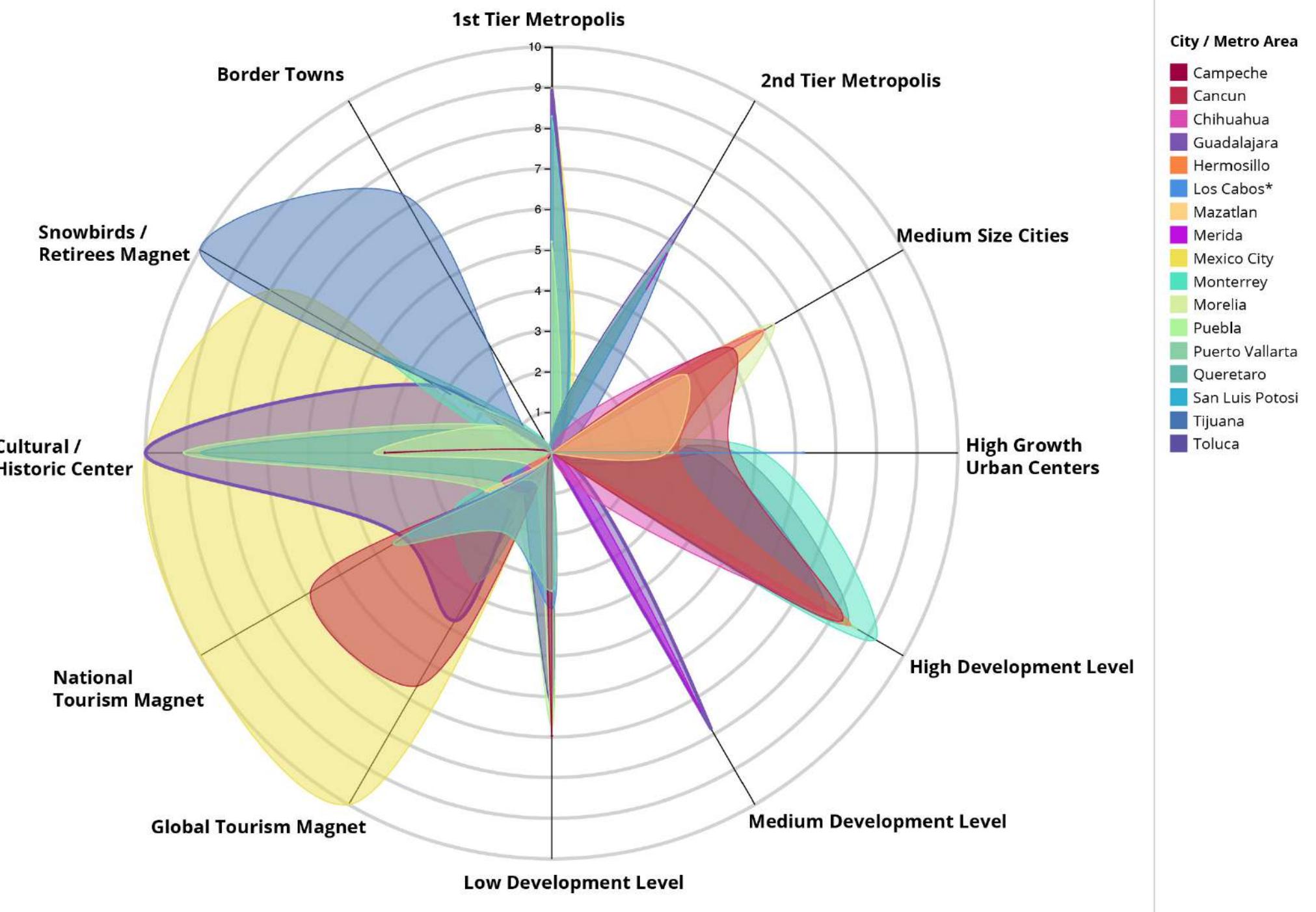
Application Category

Smart City Application



Smart City Technologies & Archetypes fit for Key Urban Areas in Mexico





	1st Tier Metropolis	2nd Tier Metropolis	Medium Size Cities	High Growth Urban Center	High Development Level	Medium Development Level	Low Development Level	Global Tourism Magnet	National Tourism Magnet	Cultural / Historic Center	Snowbirds / Retirees Magnet	Border Town
Mexico City	Y				Y			Y	Y	Y	Y	
Guadalajara	Y					Y		Y	Y	Y	Y	
Monterrey	Y			Y	Y			Y	Y	Y	Y	
Puebla	Y						Y		Y	Y		
Toluca		Y			Y			Y				
Tijuana		Y			Y						Y	Y
León		Y			Y							
Querétaro		Y			Y	Y			Y	Y		
Mérida		Y					Y					
Juarez		Y				Y					Y	Y
San Luis Potosí		Y										
Torreón		Y										
Mexicali		Y					Y					Y
Cuernavaca		Y						Y				
Villahermosa			Y					Y				
Morelia			Y					Y			Y	
Culiacan			Y				Y					
Aguascalientes			Y									
Chihuahua			Y			Y						
Veracruz			Y									
Hermosillo			Y			Y						
Tampico			Y									
Oaxaca de Juarez			Y					Y			Y	
Saltillo			Y			Y						
Los Cabos				Y					Y	Y		Y
Cancún				Y		Y			Y	Y		Y
La Paz				Y		Y						

	1st Tier Metropolis	2nd Tier Metropolis	Medium Size Cities	High Growth Urban Center	High Development Level	Medium Development Level	Low Development Level	Global Tourism Magnet	National Tourism Magnet	Cultural / Historic Center	Snowbirds / Retirees Magnet	Border Town
Pachuca de Soto				Y			Y					
Reynosa				Y								Y
Monclova					Y							
Colima						Y						
Durango						Y				Y		
Nuevo Laredo						Y						Y
Zacatecas						Y				Y		
Matamoros						Y						Y
Tepic							Y					
Campeche							Y			Y		
Xalapa							Y					
Puerto Vallarta								Y	Y			Y
Acapulco									Y			
Mazatlán									Y			Y
Orizaba										Y		
San Miguel de Allende											Y	
Ensenada												Y

Smart Applications Profile	Mobility	Mobility	Mobility	Mobility	Mobility	Mobility		Mobility	Mobility	Mobility	Mobility	Mobility
	Infrast.	Infrast.		Infrast.	Infrast.			Infrast.	Infrast.	Infrast.	Infrast.	Infrast.
	Urban Operations				Urban Operations			Urban Operations				
	Green Tech / Health											
	E-Gov	E-Gov	E-Gov	E-Gov	E-Gov	E-Gov					E-Gov	E-Gov
	Public Safety											
								Smart Tourism	Smart Tourism	Smart Tourism	Smart Tourism	

+ Suggested market entry strategies, conclusions and recommendations to the embassy

The moment of political change in Mexico may represent an advantage for exploring opportunities with governments that are about to begin. This situation leaves a good margin for negotiation in time. Hence, it is crucial to notice that municipal governments are in three-year terms, and ideally, the cycles of implementation should be within this period.

To this end, it is essential to consider the political map of the various regions of the country and the cities, especially if the projects require a period of more than three years (municipal government period). Suppose the tasks require more time than the municipal term. In that case, it is relevant to know that municipalities cannot make longer-term debt decisions without the approval of state

congresses, so political alignment between municipal and state governments is desirable.

The suitable alignment is between the state and federal governments for projects at state level (larger or geographical scope). Although states have budgets and resources, this alignment can facilitate access to national resources or guarantee access from international sources such as the Inter-American Development Bank or the World Bank.

On the other hand, companies must also evaluate the credit rating of their potential customers; for this purpose, we present in the tables of Annex II the evaluations of international rating agencies for the central municipalities of the cities on the list. This

neutral evaluation makes it possible to define whether these entities are subject to international credit and under what conditions. However, by regulation, some entities such as the mayor's offices in Mexico City (alcaldías) do not have the opportunity to be qualified by these international entities, so the companies will need to explore alternative means to evaluate their creditworthiness.

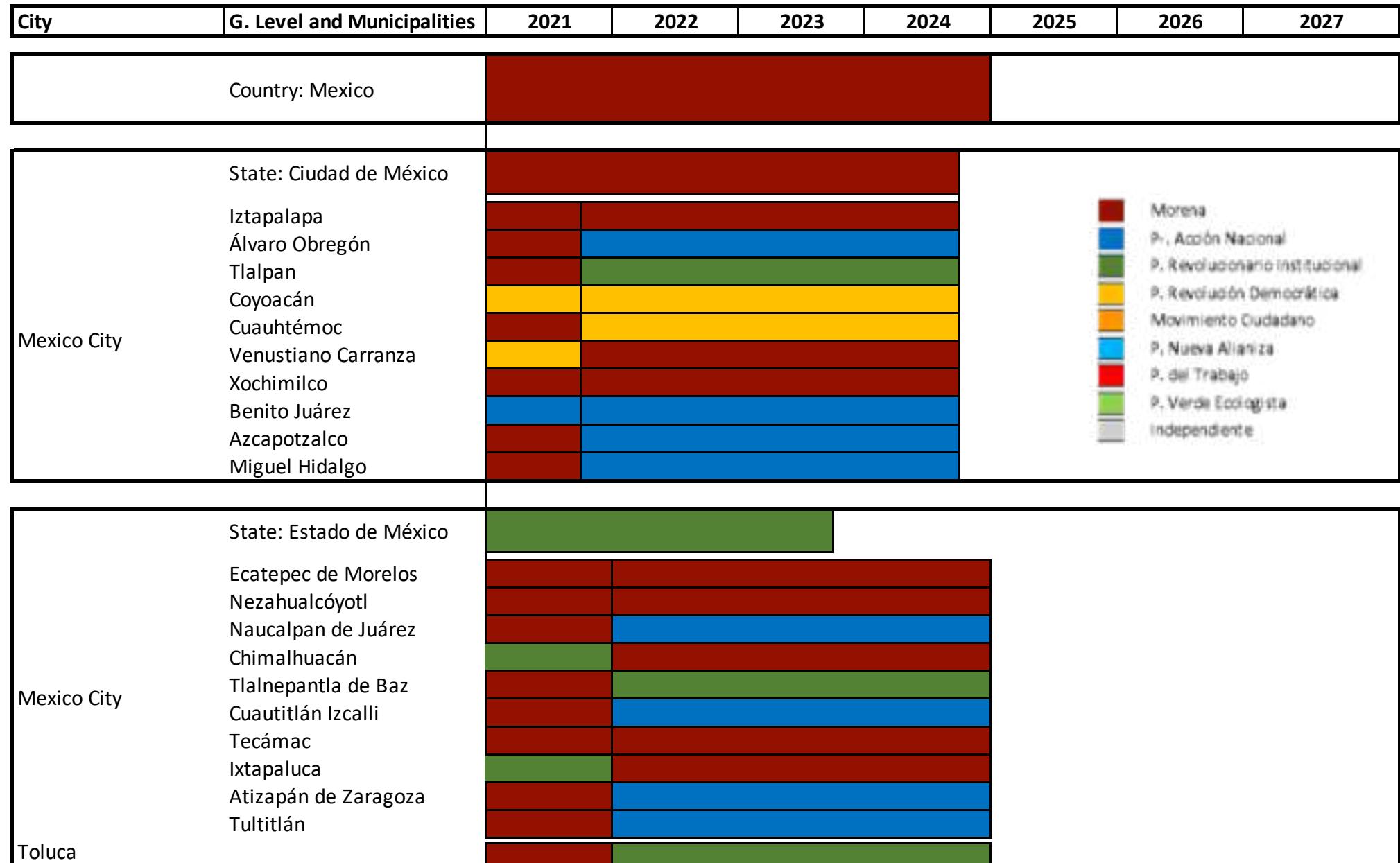


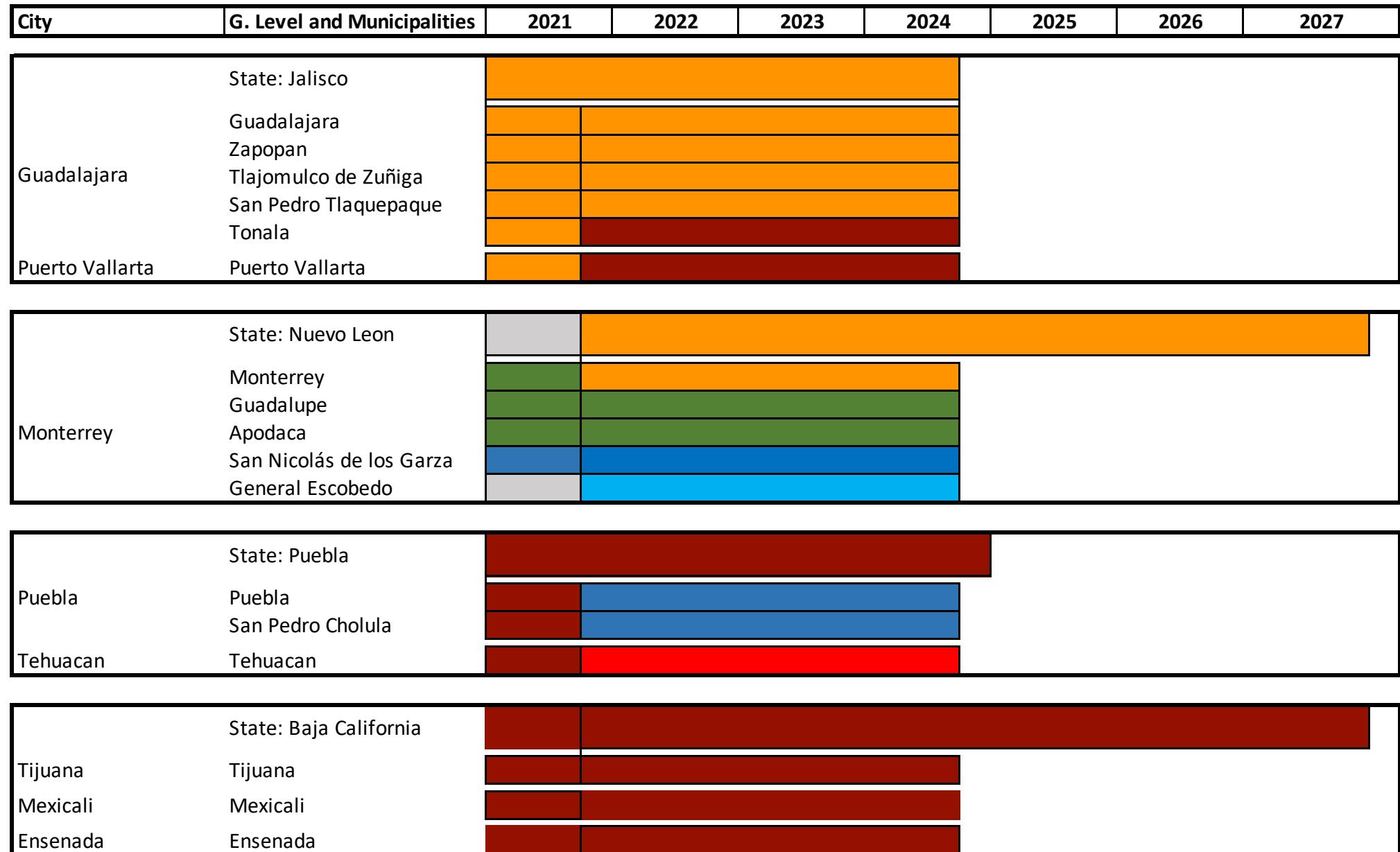
As we mentioned initially, Mexico represents a very diverse market and many opportunities to develop businesses that can be replicated in many economies internationally. Regions with a low degree of digital and technological maturity require proposals adjusted to this reality. In addition, this type of region requires greater accompaniment and training, so alliances with local actors should be explored to allow a greater presence in these territories. The business structure in Mexico is highly hierarchical; decisions are often made not only by the quality of the offer but also by the relationships with the decision-makers. Therefore, Canadian companies should expand their networking in Mexico to facilitate their integration into these circles.

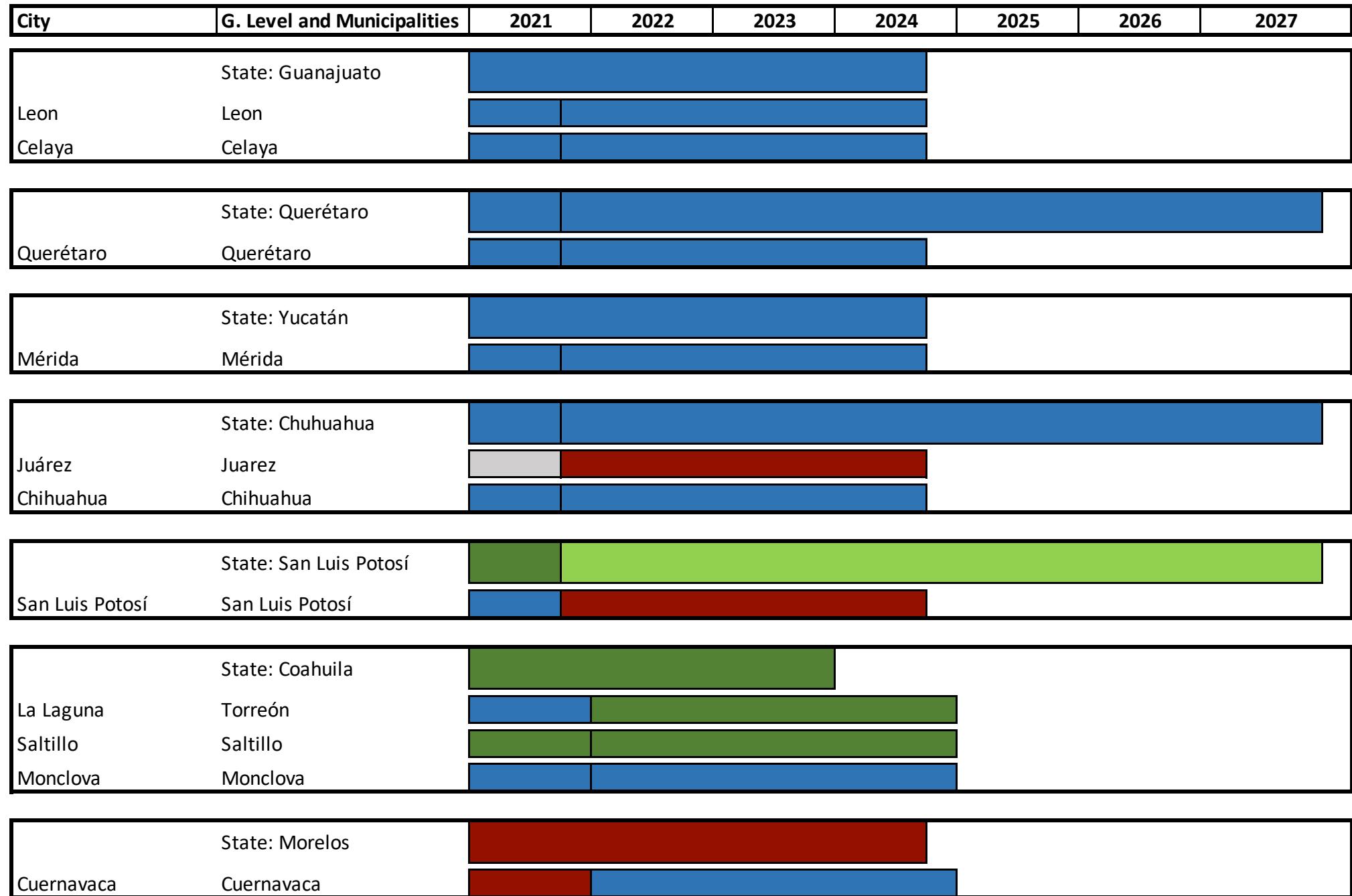
About alliances and representation, Canadian companies should be instructed in the style of negotiation in Mexico and the legal mechanisms to validate decisions and enforce them. Throughout the CTA program, consultants and mentors must accompany companies in this learning process.

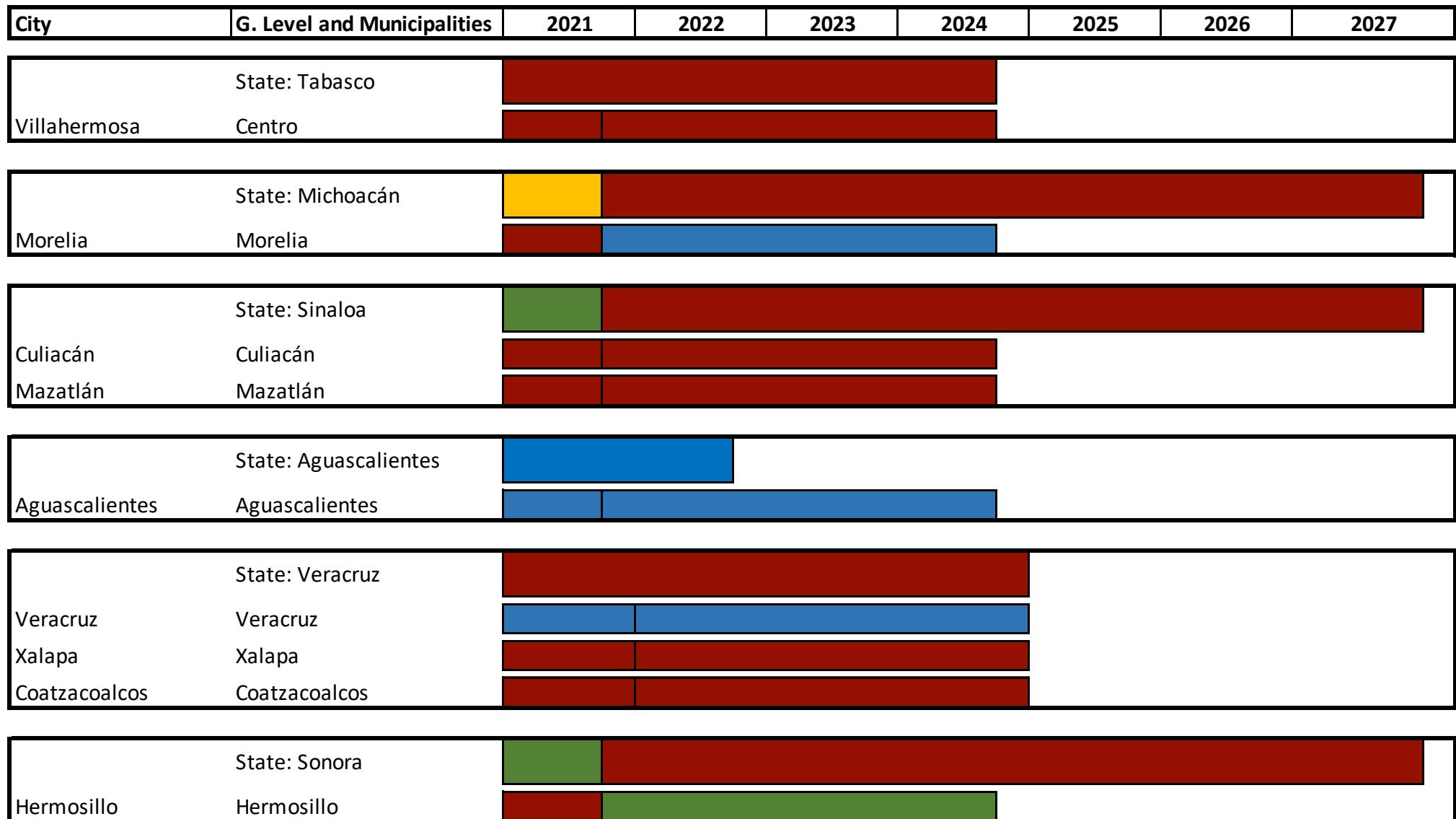
Here, we prepared a political map of the cities analyzed, to help companies understand the interrelations between government levels and define a strategy.

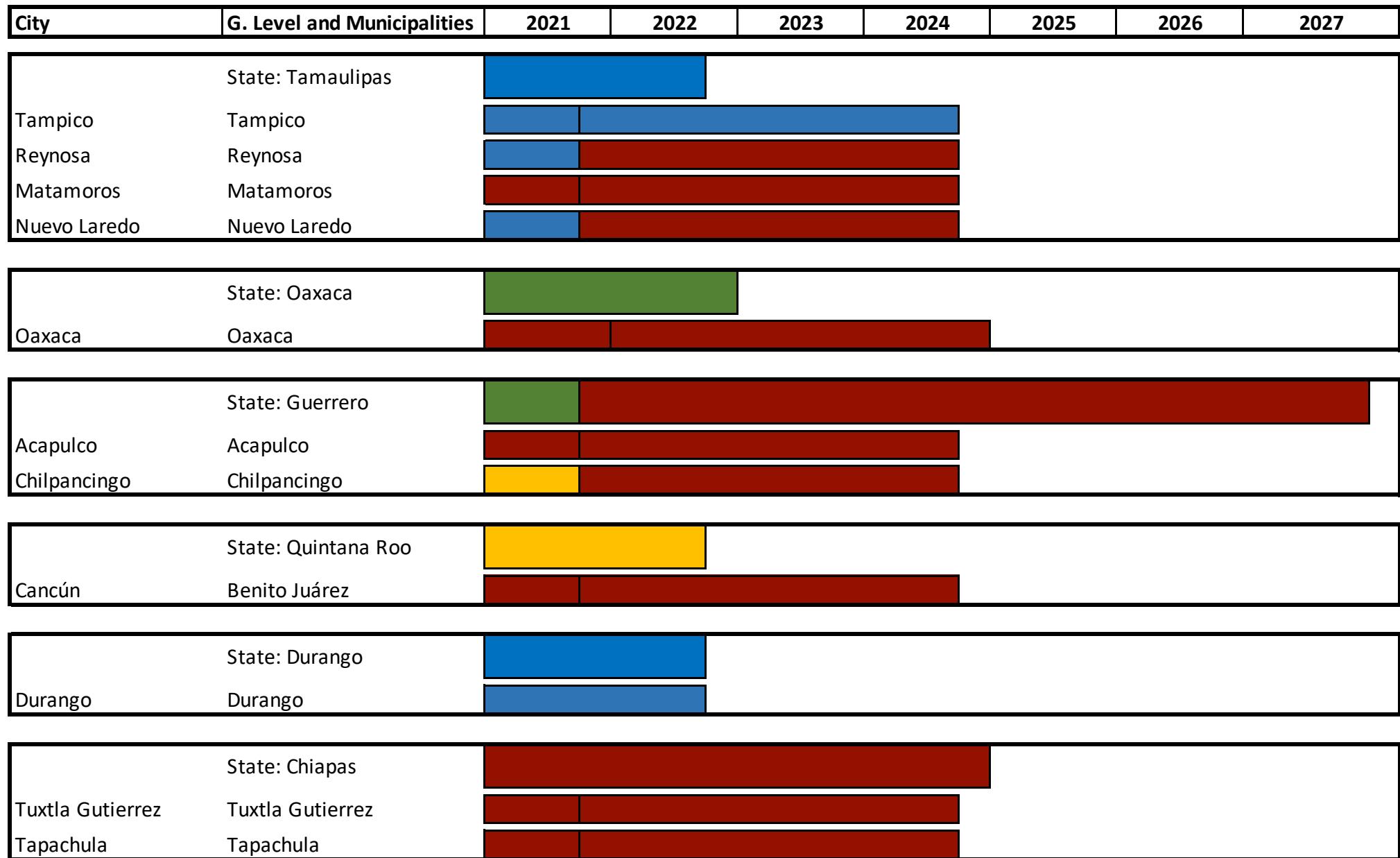
“...Mexico represents a very diverse market and many opportunities to develop businesses that can be replicated in many economies internationally”

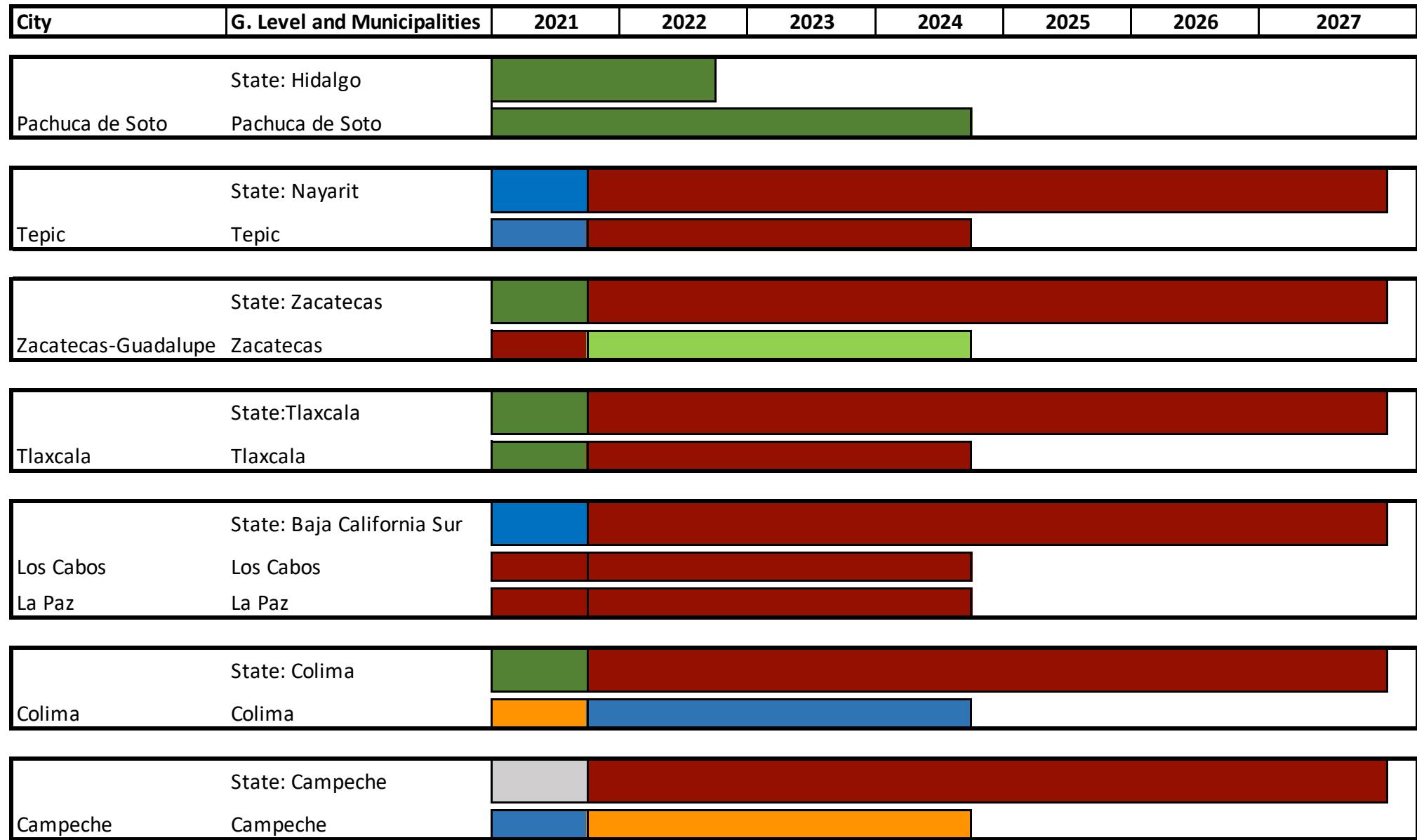












+ Annex I

Directory

The information contained in this directory was obtained from the official web pages. It is suggested to consider it as a mere reference, due to the present or future changes in the organic structures.

Last review: August 2021

Organization	Contact name	Position	Email	Website (information, programs, funding, tramsits)
National				
Chambers & Associations				
Confederation of Industrial Chambers of the United Mexican States (CONCAMIN)	Marcos Abarca González	Innovation Coordinator		
National Chamber of the Electronics, Telecommunications and Information Technology Industry (CANIETI)	Alfredo Pacheco Vásquez	General Director	direccion@canieti.mx	
National Association of Mexican Cities of World Heritage A.C. (ANCPMPM)	Jorge Ortega González	General Director	ortegasm@prodigy.net.mx	https://www.ciudadespatrimonio.mx/
National Council of Clusters MxTI (mxTI)	Oscar Rivera	President	oscar.rivera@grupogsm.mx	https://www.mxti.mx/
Financing (Federal funds & multilateral development organizations)				
Banco Nacional de Obras y Servicios Públicos (BANOBRAS)	Antonio García Carreño	Deputy Director General of Financing and Technical Assistance to Governments	Antonio.Garcia@banobras.gob.mx	https://www.gob.mx/banobras/acciones-y-programas/programa-banobras-fais
Banco Mexicano de Comercio Exterior (BANCOMEXT)	Rebeca E. Pizano Navarro	Deputy Director General of Company Banking	rpizano@bancomext.gob.mx	https://www.bancomext.com/productos-y-servicios/acciones-para-apoyar-la-economia
Nacional Financiera (NAFIN)			apoyonymes@nafin.gob.mx	https://www.nafin.com/portalnf/content/financiamiento/impulso-nafin-estados.html
Fondo Nacional de Infraestructura (FONADIN)			fonadin.agua@banobras.gob.mx	
			fonadin.carreteras@banobras.gob.mx	
			fonadin.energia@banobras.gob.mx	
			fonadin.medioambiente@banobras.gob.mx	
			fonadin.puertos.aeropuertos@banobras.gob.mx	https://www.fonadin.gob.mx/fni2/productos-y-programas/#tab-id_3
			fonadin.transporte@banobras.gob.mx	
			fonadin.urbano@banobras.gob.mx	
			fonadin.fondos@banobras.gob.mx	
			fonadin@banobras.gob.mx	
Banco Interamericano de Desarrollo (BID/IDB)	Ernesto Hugo Stein	Mexico's Representative	BIDMexico@adb.org	https://www.adb.org/es/paises/mexico/perspectiva-general
Banco Interamericano de Desarrollo (BID invest/IDB invest)	Rodrigo Navas	Financial solutions for private sector Expert	rnavas@idbinvest.org	
	Cristina Simón Morientes	Infrastructure finance Expert	csimon@idbinvest.org	
	Fernando Cubillos	Energy and climate finance Expert	fcubillos@idbinvest.org	
	Guillermo Foscarini	Agribusiness Expert	gfoscarini@idbinvest.org	

Productive Development Unit (UDP, Ministry of Economy)	Women, Young professionals, MSME's, SME's for strategic sectors	ayudaudp@economia.gob.mx	https://www.gob.mx/se/acciones-y-programas/unidad-de-desarrollo-productivo
Other financial alternatives			
Banco Mundial (CAF/IFC World Bank)			https://www.ifc.org/wps/wcm/connect/corp_ext_content/ifc_external_corporate_site/solutions/products+and+services
Corporación Financiera Internacional (CAF/IFC World Bank)			https://www.caf.com/en/countries/mexico/#
North American Development Bank (NADBANK)			https://www.nadb.org/infrastructure-financing/loans#eligibility
World Bank			https://www.worldbank.org/en/what-we-do/products-and-services/financing-instruments
Other relevant contacts (Commercial Public Notaries; Public Notaries; Electronic bill, signature & accounting)			
National College of Mexican Notaries	Guillermo Escamilla Narváez President	gescamilla@notaria243.com	https://www.notariadomexicano.org.mx/directorio-de-notarios/
National College of Mexican Commercial Public Notaries	Fernando Abraham Barrita Chagoya President	fbarrita@correduriaspublicasdf.com	https://www.corredorespublicosmx.org/directorio-nacional/
Mexican Association of Authorized Certification Providers (AMEXPAC)	Octavio Ruiz Chávez Executive Director	octavio.ruiz@amexpac.org.mx	https://amexpac.org/

Link to the Sub National Directories:

https://drive.google.com/drive/folders/17Jul2CnRq0U7fEgiTjtcpPTY0cHf_krb

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Annex II

Stastistical Analysis

Population and demographic composition

City / Metro Area	Population 2018	Avg. Pop Growth Rate (2005-2018)	Pop 0-14 %	Pop 15-64 %	Pop 65+ %	Average Age	Gender Disparity Rate (Male vs. Female) % Female 2019	Average Household Member Composition
Veracruz	919,626	1.75%	21.66%	69.96%	8.38%	39	54.10%	3.4
Mazatlan	520,899	2.23%	24.30%	68.35%	7.35%	38	56.50%	3.5
Xalapa	830,933	1.95%	24.12%	68.45%	7.43%	38	53.90%	3.4
Coatzacoalcos	369,238	1.49%	22.85%	70.79%	6.36%	38	53.80%	3.4
Mexico City	20,507,745	1.19%	21.76%	70.04%	8.19%	38	53.30%	3.3
La Paz	291,685	2.64%	23.44%	69.49%	7.07%	37	49.60%	3.3
Cuernavaca	1,038,067	2.00%	24.28%	67.62%	8.10%	37	53.10%	3.5
Celaya	668,936	1.85%	27.24%	66.83%	5.93%	37	52.70%	3.9
Tampico	858,218	1.59%	23.32%	68.53%	8.15%	37	53.90%	3.3
Colima	310,082	2.59%	24.31%	68.61%	7.08%	36	52.00%	3.2
Villahermosa	998,523	2.37%	25.36%	68.75%	5.89%	36	52.10%	3.6
Monterrey	4,893,288	2.28%	25.22%	68.40%	6.38%	36	51.70%	3.5
Morelia	972,194	2.17%	25.71%	67.59%	6.70%	36	54.40%	3.7
Ensenada	518,900	2.10%	25.67%	67.67%	6.65%	36	49.60%	3.3
Campeche	306,615	2.05%	24.12%	68.76%	7.12%	36	53.80%	3.6
Chihuahua	924,455	2.03%	23.69%	69.03%	7.28%	36	52.20%	3.2

Guadalajara	5,162,894	1.93%	26.45%	67.35%	6.20%	36	51.70%	3.6
Oaxaca de Juarez	851,602	1.92%	24.46%	68.74%	6.80%	36	52.10%	3.7
Puebla	2,756,034	1.89%	25.49%	68.26%	6.25%	36	55.00%	3.8
Acapulco de Juarez	834,889	1.52%	25.23%	67.92%	6.85%	36	54.90%	3.7
Queretaro	1,618,062	2.83%	26.15%	68.14%	5.72%	35	53.70%	3.5
Pachuca de Soto	630,196	2.55%	24.60%	69.19%	6.21%	35	55.60%	3.6
Toluca	2,332,900	2.36%	26.72%	67.28%	6.00%	35	53.60%	3.7
Tapachula	372,829	2.35%	28.23%	65.55%	6.22%	35	52.70%	4.1
Tepic	493,788	2.25%	26.65%	67.07%	6.28%	35	52.20%	3.4
Durango	680,436	2.21%	27.55%	66.23%	6.22%	35	53.70%	3.7
Merida	1,513,606	1.77%	23.26%	69.08%	7.66%	35	51.20%	3.5
Torreon / La Laguna	1,249,077	1.77%	27.07%	66.25%	6.68%	35	52.00%	3.5
San Luis Potosi	1,371,146	1.69%	25.81%	67.81%	6.37%	35	53.50%	3.6
Tijuana	1,736,099	2.37%	26.23%	68.70%	5.06%	34	48.80%	3.3
Hermosillo	919,332	2.37%	25.60%	68.46%	5.93%	34	51.10%	3.3
Zacatecas	430,538	2.22%	28.02%	67.02%	4.97%	34	51.80%	3.7
Saltillo	843,421	2.20%	27.42%	66.61%	5.97%	34	53.80%	3.5
Aguascalientes	936,373	2.15%	26.32%	67.63%	6.05%	34	51.50%	3.7
Tuxtla Gutierrez	644,430	2.13%	25.02%	69.69%	5.28%	34	52.50%	4.1
Mexicali	1,051,870	2.08%	24.87%	68.23%	6.90%	34	52.70%	3.3
Culiacan	947,345	1.69%	25.95%	67.68%	6.37%	34	53.50%	3.5
Nuevo Laredo	415,949	1.45%	28.94%	65.30%	5.76%	34	49.90%	3.2
Matamoros	538,972	1.40%	27.89%	66.21%	5.90%	34	50.10%	3.2
Juarez	1,446,305	1.29%	28.25%	66.92%	4.83%	34	50.40%	3.2

Cancun	805,997	4.07%	26.05%	70.44%	3.51%	33	49.90%	3.2
Chilpancingo	344,269	2.20%	27.73%	66.62%	5.65%	33	52.90%	3.7
Leon	1,645,986	2.15%	27.82%	67.23%	4.95%	33	53.80%	3.9
Tehuacan	377,423	2.11%	28.71%	65.87%	5.42%	33	55.50%	3.8
Tlaxcala	360,526	1.80%	25.44%	67.80%	6.76%	33	53.50%	3.9
Reynosa	801,770	2.33%	28.84%	66.02%	5.14%	32	53.80%	3.2
Los Cabos*	312,678	5.62%	28.70%	67.97%	3.33%	NA	48.50%	3.3
Puerto Vallarta	291,805	2.52%	26.45%	68.78%	4.77%	NA	NA	3.6
Monclova	330,733	1.66%	26.29%	66.81%	6.90%	NA	50.30%	3.5

Digital Access and Target Addressable Market (TAM)

City / Metro Area	Internet Connection	TV Penetration	Households with PC	Smartphone Penetration	Digital access index	TAM Smartphones	TAM Connected Households
Veracruz	41.50%	96.50%	37.00%	89.40%	69.80%	822,146	112,248
Mazatlan	43.70%	97.60%	40.70%	89.30%	70.80%	465,163	65,038
Xalapa	42.80%	96.00%	41.80%	85.70%	68.40%	712,110	104,600
Coatzacoalcos	40.70%	94.10%	34.00%	88.60%	68.80%	327,145	44,200
Mexico City	47.40%	97.60%	45.30%	83.40%	68.80%	17,103,459	2,945,658
La Paz	50.70%	95.40%	51.60%	93.80%	76.70%	273,601	44,813
Cuernavaca	43.00%	96.00%	38.00%	82.70%	66.30%	858,481	127,534
Celaya	32.60%	97.50%	32.20%	77.70%	59.60%	519,763	55,916
Tampico	42.00%	96.00%	36.50%	87.90%	69.00%	754,374	109,228
Colima	46.90%	97.00%	46.40%	87.60%	71.30%	271,632	45,446
Villahermosa	33.90%	94.60%	36.90%	89.10%	67.30%	889,684	94,028
Monterrey	52.70%	98.50%	47.10%	88.60%	73.70%	4,335,453	736,789
Morelia	37.90%	97.40%	39.90%	87.10%	67.60%	846,781	99,584
Ensenada	44.20%	94.10%	42.90%	89.40%	71.20%	463,897	69,501
Campeche	41.90%	95.70%	40.30%	89.20%	70.10%	273,501	35,687
Chihuahua	50.00%	98.60%	50.90%	92.30%	75.50%	853,272	144,446
Guadalajara	46.00%	98.30%	45.00%	89.70%	72.10%	4,631,116	659,703
Oaxaca de Juarez	38.10%	93.10%	40.10%	87.40%	67.90%	744,300	87,692
Puebla	35.90%	96.60%	36.10%	81.10%	63.00%	2,235,144	260,373

Acapulco de Juarez	27.50%	92.50%	24.20%	78.60%	57.80%	656,223	62,053
Queretaro	48.50%	97.70%	47.50%	89.60%	73.10%	1,449,784	224,217
Pachuca de Soto	39.70%	97.00%	41.00%	88.90%	69.40%	560,244	69,497
Toluca	30.90%	95.80%	32.20%	78.10%	59.40%	1,821,995	194,829
Tapachula	20.90%	90.30%	23.60%	81.30%	57.40%	303,110	19,005
Tepic	47.00%	96.50%	45.90%	89.60%	72.50%	442,434	68,259
Durango	40.20%	98.10%	41.40%	88.90%	69.50%	604,908	73,928
Merida	43.30%	96.80%	42.20%	90.80%	71.70%	1,374,354	187,255
Torreon / La Laguna	34.70%	98.10%	34.00%	84.80%	64.70%	1,059,217	123,837
San Luis Potosi	44.80%	98.00%	44.90%	86.50%	69.80%	1,186,041	170,632
Tijuana	50.50%	95.90%	47.90%	90.50%	74.20%	1,571,170	265,676
Hermosillo	53.40%	97.10%	54.60%	94.20%	78.00%	866,011	148,765
Zacatecas Guadalupe	47.90%	97.90%	48.30%	87.30%	71.60%	375,860	55,737
Saltillo	45.20%	98.00%	43.00%	86.60%	69.80%	730,403	108,922
Aguascalientes	40.30%	97.90%	42.80%	88.90%	69.70%	832,436	101,989
Tuxtla Gutierrez	32.20%	94.00%	34.60%	88.30%	66.10%	569,032	50,611
Mexicali	48.70%	97.50%	46.10%	91.20%	73.90%	959,305	155,231
Culiacan	45.30%	97.00%	46.40%	93.10%	74.10%	881,978	122,614
Nuevo Laredo	42.30%	95.60%	36.20%	81.00%	64.90%	336,919	54,983

City / Metro Area	Internet Connection	TV Penetration	Households with PC	Smartphone Penetration	Digital access index	TAM Smartphones	TAM Connected Households
Matamoros	17.30%	85.90%	17.70%	77.20%	53.30%	416,086	29,138
Juarez	40.20%	98.60%	40.30%	89.60%	69.90%	1,295,889	181,692
Cancun	45.70%	93.30%	38.20%	94.70%	74.40%	763,279	115,106
Chilpancingo de los Bravo	33.20%	91.80%	35.30%	79.40%	61.10%	273,350	30,891
Leon	34.70%	98.00%	33.90%	82.50%	63.30%	1,357,938	146,451
Tehuacan	29.30%	93.20%	25.90%	78.70%	58.60%	297,032	29,101
Tlaxcala	29.30%	95.50%	31.10%	80.90%	60.40%	291,666	27,086
Reynosa	31.80%	93.60%	26.80%	88.40%	65.30%	708,765	79,676
Los Cabos*	62.40%	NA	41.20%	95.10%	82.00%	297,357	59,125
Puerto Vallarta	44.20%	95.10%	40.30%	91.80%	72.40%	267,877	35,827
Monclova	39.20%	98.30%	37.70%	87.00%	67.70%	287,738	37,042

Industrial Composition

City / Metro Area	Exports \$BUSD	Per Capita Trade	Economic Complexity Index	Industrial Typology	Services Typology (Labor force in Services and commerce)	ITC Cluster Score (0-5)	Main ITC Cluster Name
Mexico City	\$71.80	\$8.70	0.71	Transport and Machinery	79.50%	4	Prosoftware
Guadalajara	\$18.00	\$7.60	1.29	Machinery and Instruments	71.00%	5	IJALTI
Monterrey	\$24.40	\$11.10	2.18	Machinery and Metal-mechanics	67.30%	5	Csoft MTY - IT Cluster
Puebla	\$3.22	\$3.30	0.04	Transport and Machinery	70.90%	3	Cluster TIC Puebla / Tlaxcala Clustec
Toluca	\$2.11	\$1.80	0.21	Machinery and Transport	66.20%	0	N
Tijuana	\$21.30	\$25.90	1.93	Machinery and Instruments	57.60%	2	IT Baja
Leon	\$3.78	\$4.70	1.47	Transport and Machinery	63.10%	3	CONCYTEG
Queretaro	\$7.09	\$9.90	1.92	Transport and Machinery	73.30%	4	Vórtice
Merida	\$0.58	\$1.00	0.22	Machinery and Jewlery	77.30%	3	Citi Yucatán / Heuristic
Juarez	\$44.90	\$58.60	2	Machinery and Instruments	47.40%	2	Chihuahua IT
San Luis Potosi	\$5.18	\$7.40	1.22	Machinery and Transport	66.60%	0	N
Torreon / La Laguna	\$2.04	\$3.50	1.03	Machinery and Diverse products	69.90%	0	CTI Laguna
Mexicali	\$8.05	\$15.30	1.19	Machinery and Instruments	63.70%	0	N

Cuernavaca	\$0.17	\$0.50	-0.54	Chemical products and plastics	74.30%	0	N
Villahermosa	\$0.03	\$0.20	-0.31	Machinery and Instruments	80.50%	0	Citi Tabasco
Morelia	\$0.15	\$0.20	-0.37	Food and agroindustries	79.60%	3	Cluster TIM
Culiacan	\$1.77	\$2.90	0.33	Agroindustries	77.20%	0	FIDSoftware Sinaloa
Aguascalientes	\$2.25	\$5.90	1.05	Transport and Machinery	69.50%	0	Innovatia
Chihuahua	\$5.99	\$14.00	1.22	Machinery and Transport	66.40%	2	Chihuahua IT
Veracruz	\$0.91	\$1.30	0.13	Metal-mechanics and machinery	80.40%	0	N
Hermosillo	\$1.77	\$3.00	0.9	Agroindustry and Machinery	68.30%	0	N
Tampico	\$0.81	\$1.50	0.22	Plastics and Chemicals	72.30%	0	NA
Oaxaca de Juarez	\$0.01	\$0.00	-1.1	Food Products and Agroindustry	80.60%	1	Cluster de TI
Saltillo	\$5.77	\$12.10	1.78	Transport and Machinery	57.40%	0	(IT Laguna)
Acapulco de Juarez	\$ -	\$0.00	-0.88	NA	82.00%	0	Cluster TI
Xalapa	\$0.02	\$0.00	-0.86	Agriculture	NA	0	N
Cancun	\$0.02	\$0.20	0.26	Jewlery and plastics	84.30%	0	N
Reynosa	\$11.20	\$26.60	1.7	Machinery and Instruments	50.30%	0	N
Durango	\$0.78	\$1.60	-0.18	Precios metals and Machinery	72.80%	0	N
Celaya	\$0.91	\$3.00	0.44	Transport and Machinery	NA	0	N
Tuxtla Gutierrez	\$0.00	\$0.00	-0.87	NA	83.20%	1	Cluster de TI Chiapas

Pachuca de Soto	\$0.00	\$0.00	-0.65	Machinery and Furniture	80.60%	0	N
Matamoros	\$4.71	\$16.30	1.3	Machinery and Transport	NA	0	N
Mazatlan	\$0.12	\$0.40	0.08	Cattle and Agriculture	NA	0	N
Ensenada	\$1.03	\$3.60	0.41	Agriculture	NA	0	N
Tepic	\$0.04	\$0.10	-0.63	Agriculture	80.70%	0	N
Zacatecas Guadalupe	\$0.08	\$0.40	-0.29	Transport (parts)	79.50%	1	DitiZac
Nuevo Laredo	\$3.26	\$14.10	1.06	Machinery and Instruments	NA	0	N
Tehuacan	\$0.16	\$0.80	-1.16	Textile and agriculture	NA	0	N
Tapachula	\$0.11	\$0.40	-1.15	Agriculture	80.10%	0	N
Coatzacoalcos	\$0.00	\$0.10	-0.34	Machinery and metal parts	78.40%	0	N
Tlaxcala	\$0.10	\$0.60	-0.59	Transport and Parts	59.00%	1	N
Chilpancingo de los Bravo	\$ -	\$0.00	-1.66	NA	NA	0	N
Monclova	\$0.10	\$1.50	1.07	Machinery and metal parts	NA	0	N
Los Cabos*	\$0.01	\$0.10		Agriculture	NA	0	N
Colima	\$ -	\$2.40	-0.45	NA	76.80%	3	AIETIC
Campeche	\$0.02	\$0.10	-0.57	NA	79.40%	0	N
Puerto Vallarta	\$0.00	\$0.00	-0.06	NA	NA	0	N
La Paz	\$0.02	\$0.20	-0.13	Cattle and Agriculture	81.00%	0	N

Economic Development

City / Metro Area	Extreme Poverty Rate	Moderate Poverty Rate	Competitivty Index IMCO	Sustainability Index	Average Commute Time (mins?)	% Pop.with >1 hr Commute	Automobiles as % of population	Public Transportation Users	Population Bachelor Degree 15+ (x1000)	% Population Bachelor Degree	Homicide Rate per 100,000
Mexico City	3.5	33.7	55.9	57.2	46.4	24.30%	44.5	52.90%	3,590	17.50%	18
Guadalajara	2.3	28	45.3	58.3	36.1	12.60%	31.2	44.20%	859	16.60%	35
Monterrey	1	16	45.4	54.9	38	14.10%	30.8	40.10%	793	16.20%	21
Puebla	5	42.6	47	49.7	34.9	10.80%	25.2	49.20%	534	19.40%	13
Toluca	7	41.8	43.7	52.4	37.2	13.70%	28.5	49.00%	325	13.90%	10
Tijuana	1.9	27.9	45.3	54.3	31.5	7.80%	32.9	46.00%	215	12.40%	106
Leon	2.4	30.3	41.2	53.8	30.9	7.80%	22.6	34.60%	176	10.70%	36
Queretaro	1.8	22.9	48.1	54.9	30.7	7.10%	20.8	58.70%	324	20.00%	12
Merida	2.6	24.6	46.8	52.3	33.2	9.90%	33.3	43.10%	241	15.90%	2
Juarez	1.1	25.3	53.3	53.4	31.4	6.90%	29.7	30.70%	171	11.80%	75
San Luis Potosi	1.8	22.5	46.4	54.7	29	6.30%	35.5	49.90%	238	17.40%	18
Torreon / La Laguna	2.1	27.5	41.9	52.8	25.3	3.90%	23	54.00%	189	15.10%	11
Mexicali	1.7	23.9	45.3	52.4	26.5	NA	37.1	32.20%	164	15.60%	11
Cuernavaca	6.4	34.3	41.4	55	32.2	9.80%	42.6	47.70%	169	16.30%	49
Villahermosa	3.4	26.9	41.6	43.6	33.2	8.30%	23.5	54.70%	159	15.90%	28
Morelia	6.1	35.8	47.1	49.4	32.1	8.07%	41.3	45.00%	192	19.70%	17
Culiacan	1.2	23.6	43.2	NA	26.2	1.40%	31	57.80%	204	21.50%	43
Aguascalientes	1.6	24.6	44.9	57.9	26.1	4.30%	29.2	51.50%	193	20.60%	8
Chihuahua	0.6	19.4	45.5	57	31.9	4.68%	40.7	60.00%	213	23.00%	35

Veracruz	3.9	31.3	46.7	48.9	35.2	2.90%	23.5	53.30%	157	17.10%	10
Hermosillo	1.4	18.1	42.9	NA	29.2	1.25%	30.4	65.80%	182	19.80%	16
Tampico	3.7	33	45.2	52.5	28.8	1.45%	20.3	61.00%	174	20.30%	8
Oaxaca de Juarez	5.6	38.6	43.3	42.5	31.2	7.17%	16.6	62.60%	139	16.30%	13
Saltillo	1.4	16.7	46.1	53	33.8	1.27%	21.2	62.80%	158	18.70%	6
Acapulco de Juarez	12.4	44.1	40	37.9	32.8	2.17%	27.1	66.10%	110	13.20%	72
Xalapa	5	37.5	44.2	52.2	32.1	7.34%	21.6	49.70%	150	18.10%	18
Cancun	2.6	25.3	50.1	51.7	43.4	1.44%	30.7	63.00%	117	14.50%	46
Reynosa	NA	NA	NA	NA	30.1	1.37%	NA	43.20%	87	10.90%	NA
Durango	0.8	31.4	45.1	NA	27.4	1.43%	27.6	63.80%	103	15.10%	6
Celaya	3.2	33.3	42.1	50.2	26.9	1.87%	19.6	56.30%	71	10.60%	23
Tuxtla Gutierrez	9.9	37.7	42.8	43.5	34.5	1.94%	18.8	57.30%	152	23.60%	9
Pachuca de Soto	2.2	28.4	46.1	52.6	32.8	3.28%	28.5	60.50%	126	20.00%	5
Matamoros	4.2	35.5	43.6	51.5	29.4	2.35%	20.4	51.20%	61	11.30%	11
Mazatlan	NA	NA	NA	NA	29.3	3.67%	NA	58.00%	99	18.90%	NA
Ensenada	NA	NA	NA	NA	27.5	2.03%	NA	60.90%	67	13.00%	NA
Tepic	1.9	22.6	45.5	50.3	28.3	1.22%	24.8	59.50%	87	17.70%	13
Zacatecas Guadalupe	2.4	28	45.6	49.5	28.9	1.76%	24.9	62.10%	76	17.70%	36
Nuevo Laredo	3.3	32.2	46.1	52.9	28.8	1.31%	19.4	67.00%	50	12.10%	8
Tehuacan	NA	NA	NA	NA	22.7	2.06%	NA	56.80%	40	10.50%	NA
Tapachula	NA	NA	NA	NA	26.2	1.40%	NA	64.10%	44	11.70%	NA
Coatzacoalcos	4	34.5	40.9	47.4	30.5	1.93%	25.8	57.40%	66	17.70%	32
Tlaxcala	2.5	40.7	41.2	47.3	29.4	4.40%	48.6	59.10%	93	25.90%	7

Chilpancingo de los Bravo	14.6	42.3	40.3	NA	28.6	6.94%	29.4	59.40%	53	15.40%	50
Monclova	1.1	17.2	43.3	54	25.8	1.17%	20.9	64.00%	43	12.90%	6
Los Cabos*	3.01	24.5	NA	NA	33.4	0.92%	NA	58.80%	43	13.80%	NA
Colima	1.9	27.2	46.4	56.4	26.8	1.90%	27.5	67.60%	67	21.50%	40
Campeche	2.8	28.5	50.1	NA	33.7	3.32%	21.5	48.90%	54	17.70%	1
Puerto Vallarta	NA	NA	NA	NA	30.8	1.35%	NA	69.40%	56	19.30%	NA

Urban Infrastructure Development

City / Metro Area	Infrastructure Development	Quality of Life	Social Inclusion	Sustainability	Governance and Urban Policy	Productivity	Financial Rating (Fitch)	Smart Cities Agenda (Y/N)	IDB Cities Network
Mexico City	66.91	68.26	73.19	39.37	33.36	65.22	M BAA1	Y	Y
Guadalajara	66.29	65.9	74.86	89.65	37.42	62.09	HR AA-	Y	Y
Monterrey	60.21	66.67	77.3	48.64	39.95	66.09	HR AA-	Y	Y
Puebla	59.89	65.05	64.25	58.04	30.01	61.95	FR AAA	Y	Y
Toluca	55.15	67.51	71.33	37.68	31.74	62.44	HR AA-, M B3	Y	N
Tijuana	56.7	57.94	72.55	39.91	58.73	61.98	HR A+	NA	
Leon	65.2	65.78	70.85	49.16	30.69	63.44	M BAA3	Y	N
Queretaro	64.31	63.26	70.63	42.27	39.67	65.12	FR BBB-, M BAA1	Y	Y
Merida	61.88	69.96	74.93	29.54	32.84	59.09	HR AA-, M BA1	In process	N
Juarez	57.32	62.48	71.67	45.86	24.82	61.67	NA	NA	N
San Luis Potosi	61.46	67.34	69.95	49.92	32.8	61.84	HR BBB-	NA	N

Torreón / La Laguna	62.2	64.15	69.97	41.36	35.21	56.57	S&P A	NA	N
Mexicali	57.87	59.45	74.23	77.69	29.64	59.08	FR BBB	In process	N
Cuernavaca	64.39	62.36	69.49	28.09	49.17	55.74	FR BBB-, HR BB+	In process	N
Villahermosa	56.59	56	72.83	34.83	35.57	60.65	M B1	NA	N
Morelia	61.77	58.57	67.28	74.47	33.72	54.18	NA	In process	N
Culiacán	64.28	55.25	71.6	78.86	32.08	55.27	M B3	NA	N
Aguascalientes	63.29	67.81	72.43	33.27	29.4	59.47	HR AA+	In process	Y
Chihuahua	65.8	62.34	75.9	46.88	29.59	58.81	FR-AAA, HR -AA+	NA	N
Veracruz	62.34	59.08	70.58	38.7	29.88	58.07	NA	NA	N
Hermosillo	63.51	64.33	71.94	31.67	46.97	66.86	NA	NA	Y
Tampico	58.66	58.34	70.04	48.43	25.69	56.85	NA	NA	N
Oaxaca de Juárez	58.56	65.19	58.23	40.32	34.28	55	HR A-, M B1	In process	N
Saltillo	54.62	60.6	74.03	30.8	30.03	63.82	NA	NA	N
Acapulco de Juárez	61.59	51.2	60.55	33.32	29.43	55.42	HR A-	NA	N
Xalapa	62.07	61.35	68.03	40.37	29.5	54.17	HR A+	In process	Y
Cancún	55.21	66.48	76.03	64.97	67.08	67.58	NA	NA	N
Reynosa	55.9	58.33	74.54	48.13	25.2	67.96	M B1	NA	N
Durango	64.19	60.2	71.75	54.69	33.84	50.3	M B1	NA	N
Celaya	56.87	60.38	71.3	36.95	40.6	59.9	NA	NA	N
Tuxtla Gutierrez	58.27	54	64.59	39.43	24.76	57.49	FR BBB+	In process	N
Pachuca de Soto	63.52	68.23	73.81	27.92	33.05	54.08	NA	In process	N

Matamoros	57.94	55.1	68.89	45.33	26.44	58.7	NA	NA	N
Mazatlan	69.39	61.5	69.68	57.64	32.79	60.24	NA	NA	N
Ensenada	56.56	54.24	72.79	76.7	42.42	54.44	NA	NA	N
Tepic	75.74	63.51	76.19	82.02	35.53	55.25	HR BB	NA	N
Zacatecas Guadalupe	69.04	65.03	68.82	56.11	35.71	54.66	NA	NA	N
Nuevo Laredo	59.31	58.57	70.94	58	32.65	59.22	NA	NA	N
Tehuacan	63.43	55.21	71.86	58.26	37.24	56.42	NA	NA	N
Tapachula	63.71	52.89	69.44	63.36	39.83	51.02	NA	NA	N
Coatzacoalcos	51.3	57.88	70.24	31.54	33.93	63.58	M CAA1	In process	N
Tlaxcala	64.76	68.68	69.94	44.86	32.68	53.73	NA	NA	N
Chilpancingo de los Bravo	63.24	51.71	53.65	38.66	26.44	56.14	NA	NA	N
Monclova	58.25	63.18	78.15	73.21	32.89	56.41	NA	NA	N
Los Cabos*	74.05	64.22	72.85	46.92	71.32	60.26	NA	NA	N
Colima	69.67	71.56	74.54	49.82	39.59	53.63	NA	NA	N
Campeche	70.7	70.99	70.89	28.23	33.71	58.71	FR BBB+	NA	Y
Puerto Vallarta	60.42	64	70.81	46.26	49.24	60.93	HR BBB-	NA	N
La Paz	74.05	64.22	72.85	46.92	71.32	60.26	HR BB	NA	Y

Tourism

City / Metro Area	Number of Flights	International Flights	International passenger Traffic (2019)	Canadian Consular points	Migrants US	Migrants Canada	Canad Mg per 100000	Migrants NA	NA Mig per 100000	Available Hotel Rooms	Hotel Rooms (per 100,000 hab)	World Heritage Sites	Magical Town Destination
Mexico City	85,397	26,274	17,643,753	Y	21,557	2,191	11	23,748	116	51,275	250	Y	Y
Guadalajara	22,979	6,356	4,347,331	Y	12,564	414	8	12,978	251	21,470	416	N	Y
Monterrey	20,855	4,147	1,419,989	Y	10,926	559	11	11,485	235	14,060	287	N	N
Puebla	NA	145	NA	-	4,665	280	10	4,945	179	9,515	345	Y	Y
Toluca	NA	0	NA	-	2,193	22	1	2,215	95	3,790	162	N	N
Tijuana	11,548	NA	NA	Y	31,571	82	5	31,653	1,823	5,363	309	N	N
Leon	5,826	1,866	697,306	-	3,896	67	4	3,963	241	6,687	406	N	N
Queretaro	4,426	1,223	NA	-	3,607	217	13	3,824	236	7,461	493	Y	Y
Merida	4,535	NA	NA	-	2,553	243	16	2,796	185	7,139	521	N	N
Juarez	3,190	NA	NA	-	10,802	0	0	10,802	747	4,530	313	N	N
San Luis Potosi	2,609	603	NA	-	2,334	495	36	2,829	206	5,743	460	N	N
Torreón / La Laguna	1,932	NA	NA	-	2,668	207	17	2,875	230	NA	0	N	N
Mexicali	1,588	NA	NA	-	5,387	0	0	5,387	512	2,593	250	N	N
Cuernavaca	NA	NA	NA	-	3,627	225	22	3,852	371	NA	0	N	N
Villahermosa	2,072	NA	NA	-	212	0	0	212	21	5,123	602	N	N
Morelia	1,637	820	418,557	-	5,047	46	5	5,093	524	3,171	345	Y	N
Culiácan	4,353	22	NA	-	2,269	13	1	2,282	241	2,805	296	N	N
Aguascalientes	2,336	671	NA	-	3,175	48	5	3,223	344	5,275	571	N	N
Chihuahua	4,041	502	NA	-	3,370	0	0	3,370	365	3,895	421	N	N
Veracruz	3,547	154	NA	-	1,115	130	14	1,245	135	8,749	946	N	N
Hermosillo	3,477	153	NA	-	1,884	68	7	1,952	212	2,800	326	N	N
Tampico	NA	153	NA	-	1,196	34	4	1,230	143	NA	NA	N	N
Oaxaca de Juárez	3,205	NA	NA	-	1,930	39	5	1,969	231	5,968	744	Y	N
Saltillo	NA	NA	NA	-	661	21	2	682	81	NA	NA	N	N
Acapulco de Juárez	2,478	127	60,679	Y	NA	NA	NA	NA	NA	18,806	2764	N	N
Xalapa	NA	NA	NA	-	1,323	54	6	1,377	166	NA	NA	N	N
Cancún	35,222	23,134	16,501,593	Y	1,086	72	9	1,158	144	35,114	4357	N	N
Reynosa	NA	NA	NA	-	2,788	0	0	2,788	348	NA	NA	N	N

Durango	NA	86	NA	-	3,846	0	0	3,846	565	1,888	277	Y	N
Celaya	NA	NA	NA	-	1,862	10	1	1,872	280	3,193	507	N	N
Tuxtla Gutierrez	2,332	NA	NA	-	408	0	0	408	63	4,309	684	N	N
Pachuca de Soto	NA	NA	NA	-	1,047	26	4	1,073	170	1,561	248	N	N
Matamoros	NA	NA	NA	-	3,400	0	0	3,400	631	NA	NA	N	N
Mazatlan	2,499	794	313,886	Y	1,088	70	13	1,158	222	9,641	1858	N	N
Ensenada	NA	NA	NA	-	3,697	0	0	3,697	712	NA	NA	N	N
Tepic	NA	NA	NA	-	1,666	27	5	1,693	343	NA	NA	N	N
Zacatecas	NA	252	NA	-	1,299	87	20	1,386	322	3,195	768	Y	Y
Guadalajara	NA	NA	NA	-	3,318	0	0	3,318	798	NA	NA	N	N
Nuevo Laredo	NA	NA	NA	-	758	0	0	758	201	NA	NA	N	N
Tehuacan	NA	NA	NA	-	367	0	0	367	98	NA	NA	N	N
Tapachula	NA	NA	NA	-	260	37	10	297	80	NA	NA	N	N
Coatzacoalcos	NA	NA	NA	-	1,229	35	10	1,264	351	NA	NA	N	N
Tlaxcala	NA	NA	NA	-	672	0	0	672	195	NA	NA	N	N
Chilpancingo de los Bravo	NA	NA	NA	-	627	0	0	627	190	NA	NA	N	N
Monclova	NA	NA	NA	-	1,452	45	14	1,497	479	20,961	6704	N	N
Los Cabos*	8,987	6,146	3,436,196	Y	2,536	30	10	2,566	828	1,253	404	N	N
Colima	NA	NA	NA	-	444	0	0	444	145	NA	NA	Y	N
Campeche	NA	NA	NA	-	2,940	385	132	3,325	1,139	22,948	7864	N	N
Puerto Vallarta	9,504	6,103	3,127,870	Y	1,167	100	34	1,267	434	2,722	933	N	N
La Paz	2,253	7	NA	-	1,267	434	2,722	933	N	N	N	N	N

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Annex III

Competitiveness Correlation Matrix

	Population 2018	Number of Households	Internet Connection	Households with PC	Smartphone Penetration	Digital access index	TAM Smartphones	TAM Connected Households	Exports \$BUSD	Imports \$BUSD	Per Capita Trade	Industrial Linkage Ratio (Economic Complexity Index)	ITC Cluster Score (0-5)	Extreme Poverty Rate	Sustainability Index	Average Commute Time (mins?)	% Pop. with >1 hr Commute	Population Bachelor Degree 15+	Urbanization Footprint (Sq. Kms.)	Social Inclusion	Productivity	International passenger traffic (2019)	Migrants US	Migrants NA	Available Hotel Rooms
Population 2018	1.000	0.999	0.161	0.172	-0.099	0.041	1.000	0.997	0.843	0.929	0.113	0.211	0.522	-0.038	0.306	0.619	0.784	0.998	0.974	0.129	0.332	0.635	-0.065	-0.062	0.716
Number of Households	0.999	1.000	0.167	0.175	-0.091	0.048	0.999	0.998	0.847	0.933	0.120	0.210	0.507	-0.042	0.306	0.614	0.772	0.997	0.970	0.133	0.329	0.644	-0.105	-0.102	0.719
Internet Connection	0.161	0.167	1.000	0.885	0.753	0.942	0.176	0.209	0.192	0.196	0.046	0.342	0.241	-0.501	0.533	0.210	0.079	0.175	0.159	0.418	0.297	0.266	-0.217	-0.189	0.186
Households with PC	0.172	0.175	0.885	1.000	0.712	0.870	0.187	0.211	0.196	0.199	0.045	0.268	0.310	-0.527	0.522	0.120	0.157	0.193	0.171	0.342	0.174	0.293	-0.157	-0.137	-0.108
Smartphone Penetration	-0.099	-0.091	0.753	0.712	1.000	0.928	-0.081	-0.056	0.005	-0.028	0.072	0.238	0.053	-0.527	0.222	0.113	-0.205	-0.082	-0.101	0.448	0.228	0.207	-0.253	-0.240	-0.006
Digital access index	0.041	0.048	0.942	0.870	0.928	1.000	0.058	0.089	0.109	0.096	0.058	0.306	0.168	-0.548	0.420	0.168	-0.053	0.058	0.038	0.452	0.268	0.241	-0.269	-0.249	0.077
TAM Smartphones	1.000	0.999	0.176	0.187	-0.081	0.058	1.000	0.997	0.847	0.931	0.120	0.223	0.534	-0.050	0.315	0.622	0.786	0.997	0.976	0.140	0.339	0.634	-0.111	-0.108	0.717
TAM Connected Households	0.997	0.998	0.209	0.211	-0.056	0.089	0.997	1.000	0.850	0.936	0.119	0.219	0.513	-0.065	0.320	0.609	0.760	0.996	0.967	0.154	0.332	0.644	-0.156	-0.148	0.721
Exports \$BUSD	0.843	0.847	0.192	0.196	0.005	0.109	0.847	0.850	1.000	0.979	0.602	0.459	0.526	-0.174	0.374	0.499	0.670	0.825	0.846	0.203	0.408	0.598	0.124	0.112	0.551

Imports \$BUSD	0.929	0.933	0.196	0.199	-0.028	0.096	0.931	0.936	0.979	1.000	0.442	0.374	0.530	-0.134	0.362	0.545	0.715	0.917	0.915	0.184	0.383	0.622	0.113	0.103	0.634
Per Capita Trade	0.113	0.120	0.046	0.045	0.072	0.058	0.120	0.119	0.602	0.442	1.000	0.665	0.224	-0.287	0.313	0.031	0.133	0.085	0.171	0.205	0.359	0.200	0.182	0.163	-0.069
Industrial Linkage Ratio (Economic Complexity Index)	0.211	0.210	0.342	0.268	0.238	0.306	0.223	0.219	0.459	0.374	0.665	1.000	0.362	-0.605	0.628	0.117	0.188	0.189	0.290	0.531	0.639	0.057	0.011	0.008	0.069
ITC Cluster Score (0-5)	0.522	0.507	0.241	0.310	0.053	0.168	0.534	0.513	0.526	0.530	0.224	0.362	1.000	-0.156	0.362	0.426	0.668	0.516	0.632	0.142	0.286	0.052	-0.014	-0.013	0.247
Extreme Poverty Rate	-0.038	-0.042	-0.501	-0.527	-0.527	-0.548	-0.050	-0.065	-0.174	-0.134	-0.287	-0.605	-0.156	1.000	-0.686	0.153	0.112	-0.038	-0.044	-0.819	-0.220	-0.292	0.021	0.020	0.131
Sustainability Index	0.306	0.306	0.533	0.522	0.222	0.420	0.315	0.320	0.374	0.362	0.313	0.628	0.362	-0.686	1.000	0.016	0.305	0.301	0.344	0.678	0.318	0.380	0.188	0.182	0.134
Average Commute Time (mins?)	0.619	0.614	0.210	0.120	0.113	0.168	0.622	0.609	0.499	0.545	0.031	0.117	0.426	0.153	0.016	1.000	0.631	0.614	0.646	0.076	0.503	0.907	-0.273	0.252	0.774
% Pop.with >1 hr Commute	0.784	0.772	0.079	0.157	-0.205	-0.053	0.786	0.760	0.670	0.715	0.133	0.188	0.668	0.112	0.305	0.631	1.000	0.771	0.837	-0.028	0.305	0.395	0.005	0.010	0.453
Population Bachelor Degree 15+	0.998	0.997	0.175	0.193	-0.082	0.058	0.997	0.996	0.825	0.917	0.085	0.189	0.516	-0.038	0.301	0.614	0.771	1.000	0.968	0.119	0.316	0.640	-0.127	-0.120	0.713
Urbanization Footprint (Sq. Kms.)	0.974	0.970	0.159	0.171	-0.101	0.038	0.976	0.967	0.846	0.915	0.171	0.290	0.632	-0.044	0.344	0.646	0.837	0.968	1.000	0.152	0.389	0.577	-0.134	-0.135	0.681
Social Inclusion	0.129	0.133	0.418	0.342	0.448	0.452	0.140	0.154	0.203	0.184	0.205	0.531	0.142	-0.819	0.678	0.076	-0.028	0.119	0.152	1.000	0.301	0.463	-0.100	-0.112	0.120
Productivity	0.332	0.329	0.297	0.174	0.228	0.268	0.339	0.332	0.408	0.383	0.359	0.639	0.286	-0.220	0.318	0.503	0.305	0.316	0.389	0.301	1.000	0.633	-0.087	-0.065	0.463
International passenger Traffic (2019)	0.635	0.644	0.266	0.293	0.207	0.241	0.634	0.644	0.598	0.622	0.200	0.057	0.052	-0.292	0.380	0.907	0.395	0.640	0.577	0.463	0.633	1.000	0.103	0.158	0.908
Migrants US	-0.065	-0.105	-0.217	-0.157	-0.253	-0.269	-0.111	-0.156	0.124	0.113	0.182	0.011	-0.014	0.021	0.188	-0.273	0.005	-0.127	-0.134	-0.100	-0.087	0.103	1.000	0.995	-0.234
Migrants NA	-0.062	-0.102	-0.189	-0.137	-0.240	-0.249	-0.108	-0.148	0.112	0.103	0.163	0.008	-0.013	0.020	0.182	-0.252	0.010	-0.120	-0.135	-0.112	-0.065	0.158	0.995	1.000	-0.199
Available Hotel Rooms	0.716	0.719	0.186	-0.108	-0.006	0.077	0.717	0.721	0.551	0.634	-0.069	0.069	0.247	0.131	0.134	0.774	0.453	0.713	0.681	0.120	0.463	0.908	-0.234	-0.199	1.000

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