

Republic of the Philippines
HOUSE OF REPRESENTATIVES
Quezon City

NINETEENTH CONGRESS
First Regular Session

House Bill No. **1024**



Introduced by Representative PABLO JOHN F. GARCIA

EXPLANATORY NOTE

The Constitution provides that “Science and technology are essential for national development and progress. The State shall give priority to research and development, invention, innovation, and their utilization [x x x].”¹ It likewise mandates that “The State shall regulate the transfer and promote the adaptation of technology from all sources for the national benefit. It shall encourage the widest participation of private groups, local governments, and community-based organizations in the generation and utilization of science and technology.”²

Data from the World Bank tell us that in 2019, around 50,975,903³ Filipinos belonged to the Philippines’ urban population (47.149%⁴ of the country’s total inhabitants). The country’s urban population has been steadily increasing over the past years.⁵ The United Nations projects that, in 2050, the Philippine population will be around 148.3 million.⁶ By then, the UN figures, 68% of the world population will be living in urban areas.⁷ This means that in thirty years, about one hundred million Filipinos will be living in cities and other urban areas—almost double what we have today.

¹ Const. art. XIV, § 10.

² Const. art. XIV, § 12.

³ World Bank, *Urban population - Philippines*, available at <https://data.worldbank.org/indicator/SP.URB.TOTL?end=2019&locations=PH&start=1961>.

⁴ World Bank, *Urban population (% of total population) - Philippines*, available at <https://data.worldbank.org/indicator/SP.URB.TOTL.IN.ZS?end=2019&locations=PH&start=1961>.

⁵ See Macrotrends, *Philippines Urban Population 1960-2020*, available at <https://www.macrotrends.net/countries/PHL/philippines/urban-population>. The annual percentage growth rate has been about 1.9% for the past few years.

⁶ Alden Monzon, Business World Online, *United Nations population report sees 169 million Filipinos by 2100*, available at <https://www.bworldonline.com/content.php?section=Economy&title=United-Nations-population-report-sees-169-million-Filipinos-by-2100&id=112636> (31 July 2015).

⁷ Department of Economic and Social Affairs, United Nations, *68% of the world population projected to live in urban areas by 2050, says UN*, available at <https://www.un.org/development/desa/en/news/population/2018-revision-of-world-urbanization-prospects.html> (16 May 2018).

We do not have to look too far into the future to see why this might be a problem. Even today, pollution, poor infrastructure access, low mobility, inadequate utilities, and health and safety concerns are just some of the issues faced by many Filipinos living in dense metropolitan areas. Things will not improve on their own down the line if business goes on as usual. As populations increase, land areas remain the same and it takes time for resources, social services, and infrastructure to catch up. Efforts must be undertaken at the earliest possible time to ensure a good quality of life for all Filipinos.

This bill aims to employ the proper application of technology to address these concerns. It aims to create a developmental, standardization, and incentivization framework for local government units to spur the creation of Smart Cities nationwide—while respecting the principle of local autonomy. “[T]he term “smart city” denotes an ‘instrumented, interconnected and intelligent city.’ ‘Instrumented’ refers to the capability of capturing and integrating live real-world data through the use of sensors, meters, appliances, personal devices, and other similar sensors. ‘Interconnected’ means the integration of these data into a computing platform that allows the communication of such information among the various city services. ‘Intelligent’ refers to the inclusion of complex analytics, modeling, optimization, and visualization services to make better operational decisions [x x x].”⁸

This measure establishes a Council for Smart Cities, which is the overall policy-making and implementing body of the proposed Act. It is tasked to create an Action Plan, a Resource Guide, and other activities such as providing technical support and the development of a workforce to achieve its aims.

The bill also defines standards and criteria which the Council shall aim to champion nationwide. These criteria shall also form the basis for an incentivization program called Smart Innovation and City Acceleration Program or *SICAP*. These dimensions and their descriptions, as well as their indicators, were taken from a well-studied conceptual model of the IESE Business School.⁹

⁸ Vito Albino *et al.*, *Journal of Urban Technology*, *Smart Cities: Definitions, Dimensions, Performance, and Initiatives*, available at <https://doi.org/10.1080/10630732.2014.942092> (2015) citing Harrison *et al.*, *Foundations for Smarter Cities*, 54:4 *IBM Journal of Research and Development* 1-16 (2010). See also Table 1 of Albino *et al.*'s work for further definitions and characterizations of Smart Cities.

⁹ IESE Business School, University of Navarra, *IESE Cities in Motion Index*, available at <https://media.iese.edu/research/pdfs/ST-0471-E.pdf> (2018). See also Organisation for Economic Co-operation and Development, *Smart Cities and Inclusive Growth, Building on the outcomes of the 1st OECD Roundtable on Smart Cities and Inclusive Growth 37*, available at http://www.oecd.org/cfe/cities/OECD_Policy_Paper_Smart_Cities_and_Inclusive_Growth.pdf (2020).

Certain schools of thought in economics consider the overall state of technology as a factor of production aside from land, labor, and capital.¹⁰ This bill aims to put the focus on technological innovation in urban areas given that the other factors are inflexible if not invariable like land. It is hoped that the stimulation of Smart Cities and Municipalities, in combination with other social and governmental efforts, will make Filipino metropolitan centers livable, safe, clean and happy places to live in.

In view of the foregoing, the urgent passage of this bill is earnestly sought.



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¹⁰ See Michael Parkin & Gerardo Esquivel, *Macroeconomía* 160 (1999, 5th ed.). See generally Ifo Institute for Economic Research, Sakura Institute of Research, *Factors of Production: Technology, A Comparative Analysis of Japanese and German Economic Success*, available at https://doi.org/10.1007/978-4-431-65865-8_7 (1997).

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Introduced by Representative PABLO JOHN F. GARCIA

AN ACT
ESTABLISHING A DEVELOPMENTAL, STANDARDIZATION, AND
INCENTIVIZATION FRAMEWORK FOR THE ESTABLISHMENT OF SMART
CITIES AND MUNICIPALITIES NATIONWIDE, APPROPRIATING FUNDS
THEREFOR, AND FOR OTHER PURPOSES

Be it enacted by the House of Representatives and the Senate of the Congress of the Philippines in session assembled:

CHAPTER I
GENERAL PROVISIONS

Section 1. Short Title. - This Act shall be known as the “*Smart Cities and Municipalities Act*”.

Section 2. Declaration of Policy. - It is hereby declared the policy of the State to recognize science and technology as essential for national development and progress. Accordingly, the State shall give priority to research and development, invention, innovation, and their utilization to ultimately uplift the quality of Filipino life. The State shall also regulate the transfer and promote the adaptation of technology from all sources for the national benefit. Lastly, it is hereby declared the policy of the State to harmoniously employ reliable smart technologies to establish energy-efficient, clean, free-flowing, livable, and safe cities and municipalities nationwide while respecting local autonomy, data security, personal privacy, and a balanced and healthful ecology.

Section 3. Definition of Terms. - For purposes of this Act, the following terms shall be defined as follows:

(a) *Application* means a software program created and implemented by a government agency or instrumentality that can be run on a mobile phone,

tablet, laptop, desktop, or other similar device and is designed to provide or facilitate the acquisition of government information, services, or some other benefit relating to Smart City technologies and practices. An application may be agency-centric or citizen-centric. Agency-centric applications are intended for the internal use of a government agency or instrumentally to improve its efficiency and effectiveness. Citizen-centric applications are for the general public to enable real-time public engagement and service;

(b) *Big Data* means large data sets that may be analyzed computationally to reveal patterns, trends, and associations, especially relating to human behavior and interactions;

(c) *Council* refers to the Smart Cities Council as constituted in Section 4 of this Act;

(d) *Cybersecurity* refers to the collection of tools, policies, risk management approaches, actions, training, best practices, assurance and technologies that can be used to protect digital environments and assets;

(e) *DENR* means the Department of Environment and Natural Resources;

(f) *DHSUD* means the Department of Human Settlements and Urban Development;

(g) *DICT* means the Department of Information and Communications Technology;

(h) *DILG* means the Department of Interior and Local Government;

(i) *DOE* means the Department of Energy;

(j) *DOLE* means the Department of Labor and Employment;

(k) *DOST* means the Department of Science and Technology;

(l) *DOTr* means the Department of Transportation;

(m) *Green Engineering* is the design, commercialization, and use of processes and products in a way that reduces pollution, promotes sustainability, and minimizes risk to human health and the environment without sacrificing economic viability and efficiency. Green engineering embraces the concept that decisions to protect human health and the environment can have the greatest

impact and cost-effectiveness when applied early, in the design and development phase of a process or product;

(n) *ICT* means Information and Communications Technology;

(o) *Internet of Things* means the network of physical objects that are embedded with sensors, software, and other technologies for the purpose of connecting and exchanging data with other devices and systems over the Internet. The *Internet of Things* involves the convergence of multiple technologies, real-time analytics, machine learning, commodity sensors, and embedded systems;

(p) *LGU* means local government unit, particularly a city or municipality;

(q) *NEDA* means the National Economic Development Authority;

(r) *NPC* means the National Privacy Commission;

(s) *Smart City/Municipality* means a city or municipality, as the case may be, in which innovative, advanced, and trustworthy information, communication, and energy technologies and related mechanisms are applied to:

(i) Improve the health and quality of life of residents;

(ii) Increase the efficiency and cost-effectiveness of civic operations and services;

(iii) Promote economic growth;

(iv) Create a community that is safer and more secure, sustainable, resilient, livable, and workable; and

(v) Develop areas such as but not limited to urban agriculture, energy management, ICT, asset monitoring and control, security and surveillance, public transportation, water and power supply, sanitation, solid waste management, education, urban mobility, architecture, e-governance, and citizen participation.

The term *Smart City/Municipality* also includes a city or municipality that:

(i) Gathers and incorporates data from systems, devices, and sensors embedded in civic systems and infrastructure to improve the effectiveness and efficiency of civic operations and services;

(ii) Aggregates and analyzes gathered data;

(iii) Communicates the analysis and data in a variety of formats;

(iv) Makes corresponding improvements to civic systems and services based on gathered data;

(v) Coordinates with relevant public and private sector entities (including entities providing electric, water, telecommunications, energy, transportation services, and other public utilities) to leverage the activities carried out by those entities; and

(vi) Integrates measures to:

(1) Ensure the resilience of civic systems against cybersecurity threats and physical vulnerabilities and breaches;

(2) Fully protect the data and privacy of residents;

(3) Help determine the impact of *Smart City* technologies on the effectiveness and efficiency of civic operations and services; and

(4) Promotes the interoperability and coordination of the activities described in the clauses above with other *Smart Cities*;

In general use, *Smart City* shall pertain to both cities and municipalities unless otherwise indicated;

(t) *PIEP* means Philippine Institute of Environmental Planners; and

(u) *White Hat Hackers* mean computer security experts who specialize in penetration testing and in other testing methodologies that ensure the security of an information system

CHAPTER II ORGANIZATION AND MANAGEMENT

Section 4. *Smart Cities Council.* - There is hereby established a Smart Cities Council composed of the following members:

- (a) The Secretary of the DILG as Chairperson;
- (b) The Secretaries of the DENR, DHSUD, DICT, DOE, DOLE, DOST, DOTr, and NEDA;
- (c) The Chairperson of the NPC;
- (d) The Presidents of the League of Cities of the Philippines and the League of Municipalities of the Philippines;
- (e) A representative from the PIEP;
- (f) A representative from the Department of Computer Science, University of the Philippines-Diliman;
- (g) A representative from the University of the Philippines School of Urban and Regional Planning; and
- (h) Three (3) members representing Smart City or ICT professional or advocacy organizations to be selected by the Chairperson of the Council from among a list of nominees submitted by Philippines-based Smart City or ICT professional or advocacy organizations. Nominees shall be individuals, at least one of whom shall be experienced in managing or implementing city- or large-scale information technology projects

Any member of the Council is prohibited from engaging, directly or indirectly, with any entity that advocates, markets, imports, produces or in any manner handles any product, device, software, hardware, arrangement, or any service that may be used for the fulfillment of this Act for personal gain. Any relation by any member of the Council to a person connected with such entities, by affinity or consanguinity within the fourth civil degree, is also prohibited. Should any of these prohibited situations arise at any time during the incumbency of a member, the designation or appointment of that member shall *ipso facto* be terminated. In such case, the Chairperson shall forthwith appoint a suitable replacement consistent with this Section.

Any violation of the immediately preceding paragraph shall disqualify the member from the Council and shall be penalized in accordance with Republic Act No.

3019, otherwise known as the Anti-Graft and Corrupt Practices Act, and/or other related laws.

The Council may avail itself of the expertise and services of local or international resource persons who are of known independence, competence, and probity, and do not possess the disqualifications mentioned above. The resource persons shall also be subject to the same prohibitions and penalties as the members of the Council.

The Council shall be entitled to a just and reasonable amount of *per diem* allowances and/or honoraria to cover the expenses of the services rendered chargeable against the budgets of the Council in accordance with existing laws, rules, and regulations.

In any endeavor or provision concerning this Act, the Chairperson shall designate the Council member with the relevant expertise or jurisdiction to spearhead the same whenever appropriate.

Section 5. Lead Agency. - The DILG shall be the primary government agency responsible for the implementation and enforcement of this Act and the advancement of the declared policies in Section 2. It shall ensure that the mandates provided in this Act are fulfilled and that interagency cooperation and the proper public and private linkages, local and international, are established for their accomplishment.

Section 6. Functions and Duties of the Council. - The Council shall act as the overall policy-making and advisory body for the fulfillment of this Act and shall:

(a) Formulate, publish, and implement a National Smart City Action Plan to encourage the establishment of Smart Cities nationwide, consistent with the principle of local autonomy, within six (6) months from the effectivity of this Act. The Action Plan shall contain and prioritize activities which:

(i) Demonstrate Smart City technologies in repeatable ways that can rapidly be scaled;

(ii) Encourage public, private, local, provincial, regional, national, and international sharing of data;

(iii) Foster the creation of best practices by carrying out activities such as grants, contracts, challenges, prize competitions, public-private partnerships, and other innovative mechanisms;

(iv) Stimulate private sector innovation by promoting industry-driven technology standards, open platforms, technology-neutral requirements, and interoperability;

(v) Promote, as regards Smart City technologies and practices:

(1) A competent civil service and private workforce;

(2) An open and competitive market;

(3) Inclusion and intelligibility; and

(4) Protocols and standards that allow for the measurement and validation of the cost savings and performance improvements associated with the installation and use of such innovations;

(vi) Spur the growth of the Smart City industry and workforce in the country;

(vii) Encourage the adoption of Smart City technologies and practices in LGUs;

(viii) Safeguard cybersecurity, data security, and personal privacy by promoting industry practices regarding these. For these purposes, the Council shall:

(1) Be mindful of existing laws, rules and regulations such as but not limited to Republic Act No. 10173 or the Data Privacy Act of 2012 as well as pertinent jurisprudence;

(2) Take into consideration software quality, especially as that quality impacts reproducibility, maintainability, reliability, and security, especially of high-confidence systems;

(3) Conduct privacy impact assessments for activities that could negatively affect privacy; and

(4) Be aware of contemporary best practices and international standards concerning the same;

The Council may also establish working groups which focus on achieving these purposes and which may be constituted by relevant Smart City stakeholders, industry experts, representatives of consumer groups, ICT or cybersecurity experts, white hat hackers, law enforcement officials, and such other representatives as the Council may deem appropriate.

(ix) Establish parameters and best practices for the full life cycle management of all types of Smart City data, including collection, storage, ownership, and sharing of data;

(x) Ensure that environmental preservation, green engineering, and the right to a balanced and healthful ecology is championed in all aspects and endeavors concerning this Act; and

(xi) Fulfill other objectives as may be determined by the Council in the Implementing Rules and Regulations that are consistent with the provisions and declared policies of this Act;

(b) Create, publish, distribute, and maintain, within one (1) year after the effectivity of this Act, a Smart City Resource Guide (“Guide”) designed to assist private and public stakeholders in developing and implementing Smart City programs. The Council shall regularly update and determine what pieces of information shall be included in the Guide. The Guide shall be maintained electronically on a website aside from having printed copies.

The Council may include information such as:

(i) Existing government programs and services related to this Act including available technical assistance, education, training, analysis, research and development, and the like;

(ii) Examples or case studies of local governments, here or abroad, which have partnered with private entities in order to achieve Smart City goals;

(iii) Available and appropriate examples of proven methods for local governments and public utilities to facilitate integration of Smart City technologies with new and existing infrastructure and systems;

(iv) Best practices and lessons learned from technology demonstrations, including return on investment and performance information to help cities decide how to initiate integration of Smart City innovations;

(v) Best practices and lessons concerning cybersecurity, personal privacy, and proper data management;

(vi) Technical specifications of the more common and useful Smart City technologies and utilities;

(vii) Sample Smart City Technologies, applicable either for a particular or multiple LGUs, such as but not limited to:

(1) An Internet of Things which aids or is involved in areas such as agricultural automation, telemedicine, energy management, embedded systems, building management, vehicle and pet control, asset monitoring, or security and surveillance;

(2) Public Wireless Fidelity (Wi-Fi) internet access;

(3) LGU broadband services;

(4) Methods for the gathering and processing of Big Data for proper policy- or decision-making;

(5) Smart motion sensors that help conserve energy for street lights by turning them on only when oncoming vehicles and/or pedestrians are detected at night;

(6) A system that measures and alerts citizens of air quality, traffic congestion, noise levels, crowd density and other pertinent data which feeds LGUs with real-time information to enact decisions;

(7) A monitoring system that can alert authorities of possible smoking, littering, or parking violations or the general movement of crowds and/or vehicles;

(8) A multi-functional Smart City mobile phone application available for residents or tourists of a certain LGU that is, for example, able to crowdsource data for the city or municipality via consented tracking or reporting; electronically pay for city services like postal fees or accountabilities like parking tickets; call taxis; pay bills; track items or deliveries; locate banks, hospitals, police stations, and other points of interest; help in the processing of LGU services; assist in the recording and reporting of violations; track the status of services applied for; and other similar features;

(9) Sensors in parking spaces that can inform Smart City drivers of availability via an interface;

(10) Live traffic monitoring;

(11) Electric vehicle charging stations;

(12) Disaster risk reduction, resilience, and mitigation technologies such as flood, earthquake, and typhoon monitoring systems;

(13) Sensors for gunshot and explosive sounds and/or possible crimes against public order;

(14) Energy-efficient systems and environmentally-friendly energy programs that are low on carbon emissions, efficient with distribution, and optimized with consumption; and

(15) Any other example the Council deems fit for inclusion which touch on areas such as urban agriculture, healthcare, energy management, ICT, asset monitoring and control, security and surveillance, public transportation, water and power supply, sanitation, solid waste management, education, urban mobility, architecture, e-governance, and citizen participation; and

(viii) Such other topics and information as may be determined by the Council in the Implementing Rules and Regulations that are consistent with the provisions and declared policies of this Act;

(c) Conduct consultations with the private sector and LGU stakeholders to determine, for the effective fulfillment of this Act, information such as barriers to Smart City technology adoption; research or analyses which must be undertaken; and other pertinent endeavors;

(d) Espouse a scientific approach in its decision-making and shall always keep abreast of contemporary scientific findings, researches, and developments;

(e) Monitor and require compliance from government agencies and instrumentalities with respect to the Smart City policies, guidelines, and standards prescribed by it;

(f) Conduct periodic reviews of the administration, operation, policies, rules, and regulations governing this Act, and update the same in order to reflect the best practices and standards, always adhering to local autonomy;

(g) Provide technical support, knowledge, assistance, and identify gaps for capacity-building for LGUs desiring to plan, develop, and/or implement Smart City technologies or practices;

(h) Create programs and partner with entities such as State Universities and Colleges, the Technical Education and Skills Development Authority, and other similar institutes of learning to cultivate professionals and workers adept with Smart City technologies via technology-based job training and educational courses that provide industry-recognized credentials; and

(i) Undertake any other such function as the Council may deem necessary for the fulfillment of this Act, consistent with its provisions and declared policies.

Section 7. *Role of Local Development Councils.* - The Local Development Councils in every city and municipality as constituted by Section 106 of Republic Act No. 7160, otherwise known as the “Local Government Code”, shall be responsible for setting the direction, development, implementation and coordination of Smart City or Municipality programs within their respective territorial jurisdictions.

Section 8. *Role of Local Planning and Development Coordinators.* - The city and municipal Planning and Development Coordinators as described in Section 476 of Republic Act No. 7160 shall primarily be responsible for providing technical support to the Local Development Councils on Smart City or Smart Municipality initiatives.

The city and municipal Planning and Development Office shall have a Smart City or Smart Municipality Unit that shall be initially composed of three (3) regular staff responsible for (1) administration, (2) research and planning, and (3) development.

Section 9. *Local Fund.* - Starting from Fiscal Year 2022, each city and municipality shall set aside not less than five percent (5%) of its estimated internal revenue allotment to support Smart City and Municipalities initiatives under a fund that shall be known as the Local Smart City Fund (LSCF) or Local Smart Municipality Fund (LSMF).

Unexpended LSCF or LSMF shall accrue to a special trust fund solely for the purpose of supporting Smart City and Municipality initiatives within the next five (5) years. Any such amount still not fully utilized after five (5) years shall revert back to the general fund and will be available for other social services to be identified by the local *Sanggunian*.

CHAPTER III STANDARDS

Section 10. *Smart City Standards.* - Without prejudice to whatever additions and modifications the Council may include in the Implementing Rules and Regulations consistent with the provisions and declared policies of this Act, the Council shall standardize and promote the advancement of nine (9) Smart City dimensions, as defined and/or expounded upon hereunder, as well as their indicators as may be found in various researches and/or initiatives, for the creation of Smart Cities and Municipalities.

Section 11. *Human Resources.* - The main goal of any smart city shall be to improve the quality of living of its human resources. A smart LGU with smart governance must be capable of attracting and retaining talent, of creating plans to improve education, and of promoting creativity and research.

<i>No.</i>	<i>Indicator</i>	<i>Description / Unit of Measurement</i>
1	Higher education	Proportion of population with secondary and higher education
2	Business schools	Number of top business schools
3	Movement of students	International movement of higher-level students; Number of students
4	Universities	Number of universities in the city that are at the top nationally
5	Museums and art galleries	Number of museums and art galleries per LGU
6	Schools	Number of public or private schools per LGU
7	Theaters	Number of theaters per LGU
8	Expenditure on leisure and recreation	Expenditure on leisure and recreation <i>per capita</i>
9	Expenditure on leisure and recreation	Expenditure on leisure and recreation In millions of Philippine pesos

Section 12. *Social Cohesion.* - Social cohesion is a sociological dimension of LGUs that can be defined as the degree of consensus among the members of a

social group or as the perception of belonging to a common situation or project. It is a measure of the intensity of social interaction within the group. Social cohesion in the urban context refers to the degree of coexistence among groups of people with different incomes, cultures, ages, and professions who live in an LGU. Concern about the LGU's social setting requires an analysis of factors such as immigration, community development, care of the elderly, the effectiveness of the health system, and public inclusion and safety.

The presence of various groups in the same space and mixing and interaction between groups are essential in a sustainable urban system. In this context, social cohesion is a state in which citizens and the government share a vision of a society based on social justice, the primacy of the rule of law, and solidarity.

<i>No.</i>	<i>Indicator</i>	<i>Description / Unit of Measurement</i>
10	Mortality	Ratio of deaths per 100,000 inhabitants
11	Crime Rate	Crime rate
12	Health	Health index
13	Unemployment	Unemployment rate
14	Gini Index	Measure of social inequality; It varies from 0 to 100, with zero being a situation of perfect equality and 100 that of perfect inequality
15	Price of Property	Price of property as percentage of income
16	Female Workers	Ratio of female workers in the public administration
17	Global Peace Index	An index that measures the peacefulness and the absence of violence in a country or region; High values indicate countries with a high level of violence
18	Hospitals	Number of public and private hospitals and health centers per LGU
19	Happiness Index	Happiness index of a country; The highest values on the index indicate countries that have a higher degree of overall happiness
20	Global Slavery Index	Ranking that considers the proportion of people in a situation of slavery in the country;

		The countries occupying the top positions in the ranking are those with the highest proportion of the population in a situation of slavery
21	Government Response to Situations of Slavery	This variable measures how the government deals with situations of slavery in the country The top positions in the ranking indicate countries that have a more effective and comprehensive response to slavery
22	Terrorism	Number of terrorist acts of vandalism per LGU in the previous three years

Section 13. Economy. - This dimension includes all aspects that promote the economic development of a territory: local economic development plans, transition plans, strategic industrial plans, and cluster generation, innovation and entrepreneurial initiatives.

<i>No.</i>	<i>Indicator</i>	<i>Description / Unit of Measurement</i>
23	Productivity	Labor productivity calculated as GDP per working population (in thousands)
24	Time to required to start a business	Number of calendar days needed so a business can operate legally
25	Ease of starting a business	The top positions in the ranking indicate a more favorable regulatory environment for creating and developing a local company
26	Headquarters	Number of headquarters of publicly traded companies
27	Motivation for early-stage entrepreneurial activity	Percentage of people involved in total entrepreneurial activity (TEA) who are motivated by an opportunity for improvement, divided by the percentage of TEA motivated by need; TEA: new entrepreneurs or owners/managers of a new business
28	Gross Domestic Product ("GDP") Estimate	Estimated annual GDP growth

29	GDP	Gross domestic product in millions of pesos
30	GDP <i>per capita</i>	Gross domestic product <i>per capita</i>

Section 14. Smart Governance. - Governance is the term commonly used to describe the effectiveness, quality and sound guidance of State intervention. Given that the citizen is the meeting point for solving all the challenges facing LGUs, factors such as the level of the public's participation, the authorities' ability to involve business leaders and local stakeholders, and the application of e-government plans should be taken into account.

<i>No.</i>	<i>Indicator</i>	<i>Description / Unit of Measurement</i>
31	Reserves	Total reserves in millions of current Philippine pesos
32	Reserves <i>per capita</i>	Reserves in millions of current Philippine pesos
33	Embassies	Number of embassies and consulates per LGU
34	International Organization for Standardization ("ISO") 37120 certification	This establishes whether or not the LGU has ISO 37120 certification; Certified LGUs are committed to improving their services and quality of life; Variable is coded from 0 to 6; LGUs that have been certified for the longest time have the highest value; The value 0 is for LGUs without certification
35	Research centers	Number of research and technology centers per LGU
36	Strength of legal rights	The strength of legal rights index measures the degree to which collateral and bankruptcy laws protect the rights of borrowers and lenders and thus facilitate access to loans; The values go from 0 = low to 12 = high, where the highest ratings indicate that the laws are better designed to expand access to credit
37	Corruption perceptions	Corruption perceptions index; Countries with values close to 0 are perceived as very

		corrupt and those with an index close to 100 are perceived as very transparent
38	Open data platform	This describes whether the city has an open data system.
39	E-Government Development Index (“EGDI”)	The EGDI reflects how a country is using information technology to promote access and inclusion for its people
40	Democracy	Ranking where the places in the highest positions are those considered more democratic
41	Government buildings	Number of government buildings and premises in the city

Section 15. *Eco-friendliness and the Environment.* - Sustainable development of an LGU shall be defined as development that meets the needs of the present without compromising the ability of future generations to meet their own needs. In this respect, factors such as improving environmental sustainability through antipollution plans, support for green buildings and alternative energy, efficient water management, and the existence of policies that help counter the effects of climate change must be pursued to guarantee the long-term sustainability of LGUs.

<i>No.</i>	<i>Indicator</i>	<i>Description / Unit of Measurement</i>
42	Carbon dioxide (“CO ₂ ”) emissions	CO ₂ emissions from the burning of fossil fuels and other processes; Measured in kilotons
43	CO ₂ emission index	CO ₂ emission index
44	Methane emissions	Methane emissions that arise from human activities such as agriculture and the industrial production of methane; Measured in kilotons of CO ₂ equivalent
45	Access to the water supply	Percentage of the population with reasonable access to an appropriate quantity of water resulting from an improvement in the water supply
46	PM2.5	PM2.5 measures the number of particles in the air whose diameter is less than 2.5

		micrometers; Annual mean
47	PM10	PM10 measures the number of particles in the air whose diameter is less than 10 micrometers; Annual mean
48	Pollution	Pollution index
49	Environmental Performance Index	This measures environmental health and ecosystem vitality; Scale from 1 (poor) to 100 (good)
50	Renewable water resources	Total renewable water sources <i>per capita</i>
51	Future climate	Percentage of summer temperature increase in the LGU forecast for 2100 if carbon pollution continues to increase
52	Solid waste	Average amount of municipal solid waste (garbage) generated annually per person (kilograms/year)

Section 16. Mobility and Transportation. - The LGUs of the future have to tackle two major challenges in the field of mobility and transportation: facilitating movement through cities and access to public services.

Mobility and transportation—both with regard to road and route infrastructure, the vehicle fleet, and public transportation, as well as to air transportation—affect the quality of life of an LGU's inhabitants and is vital to the sustainability of LGUs over time.

No.	Indicator	Description / Unit of Measurement
53	Traffic index	Consideration of the time spent in traffic, the dissatisfaction this generates, CO ₂ consumption and other inefficiencies of the traffic system
54	Inefficiency index	Estimation of traffic inefficiencies (such as long journey times)
55	Index of traffic for commuting to work	Index of time based on how many minutes it takes to commute to work

56	Bike sharing	The bicycle-sharing system shows the automated services for the public use of shared bicycles that provide transport from one location to another within an LGU; The indicator varies between 0 and 8 according to how developed the system is
57	Metro length	Length of the metro system per LGU
58	Metro stations	Number of metro stations per LGU
59	Flights	Number of arrival flights (air routes) in a LGU
60	Gas stations	Number of gas stations per LGU
61	High-speed train	Binary variable that shows whether the LGU has a high-speed train or not

Section 17. Urban Planning. - The urban planning of an LGU has several subdimensions and is closely related to sustainability. To improve the habitability of any territory, it is necessary to take into account the local master plans and the design of green areas and spaces for public use, as well as opting for smart growth. The new urban planning methods should focus on creating compact, well-connected LGUs with accessible public services.

<i>No.</i>	<i>Indicator</i>	<i>Description / Unit of Measurement</i>
62	Bicycles for rent	Number of bike-rental or bike-sharing points, based on docking stations where they can be picked up or dropped off
63	Percentage of the population with access to sanitation facilities	Percentage of the population with at least sufficient access to facilities for the disposal of excreta that can efficiently avoid the contact of humans, animals, and insects with excreta
64	Number of people per household	Number of people per household; Occupancy by household is measured compared to the average; This makes it possible to estimate if a LGU has overoccupied or underoccupied households
65	High-rise buildings	Percentage of buildings that are considered high-rises; A high-rise is a building of at least

		12 stories or 35 meters high
66	Buildings	The buildings variable is the number of completed buildings in the LGU; This includes structures such as high-rises, towers and smaller buildings but excludes other diverse structures and buildings in different states of completion (in construction, planned, etc.)

Section 18. *International Outreach.* - LGUs that want to progress must secure a privileged place in the world. Maintaining global impact involves improving the LGU's brand and its international recognition through strategic tourism plans, the attracting of foreign investment and representation abroad.

<i>No.</i>	<i>Indicator</i>	<i>Description / Unit of Measurement</i>
67	International fast food franchises	Number of international fast food franchises per LGU
68	Airports	Number of points where flight operations take place within a 40 kilometer radius from the latitude and longitude defining the center of the LGU; It includes airports, aerodromes, airfields, and landing strips whether international, private, military or otherwise; Also included are the buildings used for processing passengers and cargo (terminals)
69	Number of passengers per airport	Number of passengers per airport in thousands
70	Sightsmap	Ranking of cities according to the number of photos taken in the LGU and uploaded to <i>Panoramio</i> (community for sharing photographs online); The top positions correspond to the LGUs with the most photographs
71	Number of conferences and meetings	Number of international conferences and meetings that take place in a LGU
72	Hotels	Number of hotels <i>per capita</i>

Section 19. *Technology.* - Technology is an aspect of society that improves the present quality of life, and its level of development or spread is an indicator of the quality of life achieved or the potential quality of life. Technology shall be developed to allow LGUs to be sustainable over time and to maintain or extend the competitive advantages of their production system and the quality of employment.

<i>No.</i>	<i>Indicator</i>	<i>Description / Unit of Measurement</i>
73	Social media variable	Number of registered users of popular social media platforms in the LGU
74	Mobile phones	Number of mobile phones in the LGU, using estimates in line with country-level data
75	Wi-Fi hotspot	Number of wireless access points; These represent the options there are in the LGU for connecting to the Internet
76	Internationally branded technology and/or consumer electronics and/or computer software stores	Number of such branded stores in the LGU
77	Innovation index	The city's innovation index; Valuation from 0 = no innovation to 60 = a lot of innovation
78	Landline subscriptions	Number of landline subscriptions per 100 inhabitants.
79	Broadband subscriptions	Broadband subscriptions per 100 inhabitants
80	Internet	Percentage of households with access to the Internet
81	Mobile telephone	Percentage of households with mobile phones in the LGU

CHAPTER IV ACCELERATION PROGRAM

Section 20. *Smart Innovation and City Acceleration Program.* - There is hereby established a Smart Innovation and City Acceleration Program ("SICAP") to spur the adoption of Smart City technologies and practices nationwide. SICAP is an

incentivization and assistance program to recognize, award, and honor LGUs which demonstrate a commitment to adopting and implementing Smart City initiatives.

For this purpose, the Council shall evaluate the standardized dimensions and their aspects and indicators, as found in Chapter III of this Act, in assessing the performance of LGUs.

The Council shall also take into consideration reasonable factors such as but not limited to the LGU's ingenuity and creativity, the scalability and replicability of their projects, the profitability of the Smart City investment and return on investment, how much a Smart City program aligns with the LGU's strategic goals, its constituents' needs, or national development plans, and the LGU's flexibility and adaptability to different circumstances.

Section 21. Council Considerations for SICAP. - In undertaking SICAP and in generally dealing with LGUs with respect to the provisions of this Act, the Council shall always be mindful that not all are similarly situated. The Council shall thus take into account the following characteristics of the LGU in consideration:

- (a) Topography and Geography;
- (b) Predisposition to natural calamities;
- (c) Surrounding environment;
- (d) Size;
- (e) Population;
- (f) Existing physical, service, and ICT infrastructure;
- (g) Financial resources;
- (h) Level of urbanization;
- (i) Economic capability;
- (j) Degree of technology and knowledge base available;
- (k) Class or category of the city or municipality; and
- (l) Such other factors which contribute to fair and just assessments when it comes to the SICAP as shall be determined by the Council in the Implementing Rules and Regulations.

In the interest of fair and equal competition, the Council may create as many categories or divisions as it may deem fit to group together similarly situated LGUs for purposes of SICAP. The Council may from time to time revise such categories or divisions to spur creativity and advancement among LGUs. The Council may also determine which among the dimensions and their particular indicators in Chapter III will be reasonably used in analyzing LGUs belonging to particular categories or divisions.

Section 22. SICAP Incentive Fund. - There is hereby created a special account in the General Appropriations Act called the SICAP Incentive Fund ("Fund"). The fund shall be utilized to pay out the incentives granted to LGUs exhibiting excellence with regard to Smart City technologies and practices.

The Council is hereby authorized to determine the monetary incentives which shall be available to LGUs by virtue of SICAP and the activities mentioned in Section 6(a)(iii), which shall be chargeable to the Fund. The Council is also authorized to revisit and increase the amounts, if necessary, provided that the Fund is sufficient enough at the time the increase is implemented.

The use of the incentives paid out of the Fund shall be governed by the policies governing the utilization of the twenty percent (20%) of the annual Internal Revenue Allotment for local development projects, the Annual Investment Program, and the Local Development Investment Program.

The incentives paid out of the Fund shall not be used for any of the following:

- (a) Financing credits and loans;
- (b) Travel expenses, whether domestic or foreign, except when the purpose is in furtherance of the purposes of this Act;
- (c) Administrative expenses of the LGU including, but not limited to, cash gifts, bonuses, food allowances, staff uniforms, communication bills, utilities, transportation costs, and the like;
- (d) Purchase, maintenance, or repair of any motor vehicles or motorcycles not directly used for the purposes of this Act;
- (e) Salaries, wages, emoluments, *per diems*, or overtime pay of employees;
- (f) Construction, repair, or refurbishing of administrative offices;

- (g) Loan guarantee; and
- (h) Analogous purposes

The Fund shall be managed and administered by the DILG with the supervision of the Council. Appropriation to replenish the amount paid out from the Fund during the year and/or to augment the Fund shall be proposed by and included in the budget of the DILG under the General Appropriations Act.

Section 23. *Application Standards.* - The Council shall ensure that all applications made available for mobile phones, tablets, laptops, desktops, and other similar devices shall, in the pursuit of the objectives of this Act, reflect the following standards:

- (a) Open data and content;
- (b) Excellent User Interface and User Experience;
- (c) Ease of internal and external data exchange;
- (d) User safety and privacy;
- (e) Economical use of budget and resources;
- (f) Multilingual Capability and Intelligibility;
- (g) Correctness;
- (h) Dependability;
- (i) Efficiency;
- (j) Adaptability;
- (k) Wide-compatibility; and
- (l) Any other standard or quality that will be set by the Council in the Implementing Rules and Regulations, which shall be consistent with this Act.

CHAPTER V FINAL PROVISIONS

Section 24. *Public-Private Participation.* - To promote an efficient and cost-effective delivery of services, the DILG may partner with the private sector in the implementation of the Action Plan.

Section 25. *International Cooperation.* - To foster dynamism, synergy, and the sharing of global best practices, the DILG may partner with foreign governments as well as international networks such as the ASEAN Smart Cities Network, World Smart Cities Organization, Smart Cities Council, and the Smart Cities Association.

Section 26. *Appropriations.* - The SICAP Incentive Fund shall have an allocation of one billion pesos (Php 1,000,000,000.00) revolving fund starting from the effectivity of this Act.

Section 27. *Implementing Rules and Regulations.* - The Council shall issue within ninety (90) days from the effectivity of this Act the necessary rules and regulations for the effective implementation of this Act.

Section 28. *Report to Congress.* - The Council shall submit a report to Congress not later than March 30 of every year following the approval of this Act regarding the progress of nationwide Smart City efforts, including the status of relevant Smart City technology developments and applications, local and foreign, and shall make the necessary recommendations in areas where there is need for legislative action.

Section 29. *Joint Congressional Oversight Committee.* - There is hereby created a joint congressional oversight committee to monitor the implementation of this Act. The committee shall be composed of three (3) senators and three (3) representatives to be appointed by the Senate President and the Speaker of the House of Representatives, respectively. The majority and minority parties shall, as far as practicable, be equally represented in the committee. The oversight committee shall be co-chaired by a senator and a representative designated by the Senate President and the Speaker of the House of Representatives, respectively. It shall convene at least once every year.

The mandate given to the joint congressional oversight committee under this Act shall be without prejudice to the performance of the duties and functions by the respective existing oversight committees of the Senate and the House of Representatives.

Section 30. *Repealing Clause.* - All laws, executive orders, proclamations, rules, regulations and other issuances or parts thereof which are inconsistent with the provisions of this Act are hereby repealed, amended, or modified accordingly.

Section 31. *Separability Clause.* - If any part or provision of this Act is held unconstitutional or invalid, other parts or provisions thereof which are not affected shall continue to remain in full force and effect.

Section 32. *Effectivity.* - This Act shall take effect fifteen (15) days following completion of its publication in at least two (2) newspapers of general circulation.

Approved,