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Innovating Governance: Building Resilience against COVID-19 Pandemic and Other Risks

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Abstract

The unprecedented COVID-19 pandemic is the most challenging public health crisis the world has faced in a century. It has overwhelmed global and national health service and disaster management infrastructure and brought economies to a standstill/halt. It serves as both an eye-opener and an impetus to leapfrog reforms to strengthen governance systems and structures. It propels us to innovate and install more forward-looking systems and strategies that will enable us to permanently gain the capacity to survive and win over multiple and complex challenges that we face now and in the future. In the public sector, the pandemic shows the importance of having harmonization and synergy between and among national government agencies and sub-national governments. It has illustrated the importance of investing in digital education, e-commerce, and innovative ways of delivering social protection as well as fostering business innovations to meet fast-changing demand. The literature discusses quite a number of public sector innovations particularly in developed countries and the approaches are combinations of various governance methods, with styles varying depending on the context. Yet on the overall, the public sector has very few models for innovation. This background paper briefly scans the recent literature of public sector innovations and other efforts implemented in the strengthening of governance systems. The goal is to gather insights that may be useful for the Philippines case for enhancing its governance strategies, improving overall performance in service delivery, and building resilience against risks in the long-term.

Keywords: COVID-19, disaster management, risk reduction, innovative governance, public sector innovation

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Building resilience against COVID-19 pandemic and other risks

Aubrey D. Tabuga, Sonny N. Domingo, Charlotte Justine Diokno-Sicat, and Valerie Gilbert T. Ulep[1]

1. Introduction

The unprecedented COVID-19 pandemic is by far the most challenging public health crisis the world has faced in a century. It has overwhelmed global and national health service and disaster management infrastructure, bringing economies to a standstill. Countries struggling to contain the spread of the virus have used an arsenal of travel bans, hygiene information campaigns, social distancing efforts, lockdowns, and quarantines. Some countries have exhibited some degree of success, but most affected countries are still suffering the horrific impact of the pandemic. As of August 4, 2020, there were a recorded 18 million cases, with a death toll of 690,000 worldwide. Almost all affected countries experienced shortages in health care equipment and in health human resources with the rapid spread of COVID19 in the 1st quarter of 2020.

The effects of this pandemic extend beyond country health care systems to entire economies, especially in developing countries such as the Philippines. The government response to the pandemic such as community quarantine, reduction in mobility, and closing down of the economy led to a more complicated issue of supporting millions of Filipinos who are unable to fend for themselves resulting from their inability to earn a living during these times. The pandemic issue becomes a much larger social support/social protection issue with direct implications on the government's capacity to finance, administer, and design effective strategies. It also puts local governments at the forefront of quarantine enforcement, contact tracing and monitoring and in program implementation such as in administering the Social Amelioration Program (SAP). Furthermore, the pandemic has exposed important structural and governance issues. Among these are the seeming lack of protocols or manuals of operations to deal with such an event at the onset. The poor and outdated state of our information systems caused delays in data gathering efforts that are essential for understanding the real-time situation upon which key decisions are made. The absence of a verified tool for targeting program beneficiaries of social assistance efforts hampered the implementation of the SAP. The lack of coordination between and among government units that are at the forefront of curbing the spread of the novel corona virus was also observed, something that is reminiscent of the challenges we face many times each year as the country goes through multiple natural disasters.

Such an unprecedented crisis of the scale of COVID-19 has only exposed the vulnerability of a country that could not even achieve universal access to basic amenities and services needed for survival like water, sanitation, health, and nutrition. The country's performance in nutrition remains below expectation as one-third of children under five years old remain stunted. Sanitation also remains a concern as 30 percent of health care facilities lack access to clean toilets, while at least 26 percent of the population still do not have safe and clean toilet facilities[2]. The recent water crisis in Metro Manila and the high chances of water shortages in

[1]Research Fellow, Senior Research Fellow, Research Fellow, and Research Fellow, respectively, at the Philippine Institute for Development Studies (PIDS); the team acknowledges the excellent research assistance of Carlos C. Cabaero, Ricxie B. Maddawin, and Arvie Joy A. Manejar of PIDS; The usual disclaimer applies.

[2] 2015 Joint Monitoring Program of the World Health Organization (WHO) and the United Nations Children's Fund (UNICEF)

the future demonstrates that the abundance of natural resources does not guarantee adequate supply. The pandemic also caught the basic education system off-guard. It now needs to fast-track innovating itself, otherwise, many children are expected to remain idle if they cannot gain access to virtual platforms and other innovative approaches of learning. Pre-COVID, basic education's dismal performance was highlighted in the low scores of Filipino students in national assessment tests. Furthermore, rapid urbanization complicates responses to the pandemic because of the difficulty of implementing social distancing and lockdowns to large population of the urban poor.

The COVID-19 pandemic is an eye-opener and an impetus for us to leap-frog in terms of strengthening governance systems and structures. It forces us to innovate and install more forward-looking systems and strategies that will enable us to permanently gain the capacity to survive and win over multiple and complex challenges that we face now and in the future. It enables us to realize how important it is to have harmonization and synergy between and among national government agencies and sub-national governments. It has illustrated the importance of investing in digital education, e-commerce, and innovative ways of delivering social protection as well as fostering business innovations to meet fast-changing demand.

The literature discusses quite a number of public sector innovations particularly in developed countries and the approaches are combinations of various governance methods, with styles varying depending on the context. Yet on the overall, the public sector has very few models for innovation. Mulgan (2014) attributed this to the absence of investment models in organizations for innovation, the lack of dedicated, teams, skills, processes, and budgets, the discouraging or inconducive rewards and incentive systems; the fragmented departmental system blocking innovation sharing, and 'lack of mature risk management methods for experimentation' (p.4).

Nevertheless, there are promising models where lessons can be drawn from. This background paper briefly scans the recent literature of public sector innovations and other efforts implemented in the strengthening of governance systems. The report starts with some key definitions of innovations as applied in the public sector. It then provides a conceptual framework for analyzing capacity of the civil service which is a useful way to illustrate the issues and challenges in governance. This is followed by discussions on innovation activities and strategies in three aspects – institutions, people or civil service, and technology or smart systems.

The goal is to gather insights that may be useful for the Philippines case for enhancing its governance strategies, improving overall performance in service delivery, and building resilience against risks in the long-term.

2. Public sector innovations

Innovation, based on the Oslo Manual, is "a new or significantly improved service, communication method, or process/organizational method" (Arundel, et al, 2015). Bloch (2011, p.14) provides more details:

> "An innovation is the implementation of a significant change in the way your organisation operates or in the products it provides. Innovations comprise new or significant changes to services and goods, operational processes, organisational methods, or the way your organisation communicates with users. Innovations must be new to your organisation, although they can have been developed by others. They can

either be the result of decisions within your organisation or in response to new regulations or policy measures"

Like in the business setting, public sector governance innovations can be disruptive – examples are the introduction of a universal healthcare program or the online tax filing system. They can also be incremental, such as agency-level efficiency improvements in administrative processes or service delivery. Innovation activities, Bloch (2011:17) noted, refer to all in-house and external activities that intend to or actually lead to the implementation of innovation. The in-house activities include R&D, market and other user research, planning and design, feasibility study, experimenting/testing and other preparatory activities for innovation, as well as innovation-related education and training of staff, and innovation-focused software, machinery and equipment acquisition. External innovation activities are external R&D, consultancy services for innovation, and intellectual property related matters like patents and licenses.

As for the types of innovation, the literature lends four types of innovations – these are process, product, organizational and communication innovations.[3] Bloch (2011, p.14), again, provides definitions that are relatively less technical and are more relevant to the public sector:

> "A ***process innovation*** is the implementation of a method for the production and provision of services and goods that is new or significantly improved compared to existing processes in your organization. This may involve significant improvements in for example, equipment and/or skills. This also includes significant improvements in support functions such as IT, accounting, and purchasing.
>
> A ***product innovation*** is the introduction of a service or good that is new or significantly improved compared to existing services or goods in your organisation. This includes significant improvements in the service or good's characteristics, in customer access or in how it is used.
>
> An ***organisational innovation*** is the implementation of a new method for organising or managing work that differs significantly from existing methods in your organisation. This includes new or significant improvements to management systems or workplace organisation.
>
> A ***communication innovation*** is the implementation of a new method of promoting the organisation or its services and goods, or new methods to influence the behaviour of individuals or others. These must differ significantly from existing communication methods in your organization."

Examples of process innovation in the public sector include new ways to register crime reports, and work process digitalization which allows cross-service electronic interaction. In Bloch (2011), process innovation includes new production methods, delivery methods, as well as supporting, IT-based activities. Product innovation in the public sector context often involves an element in the provision of a service. Examples include implementation of group therapy using videos, new treatment, or the use of robots. Organizational innovations can be creation of a one-stop-shop that provides various services, and the establishment of a facility that coordinates provision of services. Bloch (2011) modified the Oslo definition such that in the

[3] This part was drawn heavily from the Bloch, C. (2011) MEPIN Report – Measuring Public Innovation in the Nordic Countries

public sector this type refers to "new management systems, new methods of organising work responsibilities and decision making, new ways of organising external relations, and new systems for gathering knowledge and building innovative capacity" (2011: 15). Lastly, communication innovation accounts for the fact that promotion is important for government operations. This can be a campaign against fake drugs, "automatic text message updates on incidents" or government projects (Bloch, 2011: v).

With respect to governance methods surrounding innovations, Arundel et al (2015) discussed a typology based on post-New Public Management literature. Organizational entrepreneurship encourages 'bottom-up' mechanisms that involve not only middle managers but also front-line workers in the process of innovation (Arundel et al, 2015 citing Hartley, 2005). The whole-of-government system emphasizes the importance of inter-agency collaboration while the lateral innovations pertain to adaption of good practices of other government agencies (Hartley, 2005). Networked governance is an extension of the whole-of-government approach where non-government organizations are included in the innovation (Christensen and Laegreid, 2007). Governance network method (Sorensen and Torfing (2012) refers to an innovation method which draws on internal and external sources (i.e. inputs from managers and frontline worker, as well as users, private businesses, and others). In contrast to the above methods, the traditional governance approach restricts innovation largely to a 'top-down' process as, determined by political decisions. Since such a structure was found to stifle rather than facilitate innovation, the NPM was established which gave public managers bigger responsibility for driving innovations though, based on Hartley et al (2013), this was not conducive for knowledge-sharing among agencies thereby limiting innovations to develop.

3. A conceptual framework for analyzing public sector capacity

Addressing the increasingly complex problems that the public sector faces on a day to day basis require capacities at various levels and dimensions. We focus on policy capacity because civil servants, in doing their official functions, are in fact implementing policy mandates. Policy capacity refers to the "set of skills and resources – or competencies and capabilities – necessary to perform policy functions" (Wu, Ramesh, and Howlett, 2015:166).[4] Policy capacity is not only multi-level (individual, organizational and systemic) but also multi-dimensional (analytical, operational and political), and it even involves the capacity of non-government actors (Ibid). In each of the dimensions, there are certain capacities required at each level so that mandates are effectively and efficiently carried out. We outline the framework proposed by Wu, et al (2015) on these levels and dimensions in which discussions about civil service constraints and innovations are structured.

Analytical capacity pertains to the "ability to access and apply technical and scientific knowledge and analytical techniques" (2015: 168) which is required in building trust among entities who evaluate the credibility of policy interventions (Blind, 2007). In terms of analytical capacity at the individual person level, it is argued that governments must have a substantial number of officials possessing some analytical capacity which is especially important for evidence-based policymaking. At the organizational level, analytical capacity pertains to the "availability of individuals with analytical skills, existence of a machinery and processes for collecting and analyzing data, and organizational commitment to evidence-based policy" (Pattyn & Brans, 2015).[5] In simple terms, organizations must gain the technical capacity to

[4] Citing Gleeson et al (2009) and Gleeson et al (2011)
[5] As cited in Wu et al (2015: 168-169)

evaluate data which is required for efficient information systems for data collection and dissemination. At the systemic level, analytical capacity refers to the general condition of statistical, scientific, and educational facilities that a society has which enables decisionmakers and employees to access such high-quality data in implementing their managerial and analytical mandates (Hsu Angel, 2015). Therefore, government's capacity to perform its mandate is a function of diligent data collection and dissemination together with the state of education, and more specifically, public policy teaching and training (Ibid).

Operational capacity at the level of the individual pertains to managers' ability to perform key managerial functions (Wu et al, 2015: 168 citing Tiernan and Wanna, 2006). It was noted however that in promoting leadership in public service, clarifying broader mechanisms for accountability is essential. At the level of organizations, this type of capacity refers to the internal organization and the prevailing political-institutional environment (Peters, 2015)[6]. Here, the important determinants of effectiveness are the organizations' relationship with legislative and executive actors and institutions as well as training and aspirations of the workforce (Ibid). At the systemic level, operational capacity encompasses the coordination among governmental and non-governmental efforts in addressing society's collective problems (Hughes et al, 2015). This capacity, based on empirical evidence from the health sector of Australia, and developed in a rather dispersed and incremental manner, include factors like leadership, constituency building, shared vision, policy research and inclusive 'policy conversation' have roles to play in capacity development.

At the individual public manager level, political capacity pertains to political knowledge, or the ability to relate to the broader political environment and understand interests and political trade-offs in forging agreements (Pal and Clark, 2015). At the organizational level, this capacity refers to the ability to develop learning relationships with partners in governance and the public. It also includes the capacity for dialogue, opening communication lines for citizen feedback and motivating the public to actively contribute to the resolution of problems (Haider, Mcloughlin, & Scott, 2011). Lastly, political capacity at the systemic level is the 'steering' level capacity that has the ability to influence all other capacities (Woo, Ramesh & Howlett, 2015). This is "shaped by the level of trust in the political, social," economic, and security dimensions of policy actions (Wu et al, 2015:170). Achieving this capacity amounts to gaining legitimacy.

4. Governance issues and challenges

4.1. Human resources

The need to strengthen and upskill the civil service is at the center of efforts of boosting public sector innovation and productivity. Unfortunately, the public sector workforce is constrained by basic issues of recruitment and retention. Brillantes and Fernandez-Carag (2016) noted that there is difficulty of retaining highly capable people at the executive level due to the inadequate remuneration of career executive service officers (CESOs) which is far from the pay scale of those in the private sector. This is also the case for technical personnel and scientists. The Food and Drug Administration (FDA) is one agency that experiences difficulties in attracting qualified people in regulatory function as crucial as drug registration, causing significant backlogs and negative sentiments from the industry (PCC, 2018). Government posts are not that attractive for those seeking more dynamic work settings, career-wise. Local governments

[6] As cited in Wu et al (2015)

are also prone to high turnover rate of employees because of the electoral dynamics; election of local leaders is conducted every 3 years and employees tend to change with leadership changes. This tends to result to lack of institutional memory and therefore institutional learning. Limited career mobility also characterizes the typical government job as there is little opportunity to get a promotion unless another employee retires.

4.2. Information systems

The analytical capacity of the public sector is constrained by weak information systems. One of the key issues in government efforts to combat COVID-19 is the lack of up-to-date information needed for effective decision-making by the Inter-Agency Task Force, the recommendatory body tasked to address the pandemic issues. This is because the use of manual forms at the Department of Health (DOH) is still prevalent causing significant backlogs in encoding and even errors in data reporting.[7] As of publication date, two months after community quarantine has been implemented, the DOH, in partnership with the WHO, was still at the development stage of its digital epidemiological surveillance information system called COVIDKAYA which is aimed at automating several data collection processes.[8] There was also an apparent deficiency in the pool of technically-capable workers in the encoding, contact-tracing, and communications.[9]

The lack of automated surveillance information systems at the DOH seems to reflect significant resource constraints. In 2019, the health budget cut of P10 billion amidst a string of epidemics (e.g. dengue outbreak, high measles incidence, and the return of polio) received heavy criticisms. Similarly, if there is not enough investment in digital systems, it follows that the organization and its people are unlikely to develop the technical skills needed for its operation. These problems are not exclusive to the health department, as workers in many other agencies are unable to keep up with the advancement in information technology. Outdated procedures and systems characterize many government organizations (Brillantes, et al, 2016). Further details on the status of e-government efforts in the delivery of services are discussed under the section on delivery platforms.

The evaluative capacity of the country's civil service is an aspect that has not been empirically examined more thoroughly. The planning divisions in government agencies are often delegated the task for gathering and collating administrative data associated with the implementation of their mandates. How the human resources in these government units fare in terms of data processing and analysis skills and whether they have the facilities and equipment is important to probe into.

At the local level, a significant number of local governments have developed their own monitoring systems meant for planning purposes and have therefore gained the capacity to collect information such as the Community-based monitoring system (CBMS). As of publication date, 36 provinces have already implemented the CBMS province-wide, and 31,202 barangays or villages in 1,103 municipalities and 111 cities.[10] In a study covering 1,373 municipalities, Sicat et al (2020) found that majority or 57 percent claimed to have used the

[7] https://news.abs-cbn.com/news/05/13/20/doh-thinking-machines-reaction-on-up-resilience-institute-data-analysis-discrepancy-covid19-coronavirus-disease Retrieved May 15, 2020
[8] https://www.doh.gov.ph/doh-press-release/STATEMENT-ON-DATA-INTEGRITY Retrieved May 15, 2020
[9] https://cnnphilippines.com/news/2020/3/22/Health-Department-COVID-19-contact-tracing.html?fbclid=IwAR2 Retrieved May 15, 2020
[10] https://www.pep-net.org/cbms-philippines Retrieved May 15, 2020

CBMS as their major data source in the preparation of the LGU's Ecological Profile. Of those who use the CBMS, nearly all (9 out of 10) reported that utilizing the data helped them identify priority sectors in the planning process and as basis for budgeting (Ibid).

Unfortunately, there is little information about the extent of LGU's capacity to process and analyze information from the CBMS in a more instrumental way. Can LGUs, through these information systems, generate the information that are most useful for them, considering diversity in contexts, and resource endowments? How the information gathered is built into the LGU units' decision-making and implementation processes needs further elaboration. Does the information system aid in problem identification as well as the recognition of specific needs for specific groups of clients or citizens? Are the government units using it able to craft ideas from it beyond knowledge about which groups to prioritize such as the relevant strategies to implement and more refined resource allocation? Is there a feedback loop system that feeds into the improvement of the information systems to ensure that it truly serves the purpose of improving the analytical capacity of the local government unit?

Aside from the abovementioned concerns, data collection is also irregularly done. Fewer municipalities have regular budget allocation and much of it is devoted in hiring personnel. This means less opportunity for monitoring and evaluating the effectiveness of efforts on the ground. Usage must also be improved. Currently, the CBMS is almost for the exclusive use of the municipal planning office (Ibid). It is important that other units like social welfare, health, and local school boards also gain access and the capability to use such a local information system the LGU has invested on. It is also important that information systems and other existing systems of records used by different units be integrated horizontally and even vertically so that the province-level can also utilize it for decision-making purposes.

At the systemic level, while the country's statistical capacity indicator (SCI) measured by the World Bank remains higher, at 82.2, than the regional average of the East Asia and Pacific (77.5), the current performance is nowhere near its best performance of 92.2 during the period 2008-2009. Furthermore, its performance has now been overtaken by Indonesia (90.0) and Vietnam (86.7). Availability of key statistics is essential, but it is equally important to examine their relevance in the policy process (agenda-setting, formulation, decision-making, implementation, and evaluation). At the level of the legislature, most knowledge utilization served pre-determined political biases and fewer are directed toward more concrete, instrumental uses (Tabuga, 2017). Perhaps there is a need to improve the timeliness and quality of the data that are made available to decision-makers. One key deficiency of the current state of statistics in the country is the lack of granularity that is needed to craft more effective policies to address the needs of all sectors especially the marginalized groups (VNR, 2019). On the overall, there is much to accomplish when it comes to strengthening analytical, evaluative capacities of the civil service, and achieving the culture of innovation.

In any shock to a society, information and data is key in being able to properly identify and address the problem. With the recent events such as the Taal Volcano eruption and the COVID19 pandemic, the ability to inform citizens and to be informed about the citizens is critical both in being able to identify those affected (to provide them with needed assistance) as well as to monitor those affected (to keep track of those evacuees who returned to their homes after the Taal Volcano eruption or contact tracing under COVID 19).

Ideally, updated and complete voter/citizen data would allow for quick identification of citizens most hardly hit by shocks as well as facilitate contact tracing of suspected COVID cases (one

of the criteria for loosening restrictions under quarantine or lockdown). A national identification system and database would have been perfect to do the job; however, data privacy has often been used as an excuse to delay the implementation of such a system.

The lack of citizen information was identified as one of the major challenges faced in implementing the Emergency Subsidy Program (ESP) provided for under the "*Bayanihan* to Heal as One Act of 2020[11]." According to the Department of Social Welfare and Development (DSWD), delays in the distribution were attributed to various reasons including varying processes at the LGU level, lack of reliable lists and databases for SAP validation and accountability, and need for other forms of targeting systems and corresponding responsive social protection programs for different target groups (Department of Social Welfare and Development 2020). Unavailable, unvalidated or poor-quality data on citizens led to some 369 local governments being unable to successfully distribute the much-needed ESP or the Social Amelioration Program (SAP) in a timely manner[12].

According to the DSWD guidelines, the ESP[13] is a social amelioration program that will be implemented through various national and local government social amelioration programs and computed based on the prevailing regional minimum wage rates, considering the subsidy amount given under the DSWD's Conditional Cash Transfer (CCT) program and the rice subsidy program, estimated at an average of PhP 2,150.00 per month per family. In this regard, the National Government will augment the CCT and rice subsidy in order to reach the applicable emergency subsidy amount. In accordance with RA 11469, the ESP shall be implemented for two (2) months covering the months of April and May, 2020. The Emergency Subsidy shall be distributed through any of the programs enumerated in Section 7 of the guidelines so long as the total amount from various social amelioration programs does not exceed the prescribed thresholds as defined in this JMC.

Much of the challenge in the distribution of the Social Amelioration Program (SAP) was in identifying the intended 18 million target household beneficiaries. The process was for LGUs to provide lists of the intended SAP beneficiaries which the DSWD would countercheck with their own list for their existing social protection programs such as the Assistance to Individuals in Crisis Situation (AICS), Sustainable Livelihood Program (SLP) and the Social Pension (SocPen). The SAP distribution process starts with the filling up of the Social Amelioration Card (SAC), a form distributed at the barangay level that captures the family profile which will be the mechanism for the affected families to access the social amelioration programs of the government (Department of Social Welfare and Development 2020). According to Secretary Rolando Bautista, the usual cause of delay in distribution, were the reduced personnel of LGUs, the challenge of reaching beneficiaries in far-flung areas. More importantly, due to the varying distribution schemes and validation processes implemented by LGUs, some would call the beneficiaries to a large area for distribution while other LGUs would conduct a house-to-house strategy for distribution (Medenilla 2020).

The first SAP distribution deadline set by the DILG was on April 30. However, because of the reasons for delays in the identification of beneficiaries and other mobilization challenges, it

[11] Republic Act 11468, Sec. 4(c) (January 23, 2020), https://www.officialgazette.gov.ph/downloads/2020/01jan/20200123-RA-11468-RRD.pdf.
[12] Darwin Pesco, "1,204 LGUs complete SAP distribution-DILG," *The Manila Times,* May 10, 2020. https://www.manilatimes.net/2020/05/10/news/national/1204-lgus-complete-sap-distribution-dilg/723800/ ; *SunStar CEBU,* May 16, 2020. https://www.sunstar.com.ph/article/1856591/Cebu/Local-News/15-LGUs-in-Region-7-fail-to-complete-SAP-distribution
[13] DSWD MC No. 09 Series of 2020 (April 9, 2020), https://www.dswd.gov.ph/issuances/MCs/MC_2020-009.pdf.

was moved to May 7 and then again to May 10. (SunStar Cebu 2020). As of May 10, 2020, a total of 1,204 local government units have (LGUs) completed the distribution of Social Amelioration Program (SAP) (Pesco 2020). There were 369 cities and municipalities that failed to distribute SAP by the deadline (Jalea 2020).

This delay in the SAP distribution due to the needed vetting of beneficiary lists could have been avoided had the Philippine Identification System (PhilSys) already been in place. The Philippine Identification System Act was passed in 2017 with the objective "to establish a single national identification system.....to promote seamless delivery of services, to improve efficiency, transparency and targeted delivery of public and social services, to enhance administrative governance, to reduce corruption and curtail bureaucratic red tape, to avert fraudulent transactions and misrepresentations and to strengthen financial inclusion and to promote ease of doing business."[14] To do this, the law asserted the need of a resilient digital system that would secure the data collected and "ensure that the people's right to privacy, confidentiality and other basic rights are at all times upheld."[15] The law also articulates the important role that the private sector has to play in implementing this law. Its' objective of being a "social and economic platform through which all transactions including public and private services can be availed of and shall serve as a link to the attainment of the objectives," would have been useful in the distribution of financial aid during the ECQ.

One of the apprehensions, however, is that the implementation of the National ID or PhilSys might be inconsistent with the Data Privacy Act. The Data Privacy Act of 2012 states that, "(I)t is the policy of the State to protect the fundamental human right of privacy, of communication while ensuring free flow of information to promote innovation and growth. The State recognizes the vital role of information and communications technology in nation-building and its inherent obligation to ensure that personal information in information and communications systems in the government and in the private sector are secured and protected."[16] There are, however, several provisions in the law[17] that allow for collecting data in the case of national emergencies and for health reasons and such should be kept for its purpose only.

A stop gap solution to data privacy concerns and to facilitate the SAP distribution was DSWD's issuance on "Simplified Data Sharing Guidelines on the Provision of DSWD Programs and Services during a National State of Emergency." These guidelines cited Sections 5, 21 and 22 of the Data Privacy Act of 2012 and was rationalized as "an enabling law necessary to not disrupt its operation of providing basic and vital services to indigent Filipinos including payouts of Social Benefit grants (Department of Social Welfare and Development 2020)."

Of course, to be able to implement the PhilSys, there is a need to have the appropriate information technology (IT) infrastructure as articulated in the National Broadband Action Plan (Department of Information and Communications Technology 2017). At the same time, in order to access the database, the Free Internet Access in Public Places Act (RA10929) which has not yet been fully implemented, would be needed.

Governments are always under pressure from the citizenry to fulfill their mandates: to be more transparent in managing and using public resources; to deliver public goods in an efficient and

[14] Republic Act No.11055, Section 2 (August 6, 2018), https://www.senate.gov.ph/republic_acts/ra%2011055.pdf.
[15] Republic Act No.11055, Section 2 (August 6, 2018), https://www.senate.gov.ph/republic_acts/ra%2011055.pdf.
[16] Republic Act No. 10173, Sec. 2 and Sec.13(e) (August 15, 2012), https://www.privacy.gov.ph/wp-content/uploads/DPA-of-2012.pdf.
[17] Republic Act No. 10173, Sec. 13(e) and Sec. 11(a) and 11(e) (August 15, 2012), https://www.privacy.gov.ph/wp-content/uploads/DPA-of-2012.pdf.

equitable manner; to create conducive economic environment for businesses to thrive and grow; and to promote rule of law, fair justice, and social development. These pressures from citizens are critical because it encourages governments to continuously improve. Countries have implemented e-Government initiatives or the use of information and communication technology (ICT) across the public sector to achieve these improvements through organizational change (Estevez, Fillotrani, and Janowski, 2007).

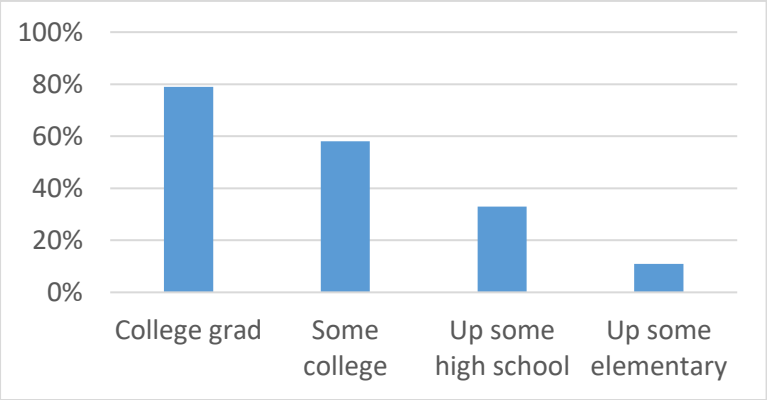
The concept of e-government is not new. The term e-government was coined as early as 1990's, but the use of "IT in government" even started way back in the 1970s (Gronlund and Horan, 2004). In the Philippines, *e-government* has been in existence since early 2000 when the national government developed the Government Information System Plan (GISP) to set the institutional and policy infrastructure for computerization of government operations and activities. The plan harnesses ICT to promote transparency in government. Critical e-government programs and reforms were institutionalized after such as e-Commerce Act (2000) and e- Procurement Act (2003).

Despite its long history, the application of *e-government* solutions has remained incremental in the Philippines. The COVID-19 pandemic response has unfolded the county's long-standing challenges in using ICT in addressing governance and delivery problems. The manual distribution of social amelioration programs (SAP), and the lack of coordination and real-time submission of surveillance data from LGUs to the central office are examples of untapped potentials of ICT to deliver social programs effectively and efficiently. However, the public health crisis provides a silver lining, a window of opportunity to pursue genuine reforms after years of attempt to implement e-*government* solutions.

Many countries, even resource constrained ones, have adopted e-government solutions to improve efficiency. However, a study suggests that in developing countries, 35% were total failures, 50% partially failed, and only 15% were successes (Furuholt & Wahid, 2008). The following sections identify barriers that could delay progress towards realizing the promise of *e-government*.

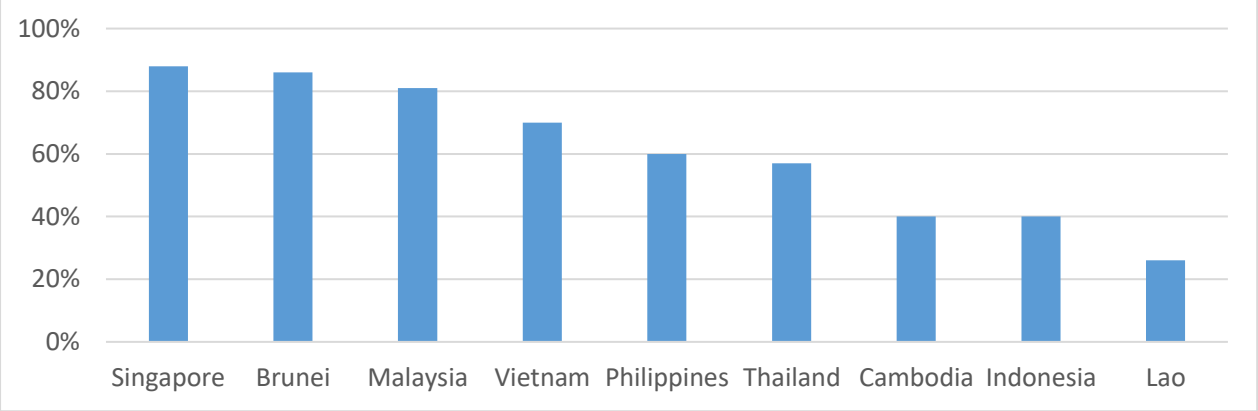
*Digital Divide***.** The ability of the population to use computers and access to internet are necessary in the implementation of *e-government* solutions. Digital divide refers to the gap between socio-demographics that have access to ICT (see Figures 1 and 2). Without addressing the unequal access to internet, *e-government* solution will just lead to social exclusion. Digital divide exists across socio-economic status, age, and countries.

Figure 1. Percentage of adult population using internet, by educational attainment/SES in the Philippines, 2018



Source: Social Weather Stations

Figure 2. Proportion of the population using internet, 2019



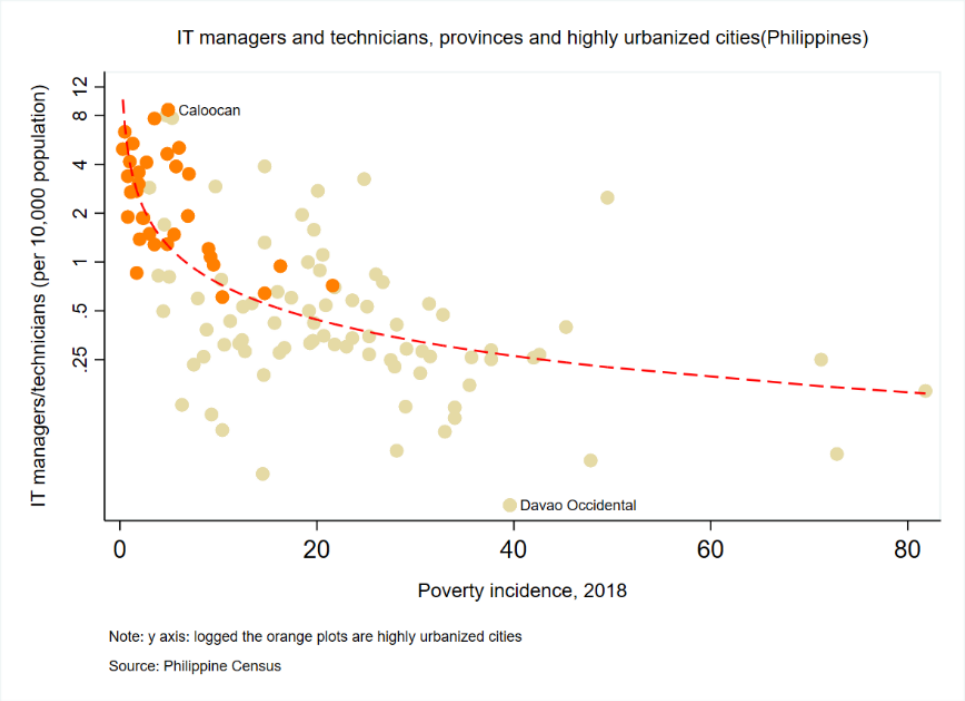
Source: World Bank

*Legal framework***.** The success of e-government implementation is dependent on the presence of proper legal framework, which should address a wide range of issues including electronic data archiving, transmission of information, data protection and privacy, and copyright. Outdated laws and policies, as well as overlapping functions of authorities can hinder the implement of *e-government* initiatives. Complex laws and regulations can also be a barrier to agencies and stakeholders as they increase as the costs for agencies to collaborate.

ICT infrastructure. The inadequacy of ICT infrastructure is one of the main challenges of e-government implementation. Barriers could be classified into the following:

- Lack of technological skills (among leaders, employees, citizens, vulnerable population)
- Lack of qualified IT developers or managers (see Figure 3)
- Lack of interoperability or lack of shared standards and compatible infrastructure across government agencies
- Lack of hardware

Figure 3. IT managers and technician, by province



Source: World Bank

4.3. Coordination

In terms of operational capacity, the fragmentation of administrative structures and often disjointed government efforts present the most significant challenge in service delivery. Though there are many examples of this, the paper shall focus on two areas to limit the scope. The challenges of inter-agency coordination amidst the COVID-19 pandemic were highlighted in a Senate investigation on February 4, 2020 where the Department of Health (DOH) bared difficulties in contact tracing attributed to its inability to secure names of passengers with possible contact with COVID-infected individuals.[18] Legislators noted the seeming lack of communication among the DOH, Civil Aviation Authority of the Philippines and the Civil Aeronautics Board in this case. This is reflective of the apparent lack of clear protocols on not only inter-agency information-sharing but also communication in times of crises. One of the concerns that arose in the Senate investigation is that information-sharing is constrained by the Data Privacy Law. Information-sharing and operational collaboration are very crucial in addressing challenges brought about by rare and unprecedented events and are also clearly an essential element in facilitating innovation among agencies and at the broader systemic level. Even in areas where we succeeded in laying the institutional framework, such as in disaster risk reduction and management (DRRM), the aspects that require substantial strengthening remains to be coordination and cooperation (Domingo and Olaguera, 2017). In relation to this, it was recommended that the institutional assignments and arrangements be reviewed (2017: 8). The importance of leadership that weaves the fragmented systems together requires more attention that it has been receiving. Indeed, Domingo et al (2017) emphasized the need to ensure a visible and proactive leadership of the NDRRMC through the Office of Civil Defense (2017: 8) which is crucial in managing multiple facets of DRRM.

[18] https://www.rappler.com/nation/250957-senate-hearing-reveals-holes-contact-tracing-novel-coronavirus Retrieved May 17, 2020

Another existing problem that surfaced with recent shocks were the lack of alignment/cooperation/coordination between the different levels of government as well as varied governance capacities that affected local government response. Such problems, existent even prior to the Taal Volcano eruption and the COVID-19 pandemic, were already identified as areas for improvement in local governance and national oversight function.

A recent PIDS study (2019) examined the planning-budgeting framework of local governments and mapped it in the national development planning and budgeting framework. It found that despite the mandate of the provincial government having oversight and considering development plans of component cities and municipalities, interviews revealed that such oversight was rarely practiced. The two agencies responsible for the alignment of local development plans to national development plans are the National Economic and Development Authority and the DILG. The NEDA is mandated to review provincial development plans through the Regional Development Council (RDC). On the other hand, under DILG oversight, the provincial government is responsible for ensuring the integration of component city and municipal development plans in the provincial development plan. This important link for the harmonization of municipal/component city plans to the provincial plans was identified as an area of improvement under the supervision of the DILG (Sicat, Adaro, et al. 2020).

The efforts under the ECQ required increased cooperation and strong enforcement of the ECQ guidelines within and across local government boundaries. The Barangay Health Emergency Response Team (BHERT) were the front liners in contact-tracing and monitoring COVID-19 cases and PUIs. Weak governance led to violations of ECQ guidelines such as social distancing and mass gathering resulting the DILG issuing show-cause orders to enforce the principles of the *Bayanihan* Act.

The DILG reiterated throughout the ECQ period that the LGUs have the mandate to declare total lockdown in portions of, or the entire LGU (CNN Philippines 2020). The DILG stated that for areas that were opened up under the GCQ, towns and barangays that wanted to revert to ECQ have the mandate to do so but with concurrence of the regional IATFs (Fonbuena 2020). In the case of provinces, highly urbanized and independent component cities, reverting to ECQ would need the national IATF approval.

Misaligned actions and motives among LGUs and between LGUs and the national government led to disruptions in supply chains and outright refusal of caring for the sick. In Angeles, Pampanga, Mayor Carmelo G. Lazatin, Jr. ordered the closure of the Philippine Rehabilitation Institute Medical Center (PRIMC) after it admitted one COVID-19 patient and three Persons Under Investigation (PUIs) from Quezon City (Malig 2020). According to Mayor Lazatin, the private hospital violated their agreement with the city government to only admit COVID19 patients from Angeles City. The DILG responded by encouraging Mayor Lazatin to allow the reopening of the hospital because its' action of serving the COVID19 patient and PUIs were in line with the spirit of the *Bayanihan* Heal as One Act (Department of the Interior and Local Government 2020).

The *Bayanihan* Heal as One Act RA 11469, Sec. 4.(g) (March 24, 2020) authorized the President to: "Ensure that all LGUs are acting within the letter and spirit of all the rules, regulation and directives issued by the national government pursuant to this Act; are implementing standards of Community Quarantine consistent with what the National Government has laid down for the subject area, while allowing LGUs to continue exercising

their autonomy in matters undefined by the National Government or are within the parameters it has set; and are fully cooperating towards a unified, cohesive and orderly implementation of the national policy to address COVID-19": Provided that all LGUs shall be authorized to utilize more than five percent (5%) of the amount allocated for their calamity fund subject to additional funding and support from the National Government. In addition, the *Bayanihan* Grant for Cities and Municipalities gave an additional one (1) month of IRA for purposes of fighting COVID-19 (Department of Budget and Management 2020).

Through these COVID-19 related expenditures being allowed under the *Bayanihan* Act, DBM guidelines prescribed that "All COVID-19 related PPAs (Programs, projects, activities) to be funded by the LGUs should be part of their respective approved Annual Investment Programs (AIPS)," (Department of Budget and Management 2020). Another recent PIDS' study found that in 2017, only 31% of Local Development Investment Programs (the LDIP is the basis of prioritized PPAs in the AIP) were updated by municipalities that claimed to have such (Sicat, Adaro, et al. 2020). Another governance gap identified by the same study was the insufficient observance of DILG prescribed guidelines in planning and prioritizing investment programming. The hope is that the LGU PPAs that to be implemented in response to the COVID-19 pandemic impact the local economy and citizens the most.

4.4. Feedback/Participation

With regards to political capacity, the participation of people and civil society organizations in all levels of social, economic, and political decision-making is enshrined in its various laws. Embedded in the policy process are established consultation mechanisms in both national and local levels. The country is said to have the largest and most vibrant civil society the Southeast Asia region engaging regularly with government with some notable successes (Turner, 2011). However, it was noted that while civil engagement is highly visible through their strategies and activities, their impact on societal change has been typically incremental (2011: 91). In recent times, society engagement has been empowered by technology and the social media. To enable transformative engagement by civil society, Baleos et al (2017) offers some insights based on their study on government efforts like the ICT-mediated open data program. One is the elimination of the digital divide, ensuring participation of civil society in all stages of the process, and institutionalizing participation that transcends administration changes (Baleos, et al 2017).

4.5. Leadership and Trust

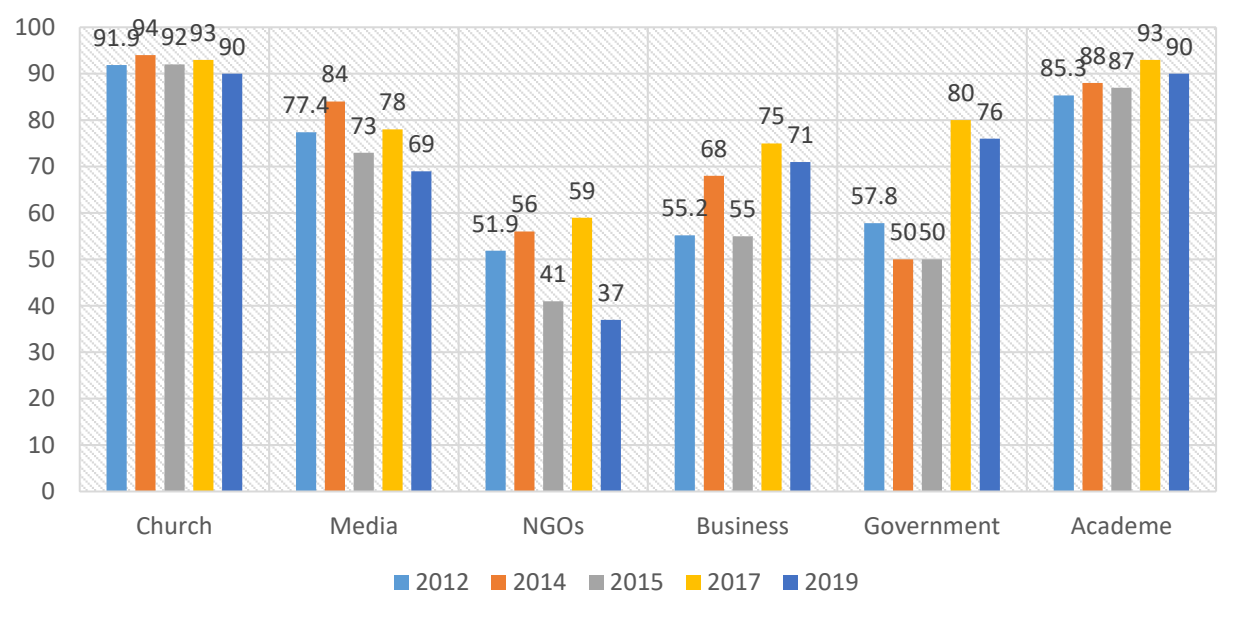
Aside from engaging citizens and other partners, political capacity also encompasses political will. Indeed, one of the key barriers to effective civil service reforms is the lack of political will which is essential in ensuring continuity of reforms and being the source of accountability (Repucci, 2012). The political cost of civil service reform, Repucci noted, is high that is why politicians are less willing to pursue it. To address the lack of political will, she recommended an incremental approach to reform. The other solutions are initiating reforms after a strong electoral victory and strengthening civil society that can put pressure on the government. Aside from lack of political will, the system of patronage that exist often results to vested interests which use the civil service for personal gain. Reforms, therefore, do not gain much support as these are often seen as threats against the ability of interests to gain benefits.

The civil service suffers from an image and reputation issue. Brillantes et al (2016) noted that "civil servants are generally viewed as incompetent, slow, rude and inefficient in rendering public service. They are viewed as influence peddlers and products of political accommodation and therefore do not possess the high degree of excellence, professionalism, intelligence and competence needed to be able to serve the public well" (2016: 174). It was noted that government employees are more concerned about adherence to the rules than achieving results and productivity (Ibid).

Trust is a vital issue in governance. Unfortunately, in the Philippines, a survey on the people's trust in the government and other key institutions (business, media, non-government actors, the Church, and the academe) has shown a declining trust in the aforementioned institutions.[19] Based on 2019 Philippine Trust Index, Filipino's trust in the government went down to 76 percent from 80 percent in 2017 (Figure 4). Though the academe is the most trusted institution at 90 percent, its recent score is also lower than 2017's 93 percent. This is consistent with outcomes of opinion polls in America and Europe – wherein trust in the government has been declining sharply in recent years.[20]

Yet unlike in other countries, trust in the Philippine leadership (i.e. Office of the President) has been improving (i.e. from 82 in 2017 to 83 percent in 2019). This is concurred by survey results conducted by different organizations. At the end of 2019, the President's net satisfaction rating per SWS survey was at a record high of +72 or 'excellent', besting his records in the past. The increasing rating of the President, amidst the declining ratings for other institutions, presents an important opportunity. The exercise of political will from the Office of the President to support and drive reforms is likely to earn people's confidence because of the high popularity it enjoys, a rare window of opportunity for advancing reforms in the civil service and in the government, in general.

Figure 4. Trust index in key institutions, Philippines



Source of basic data: Philippine Trust Index, EON corporation

[19] https://newsinfo.inquirer.net/1163225/filipinos-trust-in-government-5-other-institutions-decline#ixzz6MZMEgK8p
[20] https://www.weforum.org/agenda/2014/06/governments-technology-trust/

4.6. Government Organization

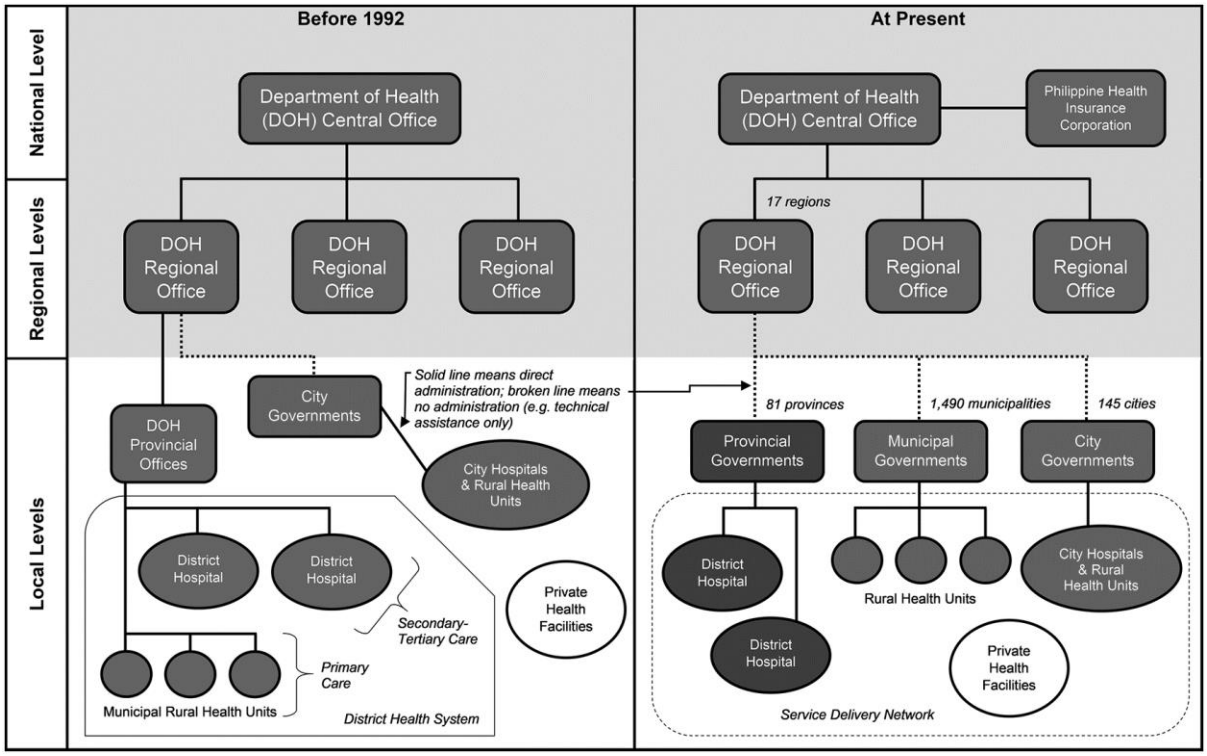
The Republic Act No. 7160 or the 1991 Local Government Code of the Philippines, gave LGUs or the political subdivisions of the State meaningful local autonomy to empower them towrds their fullest development as self-sustaining communities, turning them into more effective partners in the achievement of the national policy agenda.[21] It instituted a system of decentralization supposedly giving LGUs more powers, authority, responsibilities, and resources. This devolution, although beneficial in many aspects, also presented negative consequences and widened regional disparities.

It has been widely flagged, including by the Department of Budget and Management, that despite the augmented powers and resources at the disposal of the LGUs, their financial sustainability has remained in question with most provincial and municipal governments still highly dependent on their IRA and other shares from national revenues. This bears direct implications on the provision of critical services to local constituents particularly in the sectors of public health, agriculture and social welfare. Smart solutions under process, product and communication innovations can provide digital avenues for health consultation, agricultural extension and research, and social protection and monitoring.

Figure 5 presents a simple diagram on how health services were devolved in the country. The solid lines present direct supervision, administration and lines of command, while the broken lines relegate the institutional relationship to mere technical advice. Parallel diagrams are applicable for the agriculture and social welfare systems where local administration has been decentralized.

[21] https://www.lawphil.net/statutes/repacts/ra1991/ra_7160_1991.html. Retrieved May 24, 2020

Figure 5. Devolution of the Philippine basic health system



Source: Liwanag (2018)

A comprehensive review of re-devolution options is also in order, especially with the advent of the Mandanas ruling. On the average, provinces and municipalities are dependent on their shares in the national taxes at 79 percent and 80 percent, respectively, of their operating income, though cities have a lower dependence rate at 46 percent (DBM 2016)[22]. This may be a good opportunity to actualize the vision of the RA 7160 for the LGUs to become resource-sufficient and self-reliant.

5. Governance innovations

5.1. *Institutional innovations and reforms*

> "The institutional environment…the formal rules of the game…that include the executive, legislative, judicial, and bureaucratic functions of government as well as the distribution of powers across different levels of government…are inarguably important to the economic productivity...though cumulative change of a progressive kind is very difficult to orchestrate…(R)are windows of opportunity to effect broad reform from established procedures are thereby opened (with massive discontent, breakdowns or financial crises). Such "defining moments" are nevertheless the exception rather than the rule. Absent such a window, major changes in the rules of the game occur on the order of decades or centuries." -Oliver Williamson, *The New Institutional Economics: Taking Stock, Looking Ahead*

[22] DBM (2016) A meaningful Devolution.https://www.dbm.gov.ph/wp-content/uploads/Executive%20Summary/2016/A2.%20Meaningful%20Devolution%20updated.pdf. Retrieved May 24, 2020

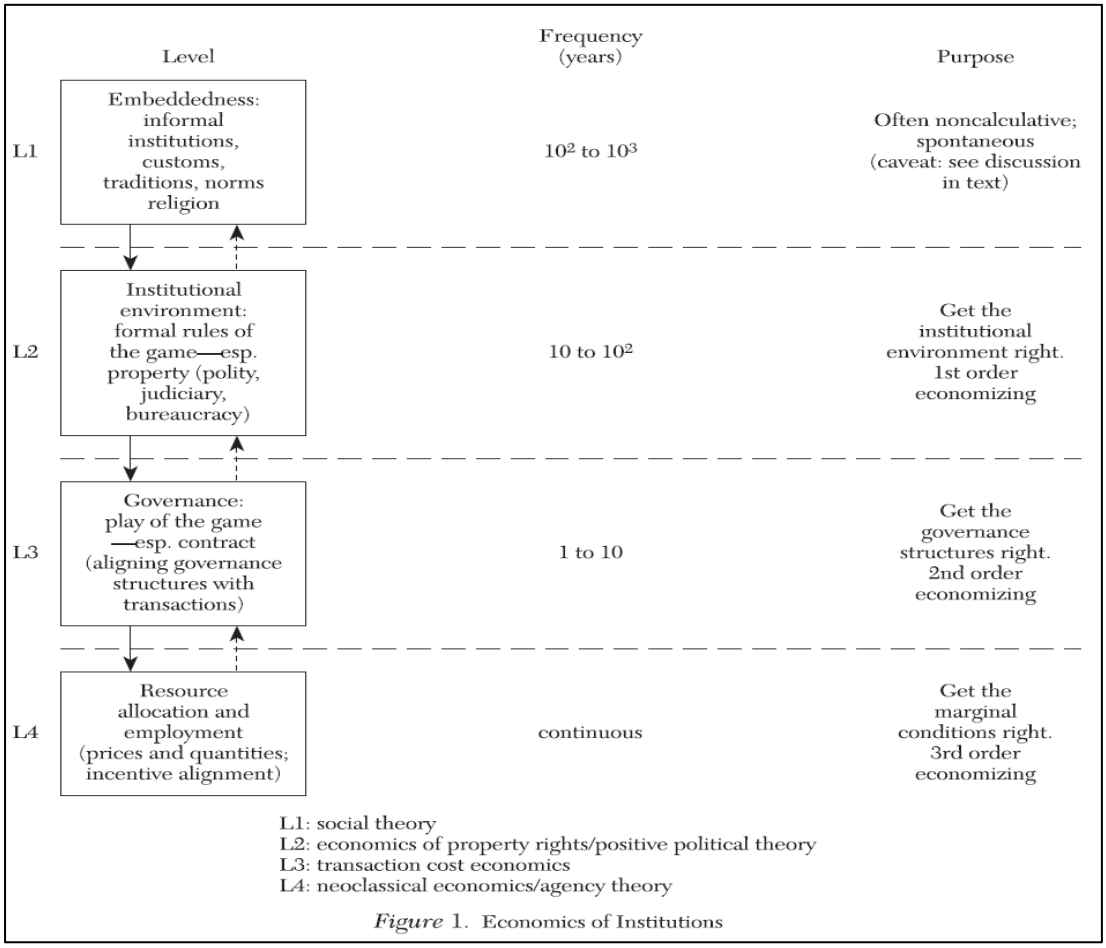
In his Nobel prize lecture, Douglass C. North defined institutions as, "…the rules of the game, the humanly devised constraints that structure human interaction. They are made up of formal constraints (such as rules, laws, constitutions), informal constraints (such as norms of behavior, conventions, self-imposed codes of conduct), and their enforcement characteristics" (North 1994). New institutional economics "incorporates a theory of institutions into economics. It builds on, modifies, and extends neoclassical theory. It retains and builds on the fundamental assumption of scarcity and hence competition – the basis of the choice theoretic approach that underlies microeconomics" (North 1992).

In a survey article, Williamson (2000) presents the Economics of Institutions, showing the relationship between four levels of social analysis (Figure 6). The assertion is that traditional neoclassical economic decision-making, i.e. maximizing profits or utility and/or minimizing costs, happens in the environment defined first by informal institutions (customs, traditions and the norm). The 1st level of informal institutions impacts the 2nd level that defines the institutional landscape, i.e., the formal rules of the game. This level "includes the executive, judicial and bureaucratic functions of government as well as the distribution of powers across different levels of government (federalism)" (Williamson 2000, 598). These first two levels provide the environment for governance or the play of the game in the 3rd level. The main objective in this level is to correctly align governance structures, commonly embodied in a contract, with transactions, knowing that said structures reshape the incentives of agents. That is, ensure that the prescribed governance structure is implemented as envisioned/designed using the institutions. Finally, the last level is where typical neoclassical economic decision-making, such as resource allocation and employment happens.

Figure 6 also presents the perceived frequency (in terms of years) of reforms/changes in these different levels of social analysis. It is expected that the informal institutions in Level 1 are the hardest to reform/change being embedded in that society's culture. Level 2's formal rules of the game are perceived to change more often than the embedded institutions of Level 1 but less frequent than Level 3's governance. The latter is seen to change within a decade while the changes in the former will most likely happen anytime between a decade to a century. Level 4 is perceived to change continuously.

Williamson (2000), however, highlighted that there sometimes are turning points/sudden or drastic shocks to a society (such as revolution or a pandemic) that provide rare windows of opportunities to effect change particularly in established procedures and institutions. This COVID pandemic, which was preceded by the Taal Volcano eruption are two such shocks that should propel reform in formal institutions and the manner by which these are implemented, governance.

Figure 6. Williamson's Economics of institutions



Source: Williamson (2000)

A final word by Williamson (2000) on the surfacing of the importance of organizational innovation, "As compared with technological innovation, the study of organizational innovation has been comparatively neglected. The NIE has attempted to rectify that—the idea being that "truly among man's innovations, the use of organization to accomplish his ends is among both his greatest and his earliest" (Arrow 1971, p. 224)." He asserted that, "Inasmuch as the two work in tandem, we need to find ways to treat technical and organizational innovation in a combined manner" (Williamson 2000, 600). Now, with the COVID19 pandemic, is the time to address the cracks in the system.

There were chief executives that were resourceful and innovative in implementing the ECQ and providing relief goods and other assistance to citizens. Marikina City mayor Marcelino Teodoro strongly pushed for opening a COVID-19 testing center in his jurisdiction even without the DOH accreditation. According to Mayor Teodoro, he could no longer put off mass testing for his residents and took an aggressive strategy of testing, treating and isolating at the earliest stage , and assuring that the hired personnel were qualified as they trained at the Philippine-National Institute of Health (UP-NIH) (Arcangel 2020). Pasig City Mayor Victor Sotto was also proactive in rolling out various initiatives such as contact tracing, disinfection of public places, including all 45 public schools, and cancellation of public events (Vila 2020). Mayor Sotto also launched the "mobile *palengke*" program, to strictly enforce social distancing by reducing the number of people crowding at public marketplaces and to aid those who have no access to viable transport. This effort followed a "*barangay* coding scheme" that was

successful and which the LGU imposed the same scheme to all establishments in the city (Grecia 2020).

Several institutional innovations and reforms done in other countries are noteworthy.

South Korea

For the past four months, there was a rapid spread of the infectious disease caused by a newly discovered/strain of coronavirus around the world. Countries exerted efforts to combat the spread of the virus by planning and implementing various policies. One of the countries that flattened the curved of confirmed COVID-19 cases in their country is South Korea. The number of confirmed cases peaked on February 29, 2020 with 909 recorded cases and was flattened in seven weeks (April 21, 2020) down to nine recorded confirmed cases. South Korea listed four key factors for managing COVID-19 in their country and these are the following: (1) preventive measures against COVID-19; (2) aggressive use of ICT infrastructure & services; (3) ICT software and services to cope with COVID-19; (4) selfless services of volunteers. There was also information provision from the Korean government by having official website on COVID-19 to release all relevant information (The Government of the Republic of Korea 2020).

The country managed to have lower mortality rate (1.4%) s compared to the global mortality rate (4.34%) on COVID-19, despite not imposing a lockdown (McClean 2020). The government of South Korea has four main policies in preventing the spread of COVID-19. The first policy is the complete openness and transparency, wherein there should be a sharing updated information on new infectious through the Korean Center for Disease Control (KCDC). The second policy is for containment and mitigation to identify infected patients immediately and isolating them to interrupt transmission. Third, a policy for triage and treatment system was in place wherein five isolation hospitals take care of 19% of critical and severe cases while patients with moderate cases were handled by a network of public community hospitals and bed spaces created through revamped hotels, gyms and residential centers. And lastly Korea's fourth policy is to promote massive screening and fast tracking of suspect cases through accelerated production of emergency diagnostic kits, with a weekly 430,000 diagnostic capability as combined with drive-through and walk-through test centers (McClean 2020).

The successful response of South Korea in dealing with COVID-19 was due to the reforms implemented after their past experience with the Middle East Respiratory Syndrome (MERS) outbreak in 2015. This experience made their government more prepared in dealing with an outbreak (Kim 2020) wherein South Korea created a central control and command center through the KCDC and seeking good public health by amending the law to empower public health authorities to access the relevant information in dealing with public health crisis (Act on Personal Information Protection). The act has legal basis for allowing Article 23 in cases of emergency situations with flexibility for the purpose of public health, safety, and security (Ko 2020).

Vietnam

Aside from South Korea, Vietnam is also one of the countries that has a successful response to COVID-19 by providing immediate instructions and measures on prevention of visas, entry bans and work permits. The Vietnamese government implemented an entry ban on all foreign nationals, and all overseas Vietnamese and their dependents granted with visa exemption

certificates, through their Notification No. 188/TB-VPCP dated March 21, 2020 (COVID-19 Impact: Entry Ban, Visas, and Work Permits in Vietnam 2020). Vietnam's early response to the pandemic was because of their past experience in dealing with the Severe Acute Respiratory Syndrome (SARS) virus in 2003. As of the 5th day of May, Vietnam has reported only 271 cases with no deaths yet (Samuel 2020).

Singapore

Singapore is also one of the countries that got its coronavirus response right without imposing restrictive lockdown, though, a second wave is currently upon the country. Singapore's number of confirmed cases grew from 266 to over 5,900 in March 17, 2020. At first, Singapore was able to contain the initial wave of COVID-19 cases by instituting quarantines and contact tracing to anyone arriving by air that might been exposed, accompanied by isolation and monitoring.

For the country's second wave of COVID-19, Singapore instituted a "circuit breaker" which is a package of restrictions and new rules, combined with harsh punishments (e.g. six months in jail for breaking social distancing laws), that were designed to control the new wave of cases and allow its country to get the outbreak back under control. There is a likely chance that Singapore will stabilize the situation given their small size, strong government, and well-funded healthcare system. There is not much time to relax, however, since even if local outbreaks were under control, there is still likelihood for a new wave of cases to enter from overseas. The experience of Singapore shows that relaxing too soon can backfire disastrously (Griffiths 2020).

Taiwan

East Asian countries were the first ones to be exposed to the novel corona virus (COVID-19) with initially only a few cases that escalated to large-scale outbreaks. As Wuhan authorities declared the unidentified type of pneumonia, the first response of Taiwan was to immediately activate stricter border control measures which included testing of incoming travelers who had fever and questioning suspected cases on their travel and contact history. According to Chen Chi-mai, the Vice Premier of Taiwan, they were the earliest country to activate epidemic prevention measures against the disease.

On January 11, 2020, Taiwan had their presidential and legislative elections. Right after the election, the government listed the virus as category 5 communicable disease, allowing the government of Taiwan the legal basis to quarantine individuals with symptoms and also fining those doctors who fail to report suspected cases within 24 hours. All these actions by Taiwan were implemented before the number of confirmed cases in Wuhan had reached 50.

Taiwan was one of the countries with an exemplary response to the COVID-19 outbreak and this is because of their experience from the SARS outbreak in 2003. The SARS epidemic infected countries around the world, wherein Taiwan was one of the countries that was affected by the disease with 436 confirmed cases and 73 deaths. From their terrible experience during SARS, Taiwan became stricter regarding public health which led them to establish a public health response mechanism that includes the Central Epidemic Command Center (CECC) (Focus Taiwan CNA English News 2020). Taiwan would not have this success on controlling the spread of COVID-19 without the lesson they learned from the past epidemic, even as their constitutions and legal grounds were challenged through criticisms. One of the efforts of the government was the enactment of the "Provisional Act for Prevention and Relief Measures for Severe Acute Respiratory Syndrome." From their experience, Taiwan made substantial

improvement to the legal mechanism for the prevention and treatment of contagious diseases as shown by the total revision of their Communicable Disease Control Act in 2004.

Last February 25, 2020 the Parliament passed the "Special Act for Prevention, Relief and Revitalization Measures for Severe Pneumonia with Novel Pathogens" (COVID-19 Special Act) with effectivity from January 15, 2020 to June 30, 2021. This COVID-19 Special Act took the effects of and issuance of an emergency decree, something that was absent in several other emergency experiences of Taiwan such as SARS in 2003, the flood in 2009, and earthquakes in 2016 and 2018. It was only now that political will was exercised to pass an emergency decree, as allowed for under the Constitution of the Republic of China (Taiwan) (Lee 2020).

Through their Central Epidemic Command Center (CECC), the coordinating body of all epidemic responses and updates to the public on COVID-19, Taiwan implemented a ban on all exports of surgical masks on the January 24 and, subsequently, on January 29, banned the entry of Chinese nationals from the Province of Hubei. Again, Taiwan was ahead of other countries in this response.

Technology played a main role in the success of Taiwan's government in controlling the spread of the virus by enabling government to track/trace the movements of the cases. One example is that the travel records from their National Immigration Agency (NIA) were integrated with their existing database on National Health Insurance Administration (NHIA), to alert the doctors about their patient's travel history. The system allowed an alert to pop up if the patient has traveled or transited through countries listed in the CECC's warning list in the past 30 days, whenever a doctor scanned the patients' National Health Insurance card (Focus Taiwan CNA English News 2020).

There were no large-scale store closures, travel restrictions, or physical contact bans implemented by the government of Taiwan because of its early deployment of resources and rapid containment of the epidemic. However, Taiwan implemented curfews, stay-at-home orders city shutdown orders that limited normal basic functions. One concern of the people of Taiwan is the protection of privacy over personal information such as their travel/tourism history and action footprints of confirmed cases as part of the government's precautionary measures. It was clarified, however, that personal information linked or integrated by the government will be terminated after the pandemic since digital technology as pandemic prevention tools might violate people's right to information privacy (Lee 2020). Behind the success of Taiwan in preventing epidemics there are some legal issues that needs to be addressed.

In the midst of Taiwan's success in battling COVID-19, they are still facing international issues regarding on the World Health Assembly (WHA). The conflict started from Beijing's preference to exclude Taiwan from being part of the WHA despite the country's success in fighting coronavirus.

We should follow the examples of South Korea, Taiwan and Vietnam with regards to how they learned from the MERS outbreak and SARS epidemic. These countries used their experiences of said epidemics to: (1) build their information systems; (2) allow for complementary laws and guidelines to work around data privacy and trust issues; (3) integrate databases such as immigration and health insurance records for ease of determination of travel history of patients; (4) immediately recognize the threat early on and closing boarders; and, (5) create necessary systems and applications to facilitate contact-tracing and stop the transmission of disease.

From these international examples, the next steps of the Philippines in terms of institutions could be grouped generally across two themes:

- Institution as information:
    - Laws that could have expedited the response of government to COVID-19 were already in place but were not yet fully implemented to the spirit and letter of the law. These are the Philippine Identification System Act (RA 11055) and the Free Internet Access in Public Places Act (RA10929) that would have provided the information needed in identifying target beneficiaries and the means to access such a database in a timely manner. The role of trust is crucial to the success of being able to have a complete, integrated and secure database of all Filipino citizens. This is a behavioral aspect that the national government must be able to communicate, if citizens have not already seen the importance, of being included through a national ID.
    - There were creative solutions such as the DSWD issuances on data-sharing guidelines to go around the Data Privacy Act, there must be concrete attempts to institutionalize these.
    - The *Bangko Sentral* ng *Pilipinas* also highlighted how their goal of financial literacy and information actually contributes to the goal of financial inclusion which would facilitate the distribution of social protection programs to those who need it the most.
    - Countries such as South Korea, Vietnam and Taiwan learned from their experiences with previous pandemics which triggered reforms that would facilitate identifying those who are ill and need assistance at the soonest possible time.
- National and Local government coordination and integration
    - As in the case of information institutions, the laws and mandates were already present in the Local Government Code of 1991, numerous DILG issuances as well as the *Bayanihan* Act and related Inter-Agency Task Force (IATF) On Emerging Infectious Diseases. Unfortunately, they were either not fully implemented or plainly disregarded.

The DILG was able to exert strongly its oversight function of LGUs during the ECQ which could also be maintained in enforcing LGUs to follow mandates in planning and governance.

5.2. *Innovations in the civil service*

Leadership, Continuous learning - The PS21 reform of Singapore

Singapore implemented mixed strategies and processes in its public service reform (Becerra, 2013). The Public Service for the 21st Century program is Singapore's most prominent internal public sector management reform. The strong political will that supports, if not drives, the PS21 is manifested by the official documentation of the reform being an initiative that encompasses the entire public service, its being led by no less that the Office of the Prime Minister and a central Steering Committee composed of the Permanent Secretaries of ministries, and the creation of 4 committees dedicated to work on the four components of the program – 1) staff-well-being; 2)"excellence through continuous enterprise and learning"; 3) organizational review; and 4) quality service. The reform has a two-pronged objective – 1) "to nurture an attitude of service excellence in meeting the needs of the public with high standards of quality, courtesy and responsiveness, and 2) "to foster an environment which induces and welcomes continuous change for greater efficiency and effectiveness by employing modern management

tools and techniques while paying attention to the morale and welfare of public officers" (Cheung, 2003, cited in Becerra, 2013).

From the PS21 perspective, being proactive means continuously expanding capacity with a mindset that change is something continuous instead of discrete and that the environment within which one plans change is too complex and turbulent. It is therefore essential to implement a learning organization approach in managing change and innovation (Pitts and Lei, 1999 as cited in Becerra, 2013). In an organizational learning scheme, public officers were made to adapt to continuous change by allotting not lower than 5 percent of weekly work length to training (Lim, 1997; Common, 2001). A "learning organization has the ability to positively respond to change as its staff are more likely to adapt and experiment as a result of continual training" Pitts and Lei, 1999 as cited in Becerra, 2013: 38). The PS21 deals with "continuous change at all levels of the organization with particular emphasis on the frontline staff or the micro organizational level" (p.38). As one of the areas, staff well-being encompasses "staff welfare, recognition, appreciation, and challenge" (Becerra, 2013:37). It is also important to note the importance of feedback loops in the learning cycle as well as public consultations. As an overall strategy, although PS21 acknowledges the importance of managerialism espoused in the New Public Management, the encompassing vision of the reform must be accompanied with concrete action. Rather, it puts leadership at the "crux of the reform as PS21 is about coordinated vision rather than coordinated action" (Lim, 1996, p. 128-131).

Incentives in recruitment – Zambian experiment

To attract the strongest applicants into government jobs, an experiment was recently done by the Ministry of Health of Zambia in partnership with researchers from Harvard Business School, Harvard Medical School, and London School of Economics. The experiment focused on selection as a strategy and it uses career incentives right at the recruitment process. The proponents noted that it is difficult to design performance-based incentives for people already employed in the public sector because of the difficulty of measuring outcomes attributable to one's performance. They then focused on "using career incentives to recruit the stronger candidates in the first place" (Bandiera and Tobias, n.d.). The Zambian government needed to recruit hundreds of community health workers to serve in rural areas. The experiment separated districts into treatment and control groups where advertisements were used in communicating the differing messages. The incentives that were offered (to the treatment but not the control group) were prospects for promotion to higher-paid jobs within the Health Ministry. Here, the messaging was made more specific for the treatment group– for instance, the successful candidates will access opportunities to become a nurse or doctor. In the control group, the messaging was framed as a more general opportunity to serve the community. The results of the experiment confirm that career incentives can attract better workers, and by attracting more qualified people, they led to better public services and even better outcomes. The community health workers recruited through the career incentive scheme were more effective at their jobs (conducted more visits and meetings) and this led to reduction in malnutrition prevalence relative to control districts.

The argument for using incentive in the first place is to attract workers with 'hidden' traits such as motivation that contributes to better performance. In the experiment, job performance cannot be predicted solely by measurable characteristics such as age or education. Governments in developing countries wanting to attract better quality workers often identify a list of qualifications they think are likely to predict good job performance. The experiment shows that it is wise to implement mechanisms that "allow a greater role for self-selection and encourage the most motivated candidates to apply". The note to policymakers is that to boost performance

of the public sector, there must be greater emphasis on using incentives to attract the right people at the start, rather than just motivating existing people to improve their performance (Bandiera and Tobias, n.d.).

Active role of management – The Nordic pilot survey on public sector innovations
In a pilot survey about public sector innovations in Nordic countries (Denmark, Iceland, Norway, Sweden), the organization and promotion strategies for public sector innovation, among others, were examined.[23] Despite some country variations, the most common strategies entail the involvement of both management and staff in innovation – managers giving high priority in the development of new ideas, top management being active in innovation implementation, and staff time devoted to innovation work. Surprisingly, there is less emphasis on conducting regular evaluation and development of department devoted to innovation, although there is relatively preference for organizing innovation works in projects.

Bottom-up and knowledge-scanning approaches
Studying a wide range of innovation activities in Europe, Arundel et al (2015) found examples of innovation methods that have the characteristics of the abovementioned governance styles. Based on a sample of over 3,000 public sector agencies, they categorized these variations into bottom-up, knowledge-scanning, and policy-dependent innovation methods. They found that bottom-up and knowledge-scanning approaches are associated with positive outcomes. Bottom-up methods have some of the characteristics of organizational entrepreneurship wherein public managers actively invest in programs that facilitate innovative ideas of personnel and middle managers. These programs include provision of incentives for staff, as well as support for experiments and evaluation methods. In the work of Arundel et al., agencies implementing bottom-up innovations are large ones serving possibly bigger jurisdictions.

Knowledge-scanning methods, which have some similarities with lateral innovation, pertain to those that draw ideas from external sources – the users of services provided by the agencies, enterprises, conferences, professional associations, and best practices of other governments. Agencies that conduct such methods also use bottom-up strategies but provide greater emphasis on training, collaboration with external bodies, and collect crucial knowledge from outside the country for their innovation activities. An interesting characteristic of public agencies implementing knowledge-scanning method is that they are from relatively poorer transition countries of the EU. This suggests that organizations in poorer areas tend to imitate the innovations from other countries or areas.

In a study of innovations among public sector organizations in Nordic countries shows that the most common channels by which countries gather new knowledge and forge active cooperation with external partners for their innovation activities are through conferences, seminars and networks, user satisfaction surveys, and evaluations (Bloch, 2011). The channels less commonly used are the Internet and online discussion forum, and the hiring of expert or highly specialized personnel.

Top-down, policy-dependent innovations, Arundel et al noted, arise from political mandates or decisions made by elected officials, new policy priorities, new legislations, changes in budgetary allocations, or the introduction of new services. There is less collaboration with external agencies and information from external sources are not sought. Under this innovation

[23] See Bloch (2011).

method, encouraging staff participation through work groups and training is less likely. The study provides that contextual factors may have influenced top-down methods as those which implemented such strategies composed of smaller organizations based on employment and serve local areas as opposed to bigger ones that serve bigger areas. This suggests lower awareness on innovative methods in smaller, local-based organizations. Arundel et al (2015) concluded that being too dependent on policies as drivers, without considering other strategies like bottom-up and knowledge-scanning methods, is likely to lead to lower effectiveness.

Team construction

To innovate, the government needs people with the right mix of not only skills but also attitudes. The construction of teams is crucial; diversity is important as roles will vary - there will be explorers, deliverers, creative ones, and skeptics (Mulgan, 2014). It is further noted that innovation entails mindsets that are almost contradictory – "on the one hand very creative and open approaches to ideas, and on the other rigorous approaches to evidence" (p.16). The incentive structure, therefore, must be designed to motivate risk taking, and development policies to be implemented must draw in creative people and acclimatize officials to innovations. There may also be a need to create hybrid posts to keep innovative and creative people in the government payroll, though they may not be paid full-time.

Fostering innovative culture in the civil service and among civil servants requires analytical, operational, and political capacities. Arundel et al (2015) noted that for countries with lower amount of resources and a "less developed innovation culture knowledge", the knowledge-scanning method may be more appropriate (2015: 1281). The Philippines is likely to fall in this category. Applying the capacity framework of Wu et al (2015), this method is likely to require strong operational capacities at all levels because of the central role of public managers in creating the environment for innovations to come out from staff and front line workers, in supporting staff training, and in collaborating with other agencies in addressing collective problems. Because knowledge-searching method actively seek for external sources of information and best practices, it also requires a good amount of political capacity at the organizational level. This includes ability for dialogue, being open to feedback, allocating some resources for visiting conferences, and engaging partners and the public, among others.

Without question, analytical capacities in all levels are basic requirements in the innovation processes – that is, the civil service must have adequate technical ability and is equipped with a reliable system for collecting, analyzing and disseminating information. From the Singapore experience, we learned the importance of continuous learning, internal feedback loops, public consultations, constant monitoring, and foremost, visionary bureaucratic leadership and direction that is crucial in inculcating the idea of proactive rather than reactive, responsive and adaptive public service. The Zambian experiment, on the other hand, illustrates that incentives can work from the beginning to attract better quality of workers into the public service. It also shows the importance of clear messaging right from the start, in providing specific requirements and opportunities in public job postings as it can reduce information asymmetry to a large degree. Workers stay longer in jobs and sectors where they fit in, given their skills, qualifications, and aspirations.

At the micro level, building on the analytical capacities is most urgent – the government must implement effective incentive structure that attract and retain people, training programs that suit the needs of organizations, mechanisms for continuous learning and innovation, and environment that fosters adaptation and experimentation. At the broader levels, it must foster intra- and inter-organizational interactions driven by results and performance; and take

concrete steps in building, if not institutionalizing, leadership wherein evidence drives decision-making processes. There is a great need for visionary leaders with strong political will, who can provide much-needed direction and pay great attention to evidence. Successful innovation that improves on efficiency results to reduction of cost which may lead to reduced funding (Bloch, 2011). Therefore, institutionalizing incentives that support and motivate governance innovations is also crucial to counter such impact on the organization's resources.

Building capacities are important but there are vital contextual factors that must be accounted for to sustain efforts. Continuous learning suffers in the presence of high turn-over of workers and leaders, and coordinated visioning is extremely challenging under a fragmented system of administration and political jurisdiction. Having thousands of local governments means that there are thousands of employees requiring continuous training if they can be trained continuously at all because of high turn-over. Efforts must focus on ensuring highly capable employees and public managers are retained and remunerated appropriately. On the overall, capability building is essential, but it would entail substantial resources to ensure there is a decent number of technical personnel, and able public managers in both national and local governments. This would also require educational programs that produce an adequate pool of people from which local governments, in particular, can draw its human resource. This is part of the analytical capacities at the systemic level that must be present.

Strengthening the capacities of the civil service up to a certain level of innovativeness therefore requires:

a) Leaders with some analytical know-how, and adequate operational and political capacities,
b) Adequate number of technical personnel armed with analytical skills,
c) Integrated, updated, and verified information systems for evidence-based decision-making and implementation,
d) Effective inter- and intra-agency collaborations that are results-driven, not mere adhering to policy-mandated procedural requirements
e) Encouraging feedback from all stakeholders and constant search for knowledge sources even from outside the country, and
f) High-level political will for creating the enabling environment for the abovementioned requirements to be realized and actively directing the course of public reform into innovation for effective and efficient public service delivery

5.3. Smart systems

In this section, we discuss smart systems including e-government and the broader smart city/nation initiatives.

5.3.1. E-government

E-government, for it to be successful, should go beyond the mere technical dimension. Rather, it must consider other factors, such as strategy, governance structure, and culture of institutions. Without these, any initiative shall be bound to fail. The use of ICT in the private sector are pretty straightforward. However, its application in the public sector becomes trickier. There is a need to navigate politics, law, national security, and privacy. *E-government* solutions must be complemented with other policy reforms, particularly the amendment of outdated laws related to national security and privacy, and other sectoral policies incompatible with e-

government solutions. Also, the country must overcome the institutional legacies of archaic rules and systems in managing the government bureaucracy, which is typically rigid and passive. *E-government* solutions henceforth should be accompanied by a paradigm shift on how public service should be viewed and managed (see Table 1).

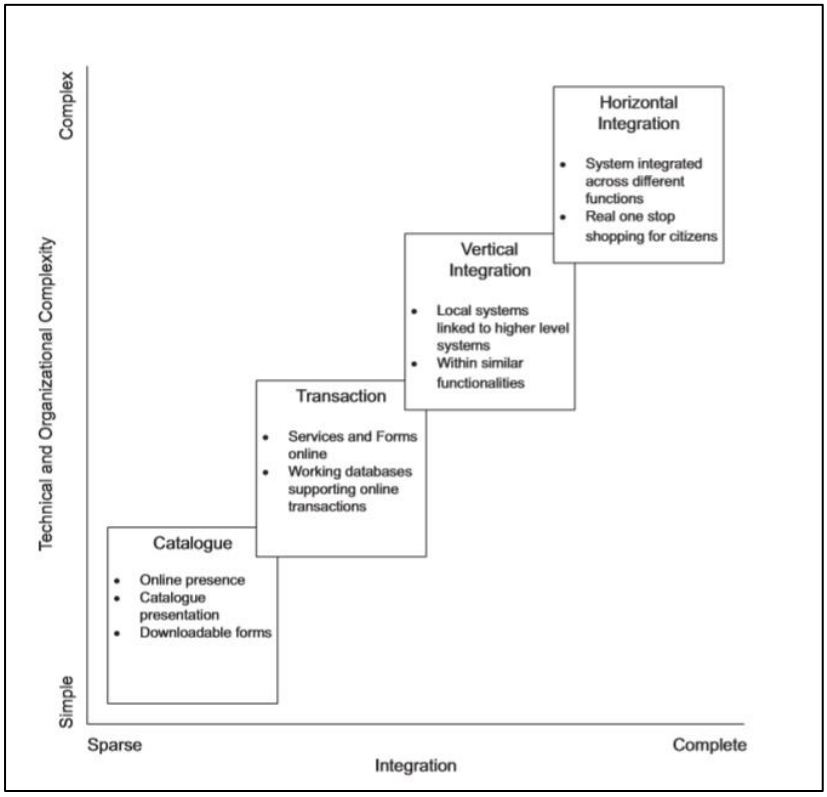
Table 1. Differences between traditional and e-government

Traditional government	E-government
Controlled bureaucratically, authority of hierarchy clearly defined	Client service and community empowerment, unclearly/blurred hierarchy
Process centricity	Customer centricity
Isolated administrative functions and gathering data	Integrated resource service and focus on knowledge
Functional specialization of units or geographic bias	Eliminate unit barrier, integrated government
Decision based on organizational rules and reporting approvals	Negotiable decision and implicit controls and approvals
Administrative functions separately	Integrated resource services
Silo information technologies	Integrated network solutions
Slowly process, time-consuming	Fast streamlined responses

Source: (Meiyanti, Utomo, Sensuse, & Wahyuni, 2018)

Lee & Layne (2001) suggest that the development of e-government follows certain stages (Figure 7). *Cataloguing* (first stage) occurs when the government starts publishing information on the internet. At this stage, technology has yet to have a significant influence in the bureaucracy. *Transaction* (second stage) occurs when there is bidirectional transaction or relationship of the government and other stakeholder (e.g., citizen or business). An example of these include submission of application forms to a government office using online platforms or emails. *Vertical integration* (third stage) occurs when central agencies integrate with local offices with the same function. *Horizontal integration* (last stage) allows the coordination and interaction of offices with different functions in different regions. Such feature will allow one-stop government platform where citizens and businesses can access government services through online platform. Integration of technology is not enough to reach this stage. A wider integration of managerial and organizational structures, and strong political will are likewise required. Governments should aspire for horizontal integration to achieve seamless delivery of public services.

Figure 7. Stages in the development of e-government

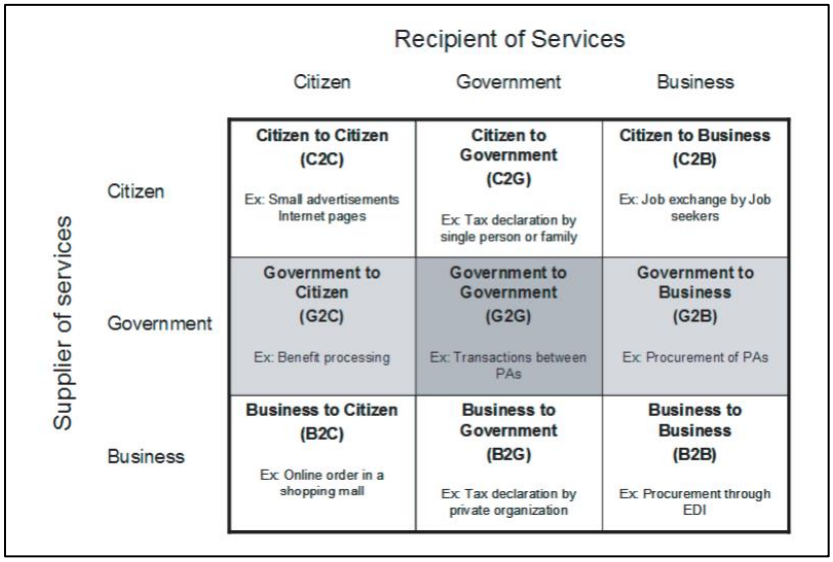


Source: (Layne & Lee, 2001)

The implementation of *e-government* solutions could be best understood by looking at the different interactions of stakeholders (see Figure 8).

- Government to government (G2G): an ICT-enabled activity between government agencies. The goal is to harmonize procedures, and to improve the efficiency and effectiveness of the whole government. G2G is the backbone for other e-government services, such as G2C and G2B. Governments must improve internal systems and protocols to ensure that electronic transactions with citizens and firms are successful. G2G e-government encompasses intra- and inter-agency engagement at the national level, as well as exchanges among subnational levels).
- Government to citizen (G2C): an ICT enabled activity between government and citizens. An example of G2C include benefit or social protection payments.
- Government to citizen (G2B): an ICT enabled activity between government and business. Examples include e-procurement processes of the government (G2B) and tax declaration of private institutions (B2G).

Figure 8. E-governments interactions



Source: (Reallini, 2004)

There are several country models *of e-governments*. However, the Canadian and Estonian experiences are perhaps the most elaborate and successful in providing seamless government services.

The case of Canada (Service Canada)
Service Canada was created in 2005. It provides a single point of access to a full range of federal government services and benefits that Canadians want and need through the internet, by telephone or by mail (e.g., employment insurance claims, passport application, apprentice grants, child benefit claims and application, etc.) Service Canada currently has 600 offices and over 200 mobile outreach service units throughout the country, including rural areas. It has partnered with 16 departments and agencies to access more than 50 programs and services. Over time, it has continued to enhance and introduce more services with the goal to improve service delivery and client satisfaction, including close coordination of with provinces. Service Canada resulted to large cost-saving, by operating efficiently or by introducing systems to avoid fraud and abuses in services and programs. To achieve these cost savings strategies, Service Canada was able to conduct rigorous forecasting, planning, and tracking, and monitoring procedures because of the integrated nature of the IT system.

The case of Estonia (e-Estonia)
Two decades ago, Estonia did not have digital data being collected about their population. Majority of the general population did not have access to internet or access to mobiles phones. Estonian leaders invested heavily in pathbreaking IT solutions, which resulted for Estonians to routinely use ICT in accessing government services, such as e-voting, e-taxes, e-police, e-health care, e-notary, e-banking, e-census, e-school and much more. The country's success relies on smart infrastructure that it made it possible to build such large and interconnected ecosystem. The e-government solutions in Estonia were all built by local Estonian companies.

What were the policy choices made by the Estonian government? The e-government of Estonia was based on the Principles of Estonian Information Policy, which was adopted by the government in 1998. The goal of the policy was to increase the efficiency of government services through digital transformation. To facilitate digital revolution, the country made

critical choices: 1.) creation of mandatory of digital identity (e-ID), and 2.) creation of data management infrastructure. But these choices were only made before there is full coverage of mobile phone network across the country, and ensuring that data exchange are secured.

There are notable innovations carried out in Estonia as part of its response to the COVID crisis. It held a public-private hackathon with a number of digital startups in the country which produced projects such as *Zellos*, a platform that matches volunteers with people needing assistance in the crisis. Another example is *Share the Force*, which helps companies share idle workforces with one another.

Well-designed e-government platforms are crucial in achieving efficiency in the delivery of services. The ICT infrastructure requires shared standards, reliable internet connection, and compatible infrastructure. To fully transition to e-government, what we need is a policy architecture that provide a uniform set of guiding principles and standards. *E-government* solutions must be complemented with other policy reforms, particularly the amendment of outdated laws related to national security and privacy, and other sectoral policies incompatible with e-*government* solutions. Moreover, the problem of digital divide must be addressed squarely. Despite the high Internet penetration, many people in rural areas and in poor households do not have access to computers and the Internet and lack computer literacy. Therefore, efforts to improve service delivery through online platforms are promising but these entail a rather holistic approach of ICT infrastructure development, clear and implementable policy for integration, and improvement of basic and computer literacy of people, especially the marginalized sectors.

5.3.2. Smart city/nation initiative

Beyond e-government, addressing complex and inter-related social issues requires the much broader paradigm of the smart city/nation initiative. Countries and institutions espousing the "smart" way of urban transformation, governance and living have struggled to reach definitive meanings, and set bounds and standards to the supposed ideals they exhibit and represent. The literature is riddled with conceptual frames, and relative examples trying to give clarity to a set of elements that brand the makeup and governance of a smart urbanized community.

The term smart city was first used in the 1990s when emphasis was given to the integration of information and communications technology (ICT) and modern infrastructure in response to the growth of urban centers and the demands and concerns associated with it. The City of Ottawa (2017)[24] referred to smart strategies as proactively using technology as a means to accelerate economic growth, advance the knowledge-based economy, attract investment and business expansion, provide entrepreneurial support, develop local talent, and ensure efficient and effective municipal services through access to services via digital platforms or through the implementation of smart and connected infrastructure. The above characterizations, although appropriate in their respective applications, are largely techno-centric. They dismissed the inclusion of critical cultural and historical urban fabrics that bind a society together, as well as the role of people and their interactions (Barns 2018; Albino, Berardi, and Dangelico 2015). Culture-centered and learning mechanisms and effective industry were also espoused as growth drivers in the big cities in China, Europe, South Korea, Japan, Taiwan, Latin America, and South Africa (Allam and Newman 2018).

[24] https://documents.ottawa.ca/sites/documents/files/smart_city_strategy_en.pdf. Retrieved May 24, 2020

Governments, both at the national and subnational levels, are looking at creating smart cities or applying smart solutions to urban and local dilemmas, not only through the adoption of ICT or technology innovations. They also are dealing with the broader issues of culture and humanity, development management and governance, and sustainability.

This meant that the smart governance term is also applicable in describing activities that invest in emerging technologies along with innovative strategies to achieve more agile and resilient government structures and governance infrastructures (Gil-Garcia, Helbig and Ojo 2014)[25]. In a comprehensive review of related literature, Tomor et al. fittingly defined Smart governance as a sociotechnical approach, which aligns technological potential with novel forms of collaboration between local government and citizens with the aim of tackling urbanization issues based on the principles of sustainability. The main components of smart governance can therefore be framed in the context of governmental organization, citizen and stakeholder participation (and, consequently, government-citizen collaboration), and innovation and technology.[26] Government organization refers to institutional machinations including the bureaucratic structure, decision-making processes, regulatory mechanisms, operational management, and responsiveness. Citizen or stakeholder participation relates to human interactions covering cultural nuances, knowledge sharing and representation, and bottom-up processes. Innovation and technology refer to the array of technologies and novel tools, including ICT infrastructure, that can sustain local growth, address governance issues, and promote connectivity and inclusivity.

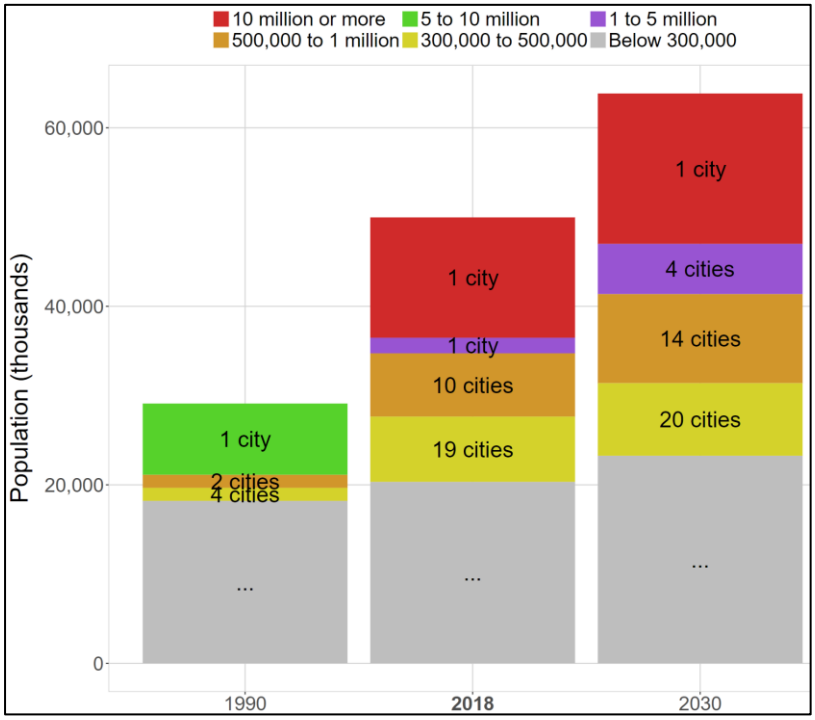
The above framework can be extended when looking at the application of smart solutions to local governance, even among LGUs that are yet to progress from their basic rural state.

The Smart concept has gained even more traction with discussions on risk resiliency, sustainable consumption, connectivity and inclusiveness amid an increasing number of people migrating into the cities, and the fast formation of mega cities and second tier cities in the ASEAN region and the rest of the world. This is particularly true for the Philippines where climate change, natural disaster risks, and most recently the COVID 19 pandemic impact socio-cultural advancement, economic growth and development sustainability.

The world's urban populations are projected to rise substantially, bringing up the demand for process, product, organizational and communication innovations to better provide the requirement for more goods and services. This includes addressing concerns on environmental protection, socio-economic problems and related negative externalities. Similar to global trends, the Philippines' urban populations are growing at a sustained rate in both large and small urban settlements (Figure 9). To provide perspective of urbanization levels in the country, PSA reported that the Philippines had an urban population of 51.7 million in 2015 which meant that around 51.2 percent of the Filipino population lived in urban areas (PSA 2019). In an article of the Philippine Information Agency, they claimed that the country's metropolitan capital is "missing out on the benefits urbanization can bring" due to the combination of its congestion, transportation problems, and disaster hazards (BCDA n.d.).

[25] Gil-Garcia, J. R., Helbig, N., & Ojo, A. (2014). Being smart: Emerging technologies and innovation in the public sector. Government Information Quarterly, 31, I1-I8.
[26] Zsuzsanna Tomor, Albert Meijer, Ank Michels & Stan Geertman (2019) Smart Governance for Sustainable Cities: Findings from a Systematic Literature Review, Journal of Urban Technology, 26:4, 3-27, DOI: 10.1080/10630732.2019.1651178

Figure 9. Urban population growth in the Philippines



Source: (UN 2018)

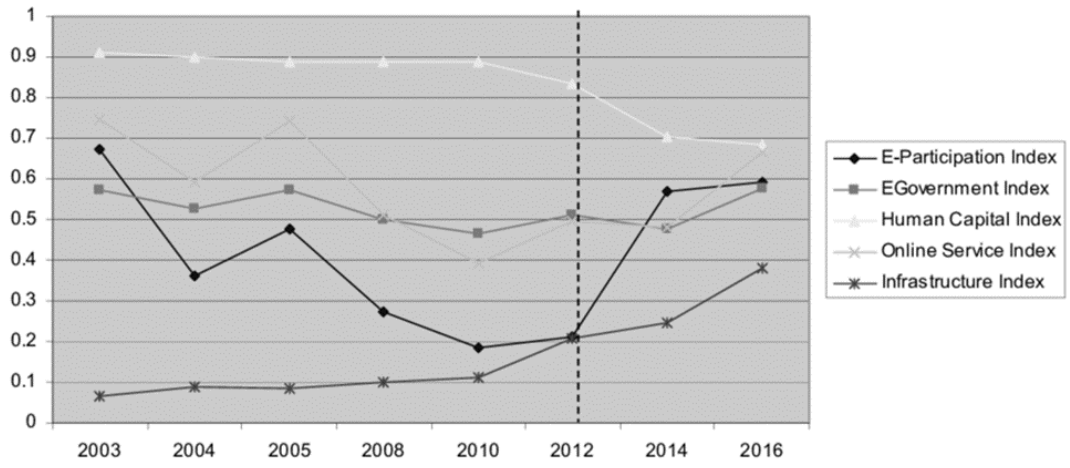
Metro Manila, although already very congested and population-dense, has been experiencing a resurgence in local property markets with the promise of sustained growth and attractive investments. The limited availability of land in the national capital is necessitating product innovations through reclamation projects, and vertical property developments. The Manila Bay area, which has always bordered such developments in the past, has seen a revival with attractive and aptly connected projects showcasing spatial designs and ICT infrastructure catering to the booming services sector. Aside from the familiar Mall of Asia, and the ongoing Aseana City, on queue is the New Manila Bay City of Pearl which is heavily promoted as a self-sufficient international destination for cultural integration and socio-economic activity. Facilities within the said "smart city" include a central business district and a leisure park and golf course, powered by green technology. Product and process innovations also feature facilities for tidal and wave renewable energy production and storm water recycling collection (Talavera 2017). Smart innovations will also be required to mitigate the potential negative impacts of the reclamation project, which may pose a greater threat to the environment and the livelihood of people living in the coastal communities of Mega Manila.

Another example of a smart city design is the New Clark City located in the former military base in the province of Tarlac. It is being positioned as an alternative economic center over the congested Metro Manila with smart, efficient, and climate-resilient features (BCDA n.d.).

Makati City, home of the country's financial district, placed Top 6 among finalists in the Innovative Idea category of the World Smart Cities Awards held in 1999. It was the local government unit from the Philippines to be recognized. The city launched in 2017 the Makatizen App which the city residents can use to request assistance in times of need. The App integrated technology to improve the city's disaster preparedness and communication and has since been receiving a daily average of 400 incident reports (Ong n.d.).

Digital governance indices in the Philippines have also been increasing over recent years, particularly for E-participation, E-government, Online service, and E-infrastructure, with the exception of human capital index. Albeit still with much room for improvement, this is a good indication that the country is moving toward acquiring competency in the adoption e-governance platforms. Human capital investment will have to be augmented if future gains are to be sustained. Figure 10 presents the E government indices from the 2016 UNPAN survey.

Figure 10. UN E-Government Survey Data for the Philippines



Source: (UNPAN 2017)

A good example of the application of ICT infrastructure and innovation can be seen the southern Philippines city of Davao. Davao City has been applying smart organizational, product, process and communication innovations in the field of safety and security by establishing its Public Safety and Security Command Centre (PSSCC). The PSSCC oversees everything related to safety and security, assuming command in times of calamity and cases of public emergency. Its work ranges from giving public advisories on unscrupulous characters to city-wide earthquake and tsunami responses. Modern information technology applications are also enabling Davao City to reach its goal of reducing the crime rate to 10%. The PSSCC uses an array of technological tools, including a city-wide CCTV surveillance system and real-time data mapped out in GIS. Data and information obtained from its Central 911 operations, including emergency calls facilitate the timely deployment of responders. The city's traffic safety and monitoring also benefits as all traffic cameras and signaling systems feed into the command center. The PSSCC is also linked to the Interpol's I-24/7 database through the Philippine Centre on Transnational Crime (PCTC), allowing the City to appropriately appraise and respond to international threats.[27]

The same smart ICT innovations are also being employed by most of the Cities in Metro Manila, through their respective command centers. Barangay-level real-time CCTV monitoring are also in place in most areas of the Metro. Such innovative approach facilitates decision-making, resource mobilization, and response at the local government level.

The National Disaster Risk Reduction Management Council, the country's interagency body that is responsible for ensuring the protection and welfare of the people during disasters or

[27] https://www.clc.gov.sg/docs/default-source/books/book-asean-smart-cities-network.pdf. Retrieved May 24, 2020

emergencies, also operates an Intelligent Operations Center. Located in Camp Aguinaldo, Quezon City, the center is administered by the Office of Civil Defense (OCD) under the Department of National Defense (DND). It connects the 17 regional NDRRMC offices for up-to-date video, audio, data communications feed from the ground.

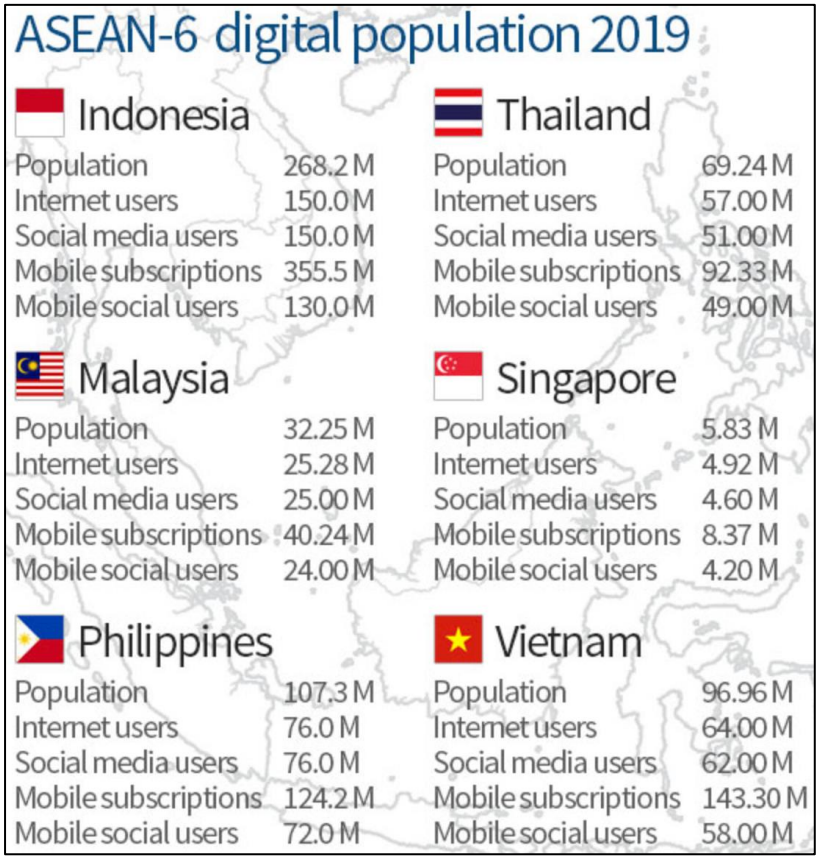
Figure 11. NDRRMC Operations Center[28]

As most Major Departments in the executive branch have their own versions of ICT-based command facilities, the next logical step would be digital sharing and integration. There must be interoperability among the command centers, while taking into consideration security and data privacy issues. Apt process and communication innovations have to be instituted for this.

Southeast Asia, including the Philippines, has been experiencing rapid growth in Internet, digital, social media, and mobile activities. The current landscape seems to be ripe for the smart city platform access-wise: internet penetration was at 65%, social media penetration was at 63%, and mobile connectivity was collectively at: 132%. Such was due primarily to investments in technological infrastructure that support Internet and mobile connections in Southeast Asia. This impressive coverage is expected to be sustained in the coming years, allowing for product and communication innovations for better e-governance, digital platform expansion, online social exchanges, and e-commerce. Figure 12 shows the status of key digital and mobile indicators for the ASEAN economies in 2019.

[28] https://www.interaksyon.com/breaking-news/2018/09/18/134136/the-story-behind-ndrrmcs-intelligent-operations-center/. Retrieved May 24, 2020

Figure 12. Digital platform users among ASEAN[29]



The Department of Information and Communication Technology (DICT) is perfecting the E-Government Masterplan 2022 (EGMP) to harmonize and ensure interoperability among ICT-related resources, programs and projects across the government. It will improve the organizational and inter-governmental coordination, and address personnel and capability issues in utilizing ICTs for more efficient operations, public service delivery, and support business to perform more effectively. It also contributes to the vision of promoting open governance through digital transformation of processes involved in delivering services through an interoperable government ICT network and systems nationwide to achieve one digitized government.[30]

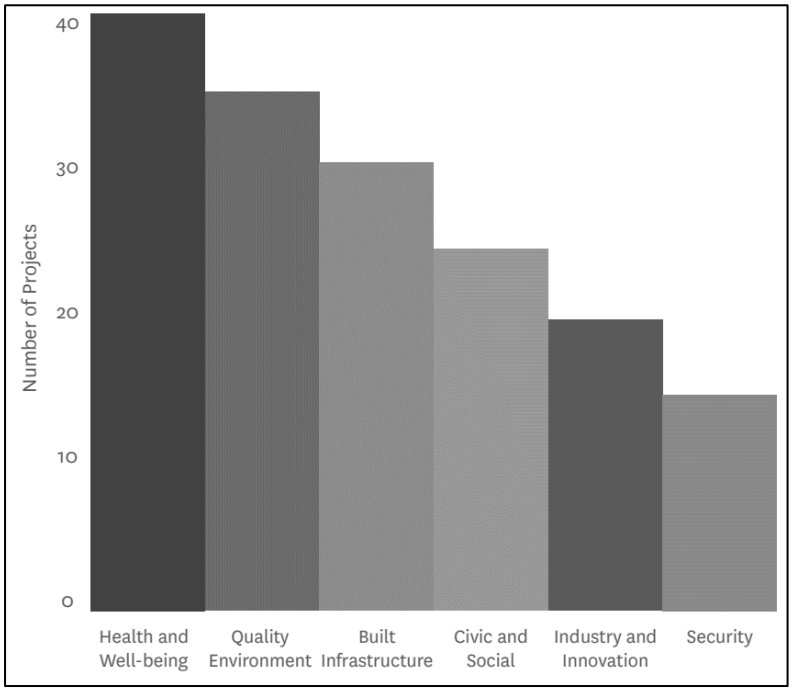
The EGMP is also a product of stakeholder consultations in the areas of participatory e-governance; industry and countryside development; user protection and information security; sustainable ICT environment; resource sharing and capacity building; and improved public links. The same ensures contextual relevance and serves as platform for public interface and direct participation, consistent with smart innovations in process, product and communications for stakeholder participation.[31]

Figure 13 shows that a majority of the smart city projects among ASCN cities are in the health and well-being sector. The problems and requirements presented by the current COVID 19

[29] https://aseanup.com/southeast-asia-digital-social-mobile/. Retrieved May 24, 2020
[30] https://dict.gov.ph/ictstatistics/wp-content/uploads/2019/07/EGMP-Overview_Launch_Vp-03.pdf. Retrieved May 24, 2020
[31] Department of Information and Communications Technology (2019) E-Government Masterplan 2022. https://dict.gov.ph/ictstatistics/wp-content/uploads/2020/03/EGMP-2022.pdf

pandemic portend to increase these health-related investments by so many folds putting strain to the already limited government coffers.

Figure 13. Smart city projects among selected ASEAN cities are highest in number in the health and well-being domain[32]



Singapore's smart governance applications promoted interoperability and efficiency. Harnessing technology to stay ahead as a global city, Singapore early on identified three smart pillars: Digital Government, Digital Economy, and Digital Society. It launched the Smart Nation Initiative in 2014 to bring convenience to improve people's lives, achieve efficiencies and effectiveness for enterprise, and create new economic opportunities in order to drive Singapore's growth and competitiveness. It transformed the city-state through digitalization and innovation within the government and private sectors through six key projects: the National Digital Identity, E-Payments, Smart Nation Sensor Platform, Smart Urban Mobility, Moments of Life, and CODEX (Core Operations, Development Environment and exchange)[33]. The platform also allowed for open, accessible, and interoperable national e-payment infrastructure that facilitate convenience and efficiency for citizens and businesses. The natural progression would be for Singapore to pursue cross-border collaborations and linkages for e-payment systems between the ASEAN nations. This same digital facility also allows for easy relief and cash transfers as part of social protections initiatives against COVID 19.

Singapore's COVID 19 response was premised on built capacity over time. Singapore's experience with the outbreak of the Severe Acute Respiratory Syndrome (SARS) in 2003-2004 served as foundation for the current pandemic response. It led to the strengthening of the healthcare sector to protect from future outbreaks, including building the National Centre for Infectious Diseases and human capital investment. SARS, like the COVID 19, also necessitated thorough contact tracing, and personal data disclosure to prevent or mitigate disease outbreak.

[32] https://www.clc.gov.sg/docs/default-source/books/book-asean-smart-cities-network.pdf. Retrieved May 24, 2020
[33] https://www.clc.gov.sg/docs/default-source/books/book-asean-smart-cities-network.pdf. Retrieved May 24, 2020

The high level of public understanding and buy-in allowed for the application of a mobile phone app (TraceTogether) for contact tracing of networks.[34]

South Korea exhibited resiliency when it quickly bounced back from a slow and compromising start against the COVID 19 pandemic. From being the country with the second highest infection prevalence, South Korea has since implemented measures to effectively control disease transmission, provide care and lessen mortality among the sick, and track potential carriers and people at risk. Using digital governance, ITC infrastructure and public sector participation, South Korea instituted novel IT-based contact tracing protocol using smartphones, credit cards and CCTV footages in mapping locations, timelines, modes of mobility and personal interactions. The government also substantially invested on mass COVID 19 testing and self-quarantine or isolation for potential carriers, shouldering all medical related expenses and providing living allowances and paid leave to those affected.[35]

Other Southeast Asian neighbors have varying successes and failures against the COVID 19 pandemic. Key elements that defined state performance include: decisive leadership and effective orchestration of state powers; evidence-based decision-making against short-term economic and political consideration; transparency and whole of government approach; public trust, cooperation and buy-in; and health system planning and preparedness. Malaysia and Thailand's good investment on their public health systems has kept their mortality low; Vietnam's responsiveness, transparency and effective communication offset its poor health infrastructure; Cambodia's and Indonesia's priority setting has distracted from effective pandemic response.[36]

Smart solutions to the above lapses and success requirements span process, organizational and communication innovations. State governance can be augmented and strengthened through available digital platforms for transparency, effective communication, and government orchestration. Smart lessons can be learned and adopted from the better prepared and equipped states in the region. Such are invaluable when going after development goals and resiliency targets.

Outside Asia, the local government paths to becoming a smart city are diverse. In the case of Manchester, United Kingdom a strong integration between environment protection and digital modernization was required. Its journey towards becoming 'smart' has been greatly influenced by the Mini-Stern Report to the British government in 2006 which estimated that the region's economy would contract if it failed to provide solutions to the ill-effects of climate change. The solutions proposed, included 'green' businesses proving that innovation and new technology can provide both environmental and economic benefits. This shifted Manchester's thrust from purely modernization and economic pursuit to also mitigating climate change and promoting resiliency (Antrobus 2011).
Bogota, Colombia focused on improvements mobility to encourage eco-friendly means of conveyance and ease traffic congestion. Digital platforms were launched to facilitate basic and primary education as well as infuse technological innovations in health services (Gonzalez, Ferro, and Liberona 2020).

[34] https://www.cfr.org/blog/singapore-and-covid-19-strengths-shifts-and-limits-national-response. Retrieved May 24, 2020
[35] https://www.brookings.edu/blog/techtank/2020/04/13/combating-covid-19-lessons-from-south-korea/. Retrieved May 24, 2020
[36] Zachary Abuza (2020) Explaining Successful (and Unsuccessful) COVID-19 Responses in Southeast Asia. The Diplomat. https://thediplomat.com/2020/04/explaining-successful-and-unsuccessful-covid-19-responses-in-southeast-asia/ . Retrieved May 24, 2020

Cities like Amsterdam, Barcelona, and New York saw success in solving urban problems by not solely depending on technology but also by investing on the creation of space for innovation and citizen participation. The worsening consequences of climate change and anthropological disruptions pushed them to become green cities, providing green jobs, and championing green technologies while pursuing modernization (Anand and Navío-Marco 2018).

The above examples present working models in the application of smart city initiatives in the pursuit of local government development objectives, while protecting the environment and promoting resilience, and inviting citizen participation. The same dimensions are also important in the present fight against COVID 19 where workable platforms for people participation and resilience building are desired.

To summarize, the key elements that make up a smart domain are diverse in the literature. The application of smart solutions to local governance in cities and other political domains are very much guided by unique sets of physical and digital infrastructure requirements, and socio-cultural nuances. The key to addressing the COVID 19 threat and other potential risks is long-term planning, proactive infrastructure and human capacity build-up, responsive and focused leadership, and public participation and trust.

It is said that "A city is really smart when investments in human and social capital, together with ICT infrastructures, fuel sustainable growth and enhance the quality of life" (Anthopoulos, Janssen, and Weerakkody 2015). The Singapore experience after SARS point to sustained planning and simultaneous investment for infrastructure and human capacity build up toward mitigation and preparedness against COVID 19 and other risks. Such served them well, both in boosting the economy and in preparing for the succeeding epidemic.

Smarter cities start from developing the human capital side rather than the ICT side (Albino, Berardi, and Dangelico 2015). All Digital governance indices in the Philippines have been increasing with the exception of human capital index. This is positive indication that the country is moving toward acquiring competency in digital platforms, but human capital investment will have to be augmented if future gains are to be sustained. The human side of the COVID 19 response both among political leaders and frontline service providers ultimately define eventual successes and shortfalls.

There are several caveats worth mentioning though. If not defined and framed correctly, the requirements for a smart transformation become arbitrary and, in some cases, too limiting for the same progression to happen particularly in small and less endowed domains (Anand and Navío-Marco 2018; Allam and Newman 2018). It is thus important to set standards and measurement metrics in the application of smart approaches. Concerns on the expanded activities and requirements of a smart city may even overshadow presumed benefits, manifested usually through depletion of resources, waste management failure, environmental degradation, settlement and traffic congestion, social and human health concerns, and infrastructure demand (Allam and Newman 2018; Chourabi et al. 2012). Safeguards against negative externalities must therefore be instituted intra-city and in adjacent towns as successful city transformations may result to non-sustainable consumption and development-related issues, including business losses, labor migration, and cultural erosion in neighboring local economies.

Moving forward, local governments have to muster enough resources and political resolve to address the COVID 19 dilemma and other risks both in the present and immediate future. The

shock of an unexpected pandemic/health emergency relegated us to temporary fixes, resorting to retrofitted facilities, contractual frontline assignments, emergency procurement and relief provisions, and socio-economic arrangements. However, these quick fixes are no longer apt when looking at the medium to long term horizon. There must be a sense of permanence and continuity in building national and sub-national capacity to cope with disaster risks, may they be health related or otherwise. The architecture of smart solutions to local governance must consider necessary political, physical, technological, economic, and socio-cultural demands. Another look at re-devolution possibilities would aid in identifying and grounding applicable organizational innovations.

6. Policy insights

The COVID-19 pandemic has brought immense challenges to a country already overwhelmed with many social problems – many of which relate to the lack of access to basic services. Not having adequate capacity for arresting the spread of the virus through more effective contact-tracing, efficient information systems, and coordinative structures, among others, resulted to the imposition of government actions whose unintentional effects include a likely contraction of the economy and an impending eradication of any recent gain in poverty reduction efforts. Lessons therefore must be learned. The government must substantially improve all its efforts in not only enhancing basic capacities but also in retooling towards an innovative culture for building resilience against future risks and threats. The report discusses four key aspects in which significant development must occur, these are – the civil service or workforce which can both be the driver and implementer of innovation, the institutions that greatly shape how organizations behave, the platforms for delivering services, and local governance that plays a crucial role in delivering much of the basic services on the ground.

In this paper, we learned how strengthening the civil service's multi-dimensional (analytical, operational and political) and multi-level (individual, organizational and systemic) capacities is essential in the exercise of policy mandates and in the development of public sector innovations. First, it is crucial to address the high turnover rate and lack of technically capable people in the civil service. There are problems concerning remuneration, lack of career progression, and lack of progressive working attitudes among the government workforce that must be tackled. Meanwhile, the lessons from an experiment about how career incentives can attract better quality applicants at the start of the recruitment process can easily be adapted, along with efforts for improving the range of opportunities for civil servants. This basic human resource requirement must be there for the government start to foster innovative culture in the civil service. To achieve this, Singapore's experience illustrated the importance of continuous learning in preparing the workforce to manage risks and uncertainty. Europe's experience shows that a developing country, like the Philippines, with less developed innovation culture must implement knowledge-scanning strategies or lateral innovation techniques where effective feedback loop systems and contributions from frontline workers, managers and external knowledge sources are particularly important.

Developing an innovative culture requires an appropriate institutional environment. Following its' exposure to the 2015 MERS, the Korean government undertook institutional reforms wherein it empowered public health authorities to access relevant information to deal with public health crises. Similarly, the country must undertake reforms to build/enhance the needed capabilities of the health system and foster enabling environment for R&D. Another lesson that can be learned from the South Korean experience is to assign certain hospitals to take care of

critical and severe cases and others to care for moderate cases. For the Philippines, the policy must clearly identify these key actors and establish manuals of operations that must be activated in the event of a crisis such as but not limited to the relaxation of policies that constrain government's capacity to address the challenges brought about by a crisis.

The Philippines' own experience in addressing the challenges of the pandemic illustrated the importance of having clear protocols in such dire situations. For instance, the Data Privacy Act can cause some data-sharing issues among government organizations which can hamper efficient inter-organizational coordination in a pandemic situation. Hence, there must be clear understanding how this law is to be implemented in such cases. Outside of crisis situations, the Data Privacy Act is also likely to get in the way of inter-organizational initiatives for learning and improving analytical capacities including the integration of information systems that enables more intelligent use of data in policymaking.

Of course, data-sharing arrangements for emergencies and the success of responses based on such is premised on the presence of data of which the Philippines is still developing through the Philippine Identification System Act. As discussed above, the presence of a National ID would have made it easier to distribute social assistance at the soonest possible time. Information plays a key role in the development of appropriate and responsive policies. Information systems are expensive; the integration of different data and knowledge from various organizations and its accessibility to decisionmakers would not only provide opportunities for shared learning but are also actions that lead to more efficient use of resources. Data integration is one of Taiwan's innovative strategies for combatting the spread of COVID-19 wherein travel records of people were integrated with database of the National Health Insurance Administration (NHIA). This system allowed authorities to easily identify potentially infected people and can immediately act to prevent the spread of the disease. Such open/transparent data systems are also implemented by the South Korean government which established a central control and command center through Korean Center for Disease Control (KCDC).

The viability of integration of information systems, or data sharing arrangements, among government agencies and even among units within government agencies, rests upon the ICT infrastructure which we learned in Section 6 requires shared standards, reliable internet connection, and compatible infrastructure. Well-designed e-government platforms are crucial in achieving efficiency in the delivery of services. To fully transition to e-government, a policy architecture that provides a uniform set of guiding principles and standards is needed. Moreover, the problem of digital divide must be addressed squarely. Despite the high Internet penetration, many people in rural areas and in poor households do not have access to computers and the Internet and lack computer literacy. Therefore, efforts to improve service delivery through online platforms are promising but these entail a rather holistic approach of ICT infrastructure development, clear and implementable policy for integration, and improvement of basic and computer literacy of people, especially the marginalized sectors.

All the above-mentioned requirements for developing capacities of the public sector and corollary aspects towards building resilience entail long-term, proactive planning. This is evident from other countries' experiences in the Smart City framework. The smart approaches heavily rely on investments for infrastructure and human capital that must be simultaneously carried out. All digital governance indices in the Philippines have been increasing with the exception of human capital index. This suggests that the country is moving toward acquiring competency in digital platforms, but human capital investment will have to be significantly

augmented if future gains are to be sustained. The human element in the COVID 19 response, such as political leaders and frontline workers, ultimately define eventual successes and shortfalls. This is consistent with the need to enhance the analytical skills at the systemic level noted earlier.

To succeed in meeting future challenges, proactive approaches must be adapted by the government in various aspects of governance and in all stages of the policy cycle. Proactive planning requires no less than a responsive and focused leadership, a profound understanding of the issues backed by evidence, and active participation of all stakeholders. To understand the problems well, government workers must have adequate analytical capacity, leaders must possess an ounce of technical capability and decent amount of political capacity, and both must have access to knowledge that comes from updated, verified and integrated information systems. They must also be open to feedback and in constant search for any external knowledge that may be useful. Policies must be established or be made clear and implementable to achieve the abovementioned requirements. For this, we need strong high-level political will in all levels of the government to compel separate and fragmented units to operate in harmony, avoiding redundancies, and conflicting policies and actions, toward an innovative culture of policymaking, governance, and service delivery.

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