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SPECIAL COMMENTARIES

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**Korea Institute of
Public Administration**

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Editorial

Seong-Ho Ahn, President

Korea Institute of Public Administration, South Korea

On behalf of the Korea Institute of Public Administration, I am delighted to announce the publication of the inaugural issue of the KIPA Public Policy Review (PPR).

The Public Policy Review is a policy-oriented journal that aims to link research and policy in the field of public administration and governance. It further seeks to make contributions to public policy development and implementation via sharing robust policy research outcomes and best policy practices across the world. It will serve as a premier venue for researches in the area and contribute to the development practices within governance. The published articles are intended to be succinct statements of current issues, research findings, theoretical ideas, or policy recommendations that will be useful in practice.

The epic coronavirus pandemic has as of November 27, 2020 executed more than 1.43 million individuals and contaminated over 60.9 million individuals comprehensively. We have needed to alter and change the manner in which we get things done—calls for innovation and cooperation.

The COVID-19 attacked against democracies as well as public health and economy. South Korea's COVID-19 response has received international accreditations for its democratic approach—being one

of the exemplary cases. Korea's fight against the pandemic has been prominently featured in crisis learning from the past policy failures and experiences. Most of all, the 'respect for life' policy paradigm of Moon Jae-In Administration, based on the 'empathy' lesson from the 2014 sinking of "*Sewol*" Ferry disaster, which took 304 lives away, enabled the government to take a bold principle of inclusive Korea of leaving on one behind. The government has imposed no charge for the diagnoses and treatment of the COVID-19 to Koreans and foreign residents, and provided emergency relief grants to them. This protection of the vulnerable, along with other government's commitments: unwavering transparency considering privacy protection via topnotch digital infrastructure; promoting public-private entrepreneurship by taking proactive administration approaches; stimulating private sector innovations; enhancing central-local governments partnership; discreate regulations with time-limited and minimal restrictions on civil rights; and particularly, promoting active citizenship, enabled Korea to flatten the OCIVD-19 Infection curve.

Through the COVID-19 response process, we have learned that the choices of the top decision markers in each country by and large determine success or failure of policy implementation and practices. In this light, I wish the PPR contributes to create a venue for sharing various policy information including the latest policy experiment findings and lessons which may enlighten both the academics and practitioners in their future policy making and research.

This inaugural issue features seven papers—offering meaningful implications for policy building and practices: 1. Inclusive Governance in the Era of COVID-19: A Search for Community, 2. Designing

New Forms of Governance; 3. Quality of Government (QoG) as Impartiality: Review of the literature on the causes and consequences of QoG; 4. The Future of Policy Tools: Promises and Pitfalls; 5. Measuring the Inclusiveness of Modern States: What We Have and How We Can Improve; 6. Government Innovation and State/Social Resilience Enhancement after Disaster/Crisis: Focusing on Government Innovation Cases in the COVID-19 Response Process; and 7. Exploring the influential factors of citizen satisfaction with smart city services: A resource-based theory perspective.

In closing, I would like to express my gratitude to all the authors who had accepted the invitation to contribute to the first volume. Above all, my special thanks are due to Dr. Hyeon-Suk Lyu, the Editor in Chief of the Public Policy Review, and Dr. Woohyun Shim, Director of the Division of International and Public Relations of the KIPA, for making this publication to happen. Additionally, I would like to extend a great appreciation to the Editors of the Editorial board, Professor M. Jae Moon of the Yonsei University, Dr. Minho Lee, and Dr. Se-Hyun Cho. Lastly, I would like to extend my sincere gratitude to our readers for their interest in our journal. I look forward to a most interesting future for the KIPA PPR.

On behalf of KIPA, I send my best wishes for health and wellbeing to everyone around the world.

KIPA

Inclusive Governance in the Era of COVID-19: A Search for Community

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Abstract

Public sector reform has been a continuing project for governments since their inception. The drive to improve the performance of governments and change governance goals continues to this day. One of the more interesting contemporary efforts at reform is the attempt to understand and create a more inclusive state — a system of governance that will involve larger portions of society in public life and include more of the public in the benefits created by the economic system, as well as deal with the problems of social exclusion and discrimination. The Korea Institute of Public Administration is leading the way in this effort but, like anyone now concerned with governing, the impacts of the COVID-19 pandemic must be considered.

Keywords: COVID-19 pandemic, governance, reform

I. The Pandemic and Governance

The COVID-19 pandemic has led to the physical and social isolation of many, if not most, of the world's population. Individuals have been forced to live in solitude or small family groups; some have even been regarding their fellow citizens with suspicion or hostility. In some cases, the pandemic has heightened political cleavages as well as exacerbated social inequalities. Among the many questions that have arisen from the experience of the pandemic is "how do we govern ourselves?" This question can be addressed both in a general sense and in terms of more inclusive and collaborative governance.

The easier part of this question is the technical aspect. How can governments organize a public health response and an economic response to this pandemic? Some countries such as the United States

have failed abjectly (Yong, 2020), while others have performed well and have been able to ameliorate the problem, albeit not solve it. The infection rates in countries such as South Korea, Canada, and New Zealand have been substantially lower than in other countries; with that, economic dislocations, while still important, have been less dramatic.

If we broadly define "governance" as steering the economy and society toward collective goals, then the pandemic may, in some ways, facilitate governance in the technical sense. Most citizens are willing to follow public guidelines for social distancing and mask-wearing. Governments have had greater latitude than they normally might have had to spend money and create large public deficits — during a crisis, interventions by government are more acceptable, and even welcomed, than they would be in "normal" times.

Although the COVID-19 pandemic is a major health, economic, and governance crisis, it is not exactly an insurmountable problem that it is sometimes portrayed as being. The cause of the problem is clear, and although not all governments have been successful in implementing solutions, the means of mitigating the pandemic are also clear. Public health methods that have been known to governments for over a century can minimize the diffusion of the virus until medications or immunizations are available. Thus, coping with the pandemic in a technical sense is perhaps not a major challenge for governance.

The more difficult governance problem, in fact, is to create governance that is more inclusive in this time of crisis. Over the past several decades, economic and social systems in many parts of the world have become more unequal (Alvaredo et al., 2017); socio-economic cleavages have been exacerbated and some new ones have been created (e.g., from increased migration). The extremely rich have been becoming even more affluent, while the poor have been falling further behind; in many cases, the middle class, which has been the foundation of liberal democracy, has been eroding. Such inequalities extend beyond economics to those present in access to education, healthcare, and political rights.

In addition, members of society appear to be less engaged with one another and groups (Putnam, 2000). The social capital that appears crucial for effective governance has already been eroded, and the pandemic has exacerbated the situation. While the degree of erosion of social capital varies across as well as within countries, the general effect has been creation of societies of atomized individuals rather than more integrated and cohesive ones. Less cohesive societies make the task of governing more difficult, given that the feeling of community among the members may be weaker.

Following this, the governance implications of the COVID-19 pandemic are somewhat contradictory. On the one hand, the pandemic can, in some instances, emphasize the zero-sum nature of allocations within the government. Some people will receive a ventilator, and some will not; some in essential occupations are put in harm's way on a daily basis, while others are told to stay safe at home.

[1]The pandemic, as is true for most major events affecting governance, will create winners and losers, and the media attention given to these allocations in a time of crisis will emphasize the differences to the public.

On the other hand, however, the pandemic may help create a stronger sense of community among citizens. The sense that somehow we are all in this crisis together can help overcome differences based on class, race, immigrant status, and all the other cleavages that divide societies. This potential for greater social bonding is important, given the increased inequality and declining levels of social capital mentioned previously. The pandemic may be able to generate, if indirectly, more public concern about the existing nature of society, the inequities that exist within that society, and can prepare the way for change.

II. Moving to the Inclusive State and Society

The question then becomes the extent to which the pandemic and its associated social upheaval can be a means of facilitating movement toward more inclusive societies, economies, and polities. The first stage in any policymaking process is getting an item on the agenda — the general policy agenda of society and the more specific ones of an institution. To create a more inclusive style of governance, the pandemic can be a "focusing event" (Birkland &

DeYoung, 2013) that centers public attention on the disparities and exclusions that exist within society and the possible alternative forms of governance, including a more inclusive political and economic system (Peters, 2020).

1. Opportunities

The COVID-19 pandemic may present opportunities for creating more inclusive governance. It has upset "business as usual" in governance and most other aspects of life. Citizens have been forced to accept, albeit not always willingly, major changes in their lives. The analogy to war-time governance has been made several times, although generally more rhetorically than as a genuine description of contemporary governing. However, if that analogy can be used, even rhetorically, then the opportunities for significant socio-economic changes may increase.

The pandemic has also provided governments with the opportunity to prove their capacity for governance. I have already discussed the marked variations in performance among governments. If governments can demonstrate that they are capable of governing effectively and dealing with a major crisis, they are more likely to be given latitude to address even more difficult problems such as creating a more inclusive society and polity. Some evidence (Hibbing & Theiss-Morse, 2002) indicates that citizens may be as much or more concerned about the performance of government as about the democratic procedures through which decisions are made.

Finally, the social disruption resulting from the pandemic may create a longing for greater

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1   Many of the allocations made in these circumstances can be understood as "tragic choices," in which one or a few person(s) may be put in extreme danger while others benefit. See Calabrese and Bobbitt (1976).

social involvement and, consequently, perhaps greater inclusiveness. I have already noted that the pandemic can create the perception of zero-sum games in the economy and, perhaps, polity; however, at the same time, it has made many people aware of the extent to which society has become atomized and even less inclusive than in the past. While it may be impossible to return to the Arcadian days of cohesive and well-integrated societies, the pandemic has made the loss of those values more apparent.

2. Challenges

For governments that wish to create more inclusive forms of governance, the pandemic presents some serious challenges as well as opportunities. Whenever there are attempts to create greater inclusion or greater equality, those who have more — income, power, influence, respect, or other values that are potentially being redistributed — tend to resist and want to retain what they already have. However, greater inclusiveness in the economy does not need to mean total leveling of differences; it should mean reducing the disparities that do exist and threaten more political unrest. Moreover, making these redistributions of economic, political, and social resources in a time of crisis may be especially challenging.

The COVID-19 pandemic has made the underlying inequalities within countries and across countries more readily apparent. While the virus has claimed more lives from the elderly population, the death rate among the less affluent and minority groups as well as in rural areas has also been high. Even among younger people, the death rates of the minorities and less

affluent have been higher. This has been true, in part, because of a higher percentage of minority group members being in frontline occupations, working continuously during the ongoing crisis — for example, transportation workers and hospital orderlies. Governments, therefore, face the challenge of rectifying these inequalities in service and opportunities across society.

In addition to making differences in levels of inequality more evident, the pandemic has raised political tensions in some settings, making governance more difficult. The United States is the most obvious example of this effect of the virus (Gollust et al., 2020), but it has also appeared in other settings. Thus, the pandemic has, to some extent, divided countries more than it has brought them together. Politics and economics have, in many instances, become zero-sum games in which benefits for one group may mean losses for another. There is certainly evidence of altruistic actions by individuals and groups in society, but there has also been a good deal of conflictual behavior.

3. Governing Inclusively

One way of addressing the need for greater inclusiveness is to create a sense of common threats and challenges. The pandemic itself is a common challenge; however, in the midst of that challenge, even more existential challenges have been largely forgotten or, at least, shoved to the sideline. The most obvious of these challenges is climate change, but others such as global food security must also be considered. The immediacy of threat from the COVID-19 pandemic has been able to motivate actions in a way the more remote, yet still very real, threats

of climate change have not.

Improving the inclusiveness of governance is, as explained in the previous paragraph, often discussed in terms of formal structures and the impact of specific public policies on society. The experience of the pandemic, however, points to the importance of considering a somewhat softer conception of changes in governance. Although the pandemic has made the need for greater economic equality and greater equality in access to public services more apparent, it has also highlighted the need for greater community. Formal rules and institutions are important, but so are social norms and informal structures (Pierre et al., 2020).

The pandemic has demonstrated how powerful yet weak the formal institutions of governments can be. On the one hand, governments have been able to shut down the economies of their country and force citizens to remain in their homes for weeks at a time. These governments have been successful in restricting travel into and out of their countries, slowing international travel to a crawl. At the same time, however, such Draconian interventions by the government have been most successful when supported by the public and when they were made with some consultation with the public.

We must also remember that as important as the pandemic is in shaping contemporary governance, other political movements and trends are occurring at the same time. Before the pandemic, populism would have been considered perhaps the major factor shaping politics around the work. Populism, in some senses, argues for a more inclusive state, although some more exclusionary forms

of populism define those who will be the beneficiaries of changes in governance in very narrow, nativist terms (Filc, 2010). Likewise, the Black Lives Matter movement and analogous protests in other countries are shaping the agenda for public governance in new and challenging ways, and although directed at creating more inclusive societies, the backlash against these movements has also made social differences more rigid in some circumstances.

The demands of governance during the pandemic have put some of the classic questions about governing back under the spotlight. One of these has been the choice between centralized and decentralized forms of governance. Some federal systems such as the United States and Brazil have performed terribly during the crisis, while others such as Germany and Canada have performed well. However, some more centralized countries such as the United Kingdom have performed poorly,[2] while others such as Norway and South Korea have performed well. It appears that factors other than the constitutional structure are important for explaining the performance levels. Equally fundamental factors such as leadership and the quality of public service appear, at least, as relevant in explaining success and failure.

III. Conclusion

The Korea Institute of Public Administration is now involved in a major project studying the options for, and implications of, a more inclusive

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2 That said, the devolved health service in Scotland has performed substantially better than that in England and Wales.

state. This effort to link knowledge about governance with active reform represents an important contribution to improving governance as well as society. This effort at thinking about reform began prior to the onset of the COVID-19 pandemic and, like almost everything else in contemporary societies, is influenced by it.

This paper is an attempt to illuminate the opportunities and challenges that the pandemic presents for would-be reformers in the public sector. While the pandemic represents a major challenge for any government, it can also be used to open the agenda for change and to demonstrate the need for more inclusive forms of governance. Raising awareness of inequality and exclusion that exist in contemporary societies, and also governance practices is necessary, but it is only the first step in what will be a long path toward creating more inclusive governance. The inclusive state and the inclusive governance may be ideal type constructs that will never be fully achieved, but we can assess the extent to which reforms have moved us in that direction.

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Designing New Forms of Governance

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Abstract[1]

No institution in the world today is more dangerously obsolete than are all systems of governance. Even those recently created are based on cosmologies and technologies three hundred years old. While there are many people proposing ways in which current governments could be reformed, none I know of challenge us to go back to basics and start all over again, fundamentally reconsidering what "governance" means in the Anthropocene Epoch. This article is based on forty years of researching and teaching ideas about new governance design. I propose we proceed in twelve steps: 1. Determine the unit of analysis. 2. Consider the features of the future that need governing. 3. Base the design on cutting-edge cosmologies and technologies. 4. Identify the guiding values and goals of society. 5. Establish the specific functions that governance must perform. 6. Define the goals identified in step 3 operationally, so they can be made actionable by the design. 7. Consider various ways governance design might be focused so as to shape or deflect behavior. 8. Select which of these modes are to be the basis of this design. 9. Look for substantive issues that the focus on structure and behavior may have missed and deal with them; 10. Identify and integrate basic features of the economy into the governance design. 11. Broaden the scope beyond issues of government and economy to include all social institutions that need to be considered in governance design — culture, family, education, media, etc. 12. Test, redesign, implement, evaluate, and start all over again, without end.

Keywords: Governance design, government reform

I. Governance

All forms of governance in the world are based on cosmologies and

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technologies about three hundred years old. No contemporary institution is as obsolete as are all modern governments. Not a single government anywhere in the world—certainly not the United States—is *democratic* by any honest definition of the term (Dahl, 2001; Goldstein, 2019; Lazare, 1996; Older, 2019).

Some governments function better than others—or at least still have the trust of most of the people most of the time. Others have no trust from most of the people any of the time. As John Gastil (2000) puts it, "there are two fundamental problems in American politics. The first is that most Americans do not believe that elected officials represent their interests. The second is that they are correct" (p. 1; see Lerman, 2019).

1. Steps in New Governance Design:

To the extent political science intends to be a *science*, it focuses on the operation of existing governments. It is marginally concerned with what that operation was, a bit about what it will (or could) be in the near future, but seldom concerned in any fundamental way with what governance structures and operation *should be* in contrast to what they currently are. While there are mountains of material devoted to modifying existing forms of governance, there is most nothing written about the process of new governance design.

Abstract debates about democratic ideals are of limited value when conducted apart from serious efforts at institutional design, and from serious attention to the varying contexts in which democracy must be realized if it is to be realized at all. Few things are easier than celebrating rule by the deliberate sense of the people, and few things are harder than designing institutions to bring this about in practice. (Shapiro & Macedo, 2000, p. 15)

So I will now turn to the task of explaining, briefly and thus very incompletely, some of the major features of governance design as I have learned them over many years of researching and teaching governance design classes and modules.

The word *govern* comes from the Greek word for *steersman*—the person who pilots a vessel to a destination. Governance encompasses the processes by which members of a community:

- set and reconsider goals (some might prefer to say, "basic values") for the community and its components;
- determine the areas of life for which goals need to be set;
- determine the behavior that enables members of the community to act so as to achieve those goals;
- design, implement and reconsider structures, processes, and roles that enable the appropriate behavior and discourage inappropriate behavior;
- reconsider and re-set the goals.

Note that there is a meta-problem here which is how to determine the process by which determining the governance system is determined! This is the question of legitimacy and operation of what is often called the *constitutional convention*. Eisenstadt et al. (2015) say,

We conclude that constitutional reformers should focus more on generating public

'buy in' at the front end of the constitution-making process, rather than concentrating on ratification and referendums at the 'back end' that are unlikely to correct for an 'original sin' of limited citizen deliberation during drafting (p. 1; see Lum, 2009, 2016).

The steps outlined here are intended to guide small, informal, perhaps academic groups that are just beginning to think seriously about new forms of governance that they hope will spark more and eventually formal discussions.

Step one

The First task is to determine what is called "The Unit of Analysis". The unit of analysis for all current governance is the old European sovereign nation-state system. But the sovereign nation-state system was created several hundred years ago to solve a political problem in Europe. It is an unnatural, awkward invention that causes a great deal of harm, internally and externally. It does not naturally fit many communities now. China does not consider itself to be merely one nation among others. The fundamental unit for Islam is the *Ummah* (أمة) — the community of believers worldwide. Both China and Islam have learned how to fit into the old European system for a while, but many people, such as myself, feel that my loyalties and identities are both to more local communities (Honolulu) and globally to the Earth and all life on it, and not to *the United States of America*. Every time I must pass through border control I feel demeaned and insulted by agents of the US government as well as by all others. Why not consider something other than the nation-state as the basis of governance design? Why

not make the Unit of Analysis — the individual person, family, identity group (ethnic, religious, linguistic, occupational, virtual, or other), local physical community, bioregion, globe, inner solar system, solar system, Milky Way Galaxy, and intergalactic cosmos?; Or why not smaller — DNA, cells, microbes, and viruses who rule inside each of us?; Or smaller still — molecules, atoms, and quarks?

Step two

The second step is to determine the main features of the future for which the governance design must function. Unfortunately — even though any form of governance must fit the future in which it is intended to operate — this crucial step cannot be discussed here because of limitations of space. But you should not skip it, or you will design your governance for the past.

Step three

The designs for new governance during the 18th Century were all based on western cosmologies and technologies of the time. The United States has been called "the First New Nation" (Lipset, 1967) — the first nation that did not emerge organically from the mists of myth and deep history — but rather was purposely created on a *new* and *empty* continent by learned men of reason who adapted the lessons of ancient and modern political philosophers to the task of creating a form of governance that had never existed before in a place where no single, overarching government had ever existed before. To be sure, governance systems of numerous tribes and nations of the indigenous people existed, and

while there were confederations among them, there was no governance over all of the original English colonies that intended to become a single United States of America. Moreover, each of the colonies was themselves separate living examples of governance from which the Founding Fathers could and did learn. Common people spontaneously governed themselves locally with no conscious adherence to any school of political philosophy (Breen, 2019). The first attempt at continental design, the *Articles of Confederation,* had been a failure, and a new Constitutional Convention was called to correct its deficiencies (History.com, 2009).

For the people directly involved in writing the Constitution in 1787, the dominant cosmologies of the time derived from Roman Catholic, then Protestant, and then specifically Evangelical Christianity, as well as certain rediscovered books and ideas of ancient Greek and Roman philosophers that inspired the Enlightenment in general and such political thinkers (all white males) as John Locke, Jean-Jacques Rousseau, David Hume, Montesquieu, Thomas Hobbes, Jean Bodin, and Immanuel Kant. They were all especially influenced by the mechanistic physics of Isaac Newton—and a related form of mechanistic Christianity called "Deism" that happened to be especially popular for a short time while the Constitution was being written and ratified.

The communication technologies used to design governance were speech, handwriting, and the printing press. However, while Gutenberg invented his press in 1440, all printing presses were hand-operated until the first steam-driven press was operational in 1814—after the US Constitution was written. The most truly *cutting edge* technology for governance at the exact time the US Constitution was written was the guillotine. The *design* of governance, especially in America, took the form of a handwritten *Constitution*— the physical manifestation of Newtonian mechanics married to governance—that soon morphed into *Constitutionalism* that has been the cosmological basis of all subsequent governmental designs (Foley, 1990; Kammen, 1986; Landau, 1961; Robinson, 1957; Schubert, 1983; Wheeler, 1975).

The main political, philosophical, and structural justification of the US Constitution is *The Federalist Papers* (Hamilton et al., 2015). It is still considered by many political scientists to be the greatest—perhaps only—work of American political philosophy (see Ketcham, 2003).

The US Constitution was in many ways a masterpiece of conscious governance design. The writers were faced with many conflicts and controversies for which they had to come up with specific and often novel design solutions— as an engineer does in constructing a bridge, designing a spaceship, or determining traffic flows (Dator, 2006). Examples are federalism, the separation of powers, the presidency, and the Electoral College as the way of choosing the president and vice president, how to count slaves for purposes of representation and taxation—the so-called 3/5 compromise that proclaimed that one slave would count as 3/5 of a freeman—and many more. Nonetheless, some of the original solutions became serious

problems, while many features that should now be part of governance were simply unimaginable at the time when America was a tiny, decentralized, agricultural society, about to evolve into a vast, continent-expanding industrial power within sixty years.

Given the western Newtonian cosmological and technological bias of all governments now, I strongly urge that *the cosmologies of nonwestern cultures, knowledge gained over the 19th, 20th and early 21st Centuries, and cutting edge technologies* be used as the foundation for the design and operation of any new form of governance. Probably the five most important intellectual developments to be considered — in stark contrast to Newtonian mechanics that still prevails in both governance and economics — are Darwinism, quantum physics, psychology and psychiatry, genetic and synthetic biology, and neuroscience.

Governance based on any or all of those areas of knowledge would, I feel sure, be structured and function quite differently — and better — than do our current forms still based on Newton alone.

Cultural traditions everywhere in the world, once dominant but marginalized by western thought and actions, should also be re-considered and used as the basis of new governance designs now as well — Islam, Confucianism, Taoism, Buddhism, Hinduism, and the rest. Living in Hawaii I have also learned that the cosmologies of indigenous cultures and peoples have been re-invigorated as bases of new forms of governance, not necessarily exactly as they were at some point in the past but rather how they might be now had

they been able to evolve if westerners had not endeavored to erase them.

One of the most exciting recent resurgences, brought vividly to public consciousness worldwide now by the Black Lives Matter movement, reveals the racism deeply embedded in all current systems of governance.

Step four

But now we have arrived at the fourth step in new governance design: Determine the minimally essential community values or goals required by that future that need to be enabled (or, if negative, prevented) by your governance design.

Different cultures may emphasize or ignore different values, so this step needs to be taken carefully. An example of a *value* or *goal* might be *Freedom*, perhaps expressed by the statement, "People must be free." A different value might be *Harmony*, expressed by the statement, "Everyone should live in harmony with everyone else." Another value might be *Good health*. Another value might be *Equality*. Another might be *Cleanliness*. And so on. More will be said about values/goals in Step.

Step five

When engaging in governance design, do not think in terms of conventional political science categories such as executive, legislative, judicial, or law and administration, or political parties and interest groups, and the like. Instead, think of generic functions. Ask, "What things need to be done" in/for your community to reach its goals that should be part of your governance design. Examples of generic

functions include:

- deciding the values/behavior (i.e., policies) for the community;
- carrying out those policy-decisions (seeing that the preferred behavior results);
- assuring that the consequences of policies are as intended;
- determining what should be done if they are not;
- preventing/minimizing/resolving interpersonal/organizational conflicts;
- preventing/minimizing/resolving issues between unaugmented humans, cyborg-genetically modified humans, cyborgs, intelligent robots, and pure artificial intelligences;
- caring for the young, the old, sick, and [what other categories?];
- creating and caring for the 'natural' and the 'built' environment;
- socializing the young and newcomers into community norms and goals;
- facilitating access to basic and advanced education, knowledge, wisdom;
- requiring/permitting/forbidding religious beliefs and activities;
- punishing/correcting/tolerating/enjoying/ being deviants;
- creating and disseminating (and/or withholding and censoring) ideas, data, information;
- engaging in research on the futures of the community;
- creating and disseminating recreational, entertainment and/or sports facilities/ activities;
- producing and distributing food, goods,

and services;
- providing/maintaining private and communal habitats, energy, communication and transportation systems, pure water, clean air, and waste disposal;
- safeguarding the community from internal and external dangers; including
- preventing or mitigating disasters, pandemics and similar emergencies;
- relating the community to other communities;
- interpreting the meaning/intent of the governance design;
- modifying/discarding the design and starting all over; and more.

Step six

Values and goals defined by words are vague, unclear, confusing, and fundamentally meaningless. So after the basic values and goals underlying the design are determined, it is necessary to determine what those values mean in terms of actual behavior. The values need to be *operationalized*: What do these values mean in terms of how people should or should not behave? What does it mean, in terms of specific behavior, for "people to live in harmony with one another" for example?

Similarly, words like *freedom, liberty, equality* and the like — though very commonly used in western political discourse — mean widely different things. People may differ in what they mean when they use the words. *Freedom* to do what? Or *freedom* from what being done to them? Governance design is specifically intended to encourage certain

behavior and discourage other behavior. Governance design is focused on influencing behavior, not controlling thoughts, beliefs, ideas, feelings, or desires. *Equality* is especially contentious. Does it mean *equal opportunity* or *equal outcomes* or both — or something else altogether? Perhaps *equity* is a better word than *equality*. Similarly, two of the most common values often associated with *democracy* (another meaningless word) — freedom and equality — seem contradictory. The more freedom people have, the less equal they are likely to be. The more people are equal, the less free they are likely to be. So values, expressed in words alone, may be helpful in getting a dialog going but until they are operationally defined, they are basically meaningless and certainly cannot be used as a basis for actual designs *per se*.

Step seven

Once values have been operationally defined, those aspects of a governmental design that will enable people to behave the way the goals and values state they should, and avoid undesirable behavior, need to be determined and communicated.

For the last 250 years or so, when people sit down to design a government, they first *write* a *constitution* and then *write* laws that are to be interpreted by administrators and ultimately enforced by police, judges, and jailers. However, there are at least nine ways governance design might be focused so as to shape or deflect behavior, of which force and law are by no means to be considered best or basic, in my view.

There is ample evidence that suggests that for most of humanity's existence (which was as hunters and gatherers), humans lived together in small bands and tribes without formal or hereditary hierarchal roles, and in relative internal and external peace, harmony, justice, equity, and subsistence abundance (Cohen & Service, 1978; Dubreuil, 2010; Lewellen, 2003; Molinero, 2000; Sahlins, 1972; Service, 1975). Only much later did force and the threat of force became the primary instrument of governance by elites, first as heredity chiefs emerged in proto-nations and then via elaborate hierarchies in expansive empires following the violent extinction or absorption of many hunting and gathering societies. Literacy emerged as a vital tool in this process of destruction and transformation since writing facilitated command and control over time and space in ways that were difficult if not impossible to do in oral societies without literacy (Goody, 1986, 1977; Havelock, 1986; Ong, 1977). This process of command, control, and consciousness was accelerated by Gutenberg's invention of the printing press, and the software and orgware that grew up around it (Eisenstein, 1979; Baron, et al., 2007).

While written laws are said, by lawyers, to be a progressive civilizing step forward in governance, they often were, and are, a step backwards since they typically were initially imposed and enforced by literate elites who sought to destroy the flexible *lawless* order of small oral clans and tribes. Conformity to the behavior required by laws that are obscure, confusing, and unintelligible to ordinary people is ultimately obtained by the threat or use of force. "Law *and* order is the historical illusion; law *versus* order is the historical

reality" (Diamond, 1971, p. 140). Moreover, laws typically require everyone subject to them to behave the same way even though identical behavior is often not desirable, possible, or necessary.

I have mentioned the role of Newtonian physics and Deism in creating the concept of *Constitutionalism*. By now, tragically, lawyers, law schools, judges, courts, and legislatures have become almost wholly occupied by people who are transfixed by words. The US Supreme Court is currently strongly influenced by people who insist that the US Constitution must be interpreted entirely on the basis either of (1) what the words in the Constitution meant at the time the Constitution was written, or on the basis of (2) what the people who wrote the words meant by them when they wrote them — what the intention of the Founding Fathers was. This results in linguistic fundamentalism by which ghostly words written by invisible hands from the past almost wholly unlike the present are invoked to govern the present. This practice strongly argues at least for an *unwritten* constitution, such as that of England, but preferably for designs that clearly illustrate desirable and undesirable behavior and that allow the design to be updated by reasonable due processes. Written words are very inadequate ways to describe, require or proscribe behavior. Pictures, diagrams, models, simulations (still or moving) that depict the desired and undesired behavior are much better (Dator, 2012).

Step eight

Human behavior can be influenced by one or more of the following ways: threats and/or use of force, and naked power; norms, socialization, education, exhortation, shaming, and other informal persuasion; written laws; economic markets; random numbers and lotteries; scientific experiments; mediations (rather than adjudication or arbitration); physical structures; and technologies (including biological technologies and social institutions. Here is a simple — perhaps silly — example of each of those nine modes. Suppose you want to create a *safe society*. Let's assume you conclude *one* way to have a safe society is to control speeding automobiles since automobile crashes are a major cause of injury and death, and ought to be stopped by better design. How can this be done?

First of all I urge you to avoid using violence, force, or threats of violence for governance. No aggressive violence by anyone including officers of the community is allowed. Passive defense is allowed if none of the following proves effective.

One way to control traffic is through norms and persuasion: Mothers sing nursery songs against speeding to their children and admonish speeders as only mothers can. Academic courses teach the dangers of speeding. "Thou shalt not speed" becomes the 11th Commandment, recited at church. Happy "Children at play" and gruesome "Don't be a killer" signs are posted. Many compelling advertisements are shown on media about the consequences of speeding. Popular songs ridicule speeders. Comedians tell jokes about speeders. "He sped, he died" is written in obituaries and engraved on gravestones showing how irresponsible the drivers were, not how fun-loving and wonderful

they were. Automobile advertising is criticized as being pornography. Advertising automobiles is restricted, just as advertising liquor and cigarettes is. Anti-automobile advertising is promoted. Automobiles are covered when parked so teenage boys won't be able to see and lust after them.

A second way is to pass a law, post speed limit signs, and hire police who arrest and judges who severely punish all violators every time there is a violation (and if every violator is arrested and punished as soon as she breaks the law, that will indeed minimize violations, but if enforcement is haphazard, infrequent, or unfair, as now, then laws will have little effect — as now).

A third way (market) is to build toll booths at frequent intervals so that people have to stop and pay frequently. Another is to put detectors in automobiles and road surfaces that automatically deduct money from the bank accounts of speeders, while paying dividends into the accounts of people who do not speed (perhaps as a lottery so the winner's amounts are significant). Note that positive rewards are much more effective than negative punishments. Another way to use the market is to see that cars that are able to go fast are extremely expensive while slower cars are very cheap, and to fine people who drive fast cars more for their violations than for the violations of people in slower/cheap cars. In order to be fair, market decisions should always be assessed as a percentage of a person's wealth, and not at a flat fee for everyone committing the same offense (Thaler & Sunstein, 2008).

Fourth, many personnel decisions could be made by identifying everyone who is minimally qualified for selection, assigning a random number to everyone who is qualified, then using a lottery system to determine who is chosen — to drive a car, penalized or rewarded for an act, gets elected, hired, promoted, sentenced to prison, and the like. Jury duty and the military draft are common ways now of using lots to make equitable decisions when there are a large number of equally qualified contenders. It should be used much more widely in order for selections to be fairer (Carson & Martin, 1999; Landemore, 2020).

A fifth way sees governance as a process of conducting and publicizing the results of scientific experiments. Rather than passing laws or otherwise requiring everyone to behave the same way, as laws do now, recognize that people differ widely in preferences, willingness to take risks, ability to assess risks properly, and the like. Pass laws (or otherwise forbid) specific behavior only when everyone agrees that an act is impermissible. Otherwise, set up and run experiments among groups according to how willing they are to subject themselves to certain amounts of risk and rewards. For example, rather than requiring all cyclists to wear a helmet, gather data on the consequences of either wearing or not wearing one, of varying quality, whether insured or not insured, by age of the driver, and the like. Then publicize the results so that people can decide for themselves whether or not to wear a helmet, and in general, how to behave (Borzel, 2012; Dunn, 1998).

Similarly, six, rather than requiring everyone to behave the same way, as laws do now, outlaw only an absolutely impermissible

minimum set of behaviors, otherwise allowing each person to behave as they individually and collectively please. *Governance* then becomes primarily a process of formal mediation (not adjudication or arbitration, and not legislation and administration) between parties to specific controversies that arise as a consequence of the diverse behavior. These decisions are always situational, and are not used as *precedents* to determine similar cases elsewhere (Bagshaw & Porter, 2009; Hopt & Steffek, 2013; Moore, 2014). This mode should also be supported by the development of ethical preferences that reward tolerance, openness, and respect for nonviolent behavior, and discourage complaints and intolerance.

A seventh method uses physical structures to govern, such as speed bumps that make it impossible to drive very fast, or speed strips that make loud obnoxious noises when one drives too fast. No long straight roads are built--only winding ones with many potholes. Lanes are widely separated. Roundabouts are created at every intersection and stoplights are eliminated. Kinetic architectural designs should become prominent aspects of all governance designs, physically making it easy to behave properly and very difficult to engage in undesirable behavior.

A final way is technological: design automobiles and roads so that vehicles can only achieve specific speeds in specific areas — or are driverless automated vehicles guided by artificial intelligence that make certain crashes impossible. Or find design solutions in genetic engineering, synthetic biology, nanotechnology, etc., so that speed no longer kills or even maims

humans seriously so that the effects of speeding are no longer worth worrying about. Or that people and goods are teleported everywhere and no one drives huge, killing, energy-wasting, road-and-parking-requiring, environment-destroying vehicles any more.

2. Structure Matters

One of the clearest lessons from my years in governance design is that *structure matters*. While the threat and use of physical force has been at the root of all governance practices, preferred behavior can also be provoked by social norms, moral and ethical rules, education, advertisement and other forms of socialization that cause people to internalize good behavior — to *want* — to *will* — to *be good*. In some situations, such socialization is so deep that force is almost never required. Taboo, kapu, and shame will do the trick.

But since I abhor violence or threats of violence in any form, I am strongly driven to look for processes of governance that do not default to violence when *will* break down. I have always been deeply impressed by the work of Glen Paige and others affiliated with the Global Center for Nonkilling. The basis of all governance systems now is the right and monopoly of each sovereign state to use and threaten killing force in the operation of its internal governance and in its relations with other sovereign states. Paige refused to accept this. Starting with his own work and publications, the Center has produced a considerable amount of material that has convinced me and others that governance based on nonkilling, and a political science that

supports such nonkilling governing systems, is possible and desirable. This is so counter to the beliefs and practices of most governors and political scientists that Paige faced nothing but rejection and ridicule all of his life. But his work has convinced me that governance which rejects the right of anybody or institution, including the nation-state and its officers, to kill or threaten to kill anyone under any circumstances is absolutely attainable. His book, supported by detail supporting evidence by other scholars, is a guide to thought and action towards a nonkilling society, as well as fundamental texts for how *structure matters*.

There are other examples that most people — even specialists — do not recognize. Years ago, the highly-regarded expert in comparative public administration, Fred Riggs, turned his attention for the first time to the study of American government and made the astonishing discovery that what he called the "presidentialist" form of government, pioneered by the United States Constitution and subsequently copied with little or no modification by many countries around the world, is fundamentally and irretrievably unstable, inevitably leading to a military dictatorship. Parliamentary systems, on the other hand, are far less likely to do so. The reason is the power differential provided constitutionally between a single people in the presidentialist system compared to the much more limited and restrained power of a prime minister in a parliamentary system (Riggs, 1992). So convinced was Professor Riggs of his finding that after the "Fall of the Wall" — the collapse of most communist systems in 1990 —

that he created COVICO (the Committee on Viable Constitutionalism, of which I was a member) that took action to try to encourage the formerly-communist countries to adopt parliamentary systems, instead of adopting the American-style presidentialist system. Sure enough, all of countries that adopted presidentialism have become dictatorships, and America is teetering on the brink now as I write.

More recently, Yüksel Sezgin (2014) asked "Why is Tunisian democracy succeeding while the Turkish model is failing?" He answered his question this way:

> One of the things Tunisians got right was the rejection of presidentialism in favor of parliamentary democracy. Tunisians recognized the dangers of presidentialism in a country with a weak democratic tradition and historic lack of checks and balances. Tunisians also chose proportional representation with a zero-percent national threshold, giving the greatest possible representation to different voices in parliament. Turkey headed in the opposition direction. The AKP government tried unsuccessfully to use its majority to change the country's parliamentary system into a presidential regime and to switch from the current PR-based electoral system to a "first-past-the-post" majoritarian system, which could give the AKP a supermajority while denying smaller parties' representation. Turkey has one of the highest and most undemocratic electoral thresholds (10 percent) in the world; but the lack of representativeness of the electoral system has never been a real concern for the AKP elite.

Despite earlier promises by Turkish president Recep Tayyip Erdogan, AKP has never seriously considered lowering the threshold, but rather has exploited current rules to increase its share of seats in the parliament. The most striking difference between Tunisia and Turkey lies in their approach to constitution-writing, which lawmakers in both countries have undertaken in recent years. Tunisians adopted a new, fairly democratic constitution in January 2014 with the backing of an astounding 94 percent of the national assembly. In Turkey, by contrast, the parliament failed to reach a consensus to produce the country's first civilian constitution — a failure mostly due to the ruling AKP's insistence on establishing a presidential system of government. As a result, the country remains bound by the military-imposed 1982 constitution, which lags in almost every respect behind the Tunisian Constitution of 2014. (Sezgin, 2014).

Sezgin also mentions the fact that the "Single-member district system" (what he calls a "first-past-the-post" majoritarian system) is profoundly undemocratic compared to a properly-designed multi-member district system, and yet that is the kind of electoral system used in the House of Representatives of the US Congress, and in all of the 50 States (Amy, 2001; Lijphart, n.d.).

Kenneth Arrow (1951) long ago demonstrated mathematically that no system of elections can be fair. Many political scientists have reinforced that contention, nonetheless concluding that some might be fairer than others, and that the single-member district system is clearly among the least satisfactory (Achen & Bartels, 2017; Brams & Herschbach, 2001; Klarreich, 2002).

The reason the House of Representatives has 435 desks for its members is because the US Constitution states that each of the states of the Union will have representatives apportioned in accordance with its population. For most of its history, Congress kept adding more representatives and hence desks as population grew. However, once the number of representatives hit 435, there was no more space in the chamber to add more desks and so there could be no more representatives. That limit was reached 110 years ago, following the US Census of 1,910, when the US population was slightly less than 100 million. Now it is over 310 million. Reapportioning 435 members among that growing population means that small, rural conservative states are significantly overrepresented in both the House and the Senate while large urban liberal states are consistently underrepresented. That misrepresentation is further exacerbated by what is called *gerrymandering* — forming electoral districts so that one party has far more elected representatives than the other. The US president is not elected directly by *the people*. There was no reasonable way for the people in the sparsely populated and far-flung colonies-become-states to know who *the best man* for the nation was. But they knew who the *best men* locally were, and so the Constitution said that they could choose local men, and ask them to go to Washington in the winter, when the crops were in and there was not much to do on the plantation or farm, to discuss and choose

the best man, and next-best man, nationally. That process is what is known as the Electoral College, and its composition is based on the size of each state's congressional delegation, so once again this means that small, rural conservative states are significantly overrepresented in the election of the president. Does that matter? Just ask Al Gore in 2000. Or Hillary Clinton in 2016. Or Joe Biden in 2020.

As these examples show, *structure* means both social institutions and physical structures. I want to suggest that physical structures should assume much more prominence in governance design. Criminologists have long demonstrated that *crime* can and should be prevented and controlled by physical environmental designs (Armitage & Ekblom, 2019; Katyal, 2001). Bullinga (2004) was one of the first to show how kinetic architecture and other physical features can be used for governance generally. Max de Lara and David van der Vegt (2016) wrote a book with stunning illustrations showing how the mere seating arrangements of legislatures — the way the legislator's seats are arranged in the room — influence policy outcomes.

In one of my design classes, I teamed up with a faculty member of the College of Architecture of the University of Hawaii at Manoa, Park Hyoung June, to combine political science students with architect students in a series of activities that modeled various designs demonstrating that kinetic structures and environments can discourage undesirable behavior and encourage preferred behavior. More recently, the perspective of Performative Architecture has gained traction as artificial intelligence and new flexible materials

enable — perhaps require — architects to design structures and environments that proactively adapt to the uncertainties of climate change (Dator, 2019).

To sum up this discussion of the steps in new governance design so far, the basic principle recommended here is that in general, rather than passing written laws and expecting designated humans to enforce them, it may be better to use other means — especially architectural and technological designs — that make it difficult for anyone to behave in undesired ways, and easy to behave as preferred. Of course, every governance system might be a combination of all of these modes, and not just of one or two.

Step nine

For the most part in this paper, I have stressed the centrality of structures of government — e.g., relation between values, behavior, and design — and ignored the huge philosophical, ethical, and practical literature on substantive issues of governance. I have done this in part in order to encourage new governance designers fundamentally and radically to reconsider both structural and substantive issues, and then to derive and base the substantive requirements on current and future cosmologies and technologies. All of the traditional civil rights and duties were firmly anchored in cosmologies and technologies of their time in ways that may render them dangerously irrelevant now. A good example of this is the Second Amendment to the United States Constitution which states, "A well-regulated Militia, being necessary to the security

of a free State, the right of the people to keep and bear Arms, shall not be infringed." This right made sense in 1789 given the history and environment of the new nation, and especially the kinds of weapons that *arms* were at that time — bows and arrows, and front-loading single-shot muskets. But the amendment has been interpreted by the US Supreme Court and exercised in ways that (white) citizens now are encouraged to roam the streets brandishing military-grade automatic rifles of enormous lethality. As a consequence, rather than providing collective security, exercise of the Second Amendment right has contributed to the destruction of the very community it was intended to protect. This is so of many *rights* that once had an historical justification, but none now, save for the fact they still exist. On the other hand — concerning protection of the environment, for example — only a handful of constitutions (none in the US) mention such rights, and none make environmental protection actionable on a par with *freedom of speech* or the other *inalienable* rights.

Step ten

Governance cannot be designed without co-designing the economy. Among the questions that need to be answered are: What process decides what is produced?; How are the produced?; What process decides who receives goods, and how?; What process determines and achieves a balance between procedural equity and substantive equity (that is, between equitable opportunity and equitable outcomes)?; How big a gap between rich and poor, if any, is tolerable?; and How is the preferred relationship

achieved and maintained? I must add that it is absolutely essential that we recognize that one or more plausible futures assert that human labor, mental and manual, may be not be needed in the same way and degree it is now, or was for the last several thousand years. The only goal that seems realistic to me in these futures is *full unemployment*, and that we should begin helping humans envision such a functioning future political economy, and devising pathways from *now* to *then* (World Economic Forum & Boston Consulting Group, 2018; Brynjolfsson & Mitchell, 2017; Dellot et al., 2019; Frank et al., 2019; Harari, 2017; Jackson & Victor, 2019; Rodriguez, 2020).

Step eleven

It is clear that *governance design* is extremely broad. It is in many ways *cultural design* — the design of all aspects of society, and not just what is now narrowly called *government*. Indeed, that narrowness is a problem of all current government designs — they do not incorporate into the formal structure and operation many things that do need to be designed and incorporated, even in the most anarchistic design — such as socialization, education, media, the economy, the environment, resources, and the algorithms used by smart and intelligent technology. It is also clear as well that representatives from all sectors of society with different preferences, perspectives, and experiences must be fairly and fully involved in creating the governance design. This is especially the case when cultural bases and fundamental values are being discussed. Few polities, if any, are monocultural with unanimous

agreement about what behaviors must always be discouraged or enabled. The demands and requirements of every individual and group must be satisfied in the final design — which itself must constantly be re-evaluated and re-designed as even Thomas Jefferson understood, but did not include effectively in the design.

Step twelve

These are the bare bones of some of the major features of governance design. There is so much more to think about, discuss, decide upon and do. This is just a start of what will be a long journey if you agree to take the first steps.

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Quality of Government (QoG) as Impartiality: Review of the literature on the causes and consequences of QoG

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Abstract

This article discusses the quality of government (QoG) as impartiality research agenda in social sciences. The article has three sections. First, it considers the intellectual roots and the emergence of the concept, highlighting the attributes of the concept of the QoG — such as universality, unidimentionality, normativity, and procedurality — that distinguish the QoG from other conceptualizations of "good institutions." Second, it reviews existing multidisciplinary literature on the effects of the QoG, focusing on a variety of data and methods employed to evaluate the link. The review concludes that there exists a broad consensus linking impartiality in the exercise of political authority with important macro- and micro-level outcomes, such as economic growth, legitimacy, political participation, and preferences. Finally, this article reviews the literature on the causes of the QoG, focusing on four factors whose positive effect on higher QoG has so far gathered the most robust empirical support: meritocracy in the allocation of bureaucratic jobs, gender equality, universal education, and taxation.

Keywords: quality of government (QoG), good governance

I. Introduction

Why do some countries enjoy high levels of material well-being, long life expectancy, and low child and maternal mortality while others do not? This is one of the oldest and most central questions of the social sciences. A systematic inquiry into this question goes back to at least Adam Smith's book "An Inquiry into the Nature and Causes of the Wealth of Nations," written in 1776 (2010 [1776]), which hails the importance of the free market. This important account was

a dominant explanation of the causes of prosperity and poverty until the 1990s when social scientists began to appreciate the role of institutional explanations, particularly the role of political institutions, in property rights protection, enforcement of contracts, and other practices that safeguard the fruit of entrepreneurship from private theft or government expropriation (Acemoglu & Robinson 2012; Holmberg & Rothstein 2012; North 1990). The "neo-institutional revolution" of the 1990s set forth a large empirical literature linking such "good institutions" as democracy, rule of law, government effectiveness, or meritocratic bureaucracy with a number of socially important outcomes, ranging from economic performance (Acemoglu et al., 2001; Chong & Caderon, 2000; Knack & Keefer, 1995; Nistotskaya & Cingolani, 2016) to child deprivation (Halleröd et al., 2013) and subjective well-being (Tavits, 2008). By the 2000s, the "good governance" approach was adopted by international organizations such as the United Nations and the World Bank as their worldwide policy agenda; they proclaimed good governance as a precondition for functioning markets and also a determinant of the effectiveness of aid (World Bank, 2002).

While the idea that political institutions are of the utmost importance for positive social outcomes became widely accepted by both the academic community and practitioners, the big question as to what constitutes political institutions that enhance welfare for all members of society remains debated. In this debate, attention has been paid to the effect of political regimes, specifically the extent

of democracy, on valued social outcomes (Acemoglu et al., 2019; Barro, 1996). Another distinctive approach that emerged within this broad paradigm emphasises the role of the so-called "output" side of politics — institutions regulating the exercise of political power. In their seminal publication, Rothstein and Teorell (2008, p. 165) argued that "the impartiality of institutions that exercise government authority" is the critical quality of "good institutions." This approach, and the literature that has grown from this conceptualization of "good institutions," is known as the quality of government (QoG) approach. This article provides a review of the accumulated literature on the quality of government.

The paper is organised as follows. Section one discusses the emergence of the "institutions matter" argument and the early literature on the link between governance and valued social outcomes. Section two follows with a discussion of the difficulties apparent in attempts to conceptualize governance. Section three outlines the quality of government conceptualization of governance, and the paper concludes with a section on how to achieve quality of government.

II. Institutions Matter

Since Douglas North's (1990) groundbreaking work on the link between institutions and economic performance, institutions have been seen as the root cause of development, understood in a broad sense as economic prosperity, population health, people's access to basic services such as safe water, sanitation,

health care or education, as well as the lack of civil conflict and people's subjective well-being. North conceptualized institutions as "the humanly devised constraints that structure political, economic, and social interaction" (North, 1991, p. 97). Institutions are formal (such as constitutions and laws) and informal (such as codes of conduct, traditions, beliefs, and values) rules that influence all actors in a society, including individuals and organizations. Governments are particularly important actors in these "rules of the game," as they create and enforce most of the formal rules. Given their special status as the foremost rule-makers, the quality of government institutions has become a focal point of neo-institutional literature.

The early neo-institutional literature largely used very broad measures of the quality of government, such as the Gastil indices of civil liberties and political violence — a predecessor of Freedom House's measure of democracy, or those produced by private companies, such as the International Country Risk Guide (ICRG) and Business Environment Risk Intelligence (BERI), capturing the quality of contract enforcement, corruption, and bureaucratic quality (Hall & Jones, 1999; Knack & Keefer, 1995; Mauro, 1995). In 1999, the World Bank began to aggregate and publish governance indicators based on the perceptions of both experts and citizens (Kaufmann et al., 1999). An ongoing project of the World Bank, known as the Worldwide Governance Indicators (WGI), has six measures of country-level political institutions: Voice and Accountability, Political Instability and Absence of Violence, Government Effectiveness,

Regulatory Quality, Rule of Law and Control of Corruption. Although this literature was instrumental in establishing a robust link between "good institutions" and such important social outcomes as gross domestic product per capita (Knack & Keefer, 1995; Mauro, 1995), output per worker (Hall & Jones, 1999), economic growth (Mauro, 1995), and poverty reduction (Chong & Calderon, 2000),[1] it soon became clear that that the very concept of "good institutions," or "good governance," was in need of further conceptualization.

III. Good Governance

While the potential good of "good governance" is broadly recognised, the term suffers from being ill-defined and conflated (Fukuyama, 2013; Grindle, 2004; Rothstein & Teorell, 2008). This conceptual ambiguity is easy to recognize by looking at the unrealistically long "laundry list" of elements included in the "package" of good governance: rule of law; secure property rights; contract enforcement; accountability; transparency; anti-corruption measures; democratic governance, civil society participation; government credibility and predictability; and respect for human rights (Rothstein & Tannenberg, 2015, p. 39-41). Conceptual ambiguity and corresponding problems with measurement (Kurtz & Schrank, 2009; Langbein & Knack, 2010; Thomas,

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1 It has to be noted that the contemporaneous literature on the effects of democracy on economic development remained largely inconclusive, while Robert Barro's seminal research concluded that "More political rights do not have an effect on growth [...] The first lesson is that democracy is not the key to economic growth" (Barro, 1996, p.1, 11).

2010) not only affect the strength of scientific inference but also make meaningful policy advice impossible (Andrews 2013; Grindle 2004; Rothstein an (Tannenberg, 2015, p. 41).

Part of the reason for such conceptual ambiguity is that the notion of "governance" has at least two distinctive meanings in the social science and development lexicon. Using Rothstein's (2013) metaphor, the first, and the broadest, "world of governance" relates to all questions of how groups of people govern themselves, be it in the public or private sectors. In this world of "global," "corporate," "interactive," or "network" governance, governance is "a meta-concept for all possible forms of order in a number of different settings" (Rothstein, 2013, p. 8). However, as Keefer (2009) noted, a subject of scientific inquiry with such a broad scope—all questions concerned with how people govern themselves—risks becoming impossible to research.

Another notion of governance relates to "the exercise of political power to manage a community's affairs" (Gisselquist, 2014, p. 515). Although narrower in its scope, with a focus on political power, this "world of governance" is also riven with a number of problems, the major of which is concerned with the outcomes of governance and democracy.

With regard to outcomes of governance, there is a strong tradition of defining governance in this way. For example, the Mo Ibrahim Foundation—produces the widely used in social sciences Ibrahim Index of African Governance (IIAG)—is unapologetic in defining governance as "all of the political, social, and economic goods and services that any citizen has the right to expect from his or her state, and that any state has the responsibility to deliver to its citizens" (Mo Ibrahim Foundation, 2012, p. 1). Similarly, many aid organizations, such as the US Agency for International Development, focus on outcomes in defining good governance (Keefer, 2009, p. 441). However, the problem with defining governance as its outcomes, such as goods and services, is that arguments about the effects of good governance on outcomes risk becoming analytically tautological (D'Arcy & Nistotskaya, 2020; Keefer, 2009; Rothstein & Tannenberg, 2015) and useless as policy advice (Andrews, 2008, 2013). Given that they describe development itself rather than how to achieve it through some specific changes to governance, it amounts to "telling countries that the way to develop is to become developed" (Andrews, 2008, p.380).

Another problem with the definition of governance as the manner in which political power is organized to manage a community's affairs is that it includes both the "input" and "output" sides of politics. While the "input" side is concerned with access to political power (such as principles of political representation, including elections, the extent of political and civil rights, and the party systems), "output" relates to the exercise of power, such as the judicial system and the public administration (Rothstein & Tannenberg, 2015, p. 52). Many organizations and scholars include both sides of the political process in their definitions of governance. For example, two of the World Bank's six indicators of good governance are about access to power (Voice

and Accountability and Political Instability and Absence of Violence), while the other four indicators tap into the exercise of political power. The distinction between the two sides of politics has long been appreciated in political science (Fukuyama, 2013; Huntington, 1968, p. 1) but was largely lost in the "good governance" agenda of international organizations in the 2000s. This distinction is, however, crucial, as it allows to establish independent effects of better "access to power," in the form of democracy; and better "exercise of power," in the form of better adherence to the rule of law and less corruption, on socially valued outcomes (Rothstein & Tannenberg, 2015; Rothstein & Teorell, 2008).

To sum up, the "good governance" research and policy agenda that emerged in the 2000s, following the "neo-institutional" revolution, was based on a notion of governance that lacked conceptual precision. Given this terminological and conceptual confusion regarding governance and good governance, there was an urgent need for a greater conceptual precision of the foundational concept of the literature. A mounting critique of that state of affairs was offered by Rothstein and Teorell (2008, p. 168) who argued that if "good governance" is everything, then, "maybe it is nothing." Rothstein and Teorell not only critiqued the status quo but they also offered a novel conceptualization of governance as the quality of government, reviewed below.

IV. Quality of Government

In its fundamental drive to identify "rules of the game" that can provide development outcomes for citizens, the quality of government approach is part of the neo-institutional literature. However, having observed that a wide variety of differing institutional arrangements may lead to such outcomes, Rothstein and Teorell (2008) began a search for the common denominator for pro-development institutions.

Thus, their research was to identify what constitutes high or low quality of government. Furthermore, such an attribute needed to be specific and precise enough to be operationalized so as to facilitate the assessment of governance across countries and regions for research and policy ends. Operationalization, and therefore measurement and comparison of polities, would have been impacted if the definition of high or low quality of government had been as vague as "good governance."

In their seminal publication, Rothstein and Teorell (2008) proposed the following concept of the quality of government (QoG) — "the impartiality of institutions that exercise government authority" — which removed a great deal of conceptual confusion and offered a solid conceptual platform for a thriving multidisciplinary literature.

In what follows, I review the concept of the quality of government, focusing on several of its properties that constitute scientific progress, compared to the concept of "good governance."

Unidimensionality

Unlike the overwhelming majority, if not all, of existing definitions of good governance, the QoG is deliberately a unidimensional concept. There are a number of well-founded

reasons to reject multi-dimensionality. One of the key issues associated with this broad approach is that they are excessively complex and all consuming. As Keefer (2009) puts it, "If studying governance extends to all questions related to how groups of people govern themselves […] then, there are few subjects within political science and political economy that do not fall within the governance domain." Second, multi-dimensional conceptualizations of "good governance" often conflate procedures of governing with policy content (Rothstein & Tannenberg, 2015, p. 52), thereby failing to provide the distinction between institutional particularities and the basic principles of governing that is required. Third, multi-dimensional approaches fail to differentiate between access to and the exercise of political power, which many argue are phenomena of differing nature (Fukuyama, 2013; Huntington, 1968). If the aim is to theorise and empirically test the relationship between the output and input sides of political processes and their mutual impact on human well-being, then, clearly, the latter cannot be included into the definition of the former. For this reason, the spectrum of democratic traits— from "free and fair" elections to participatory governance— needed to stay outside of a new definition of good governance. Multi-dimensional approaches also fail to offer a route to effective operationalization and measurement. Similarly, by oftentimes including that which needs to be explained within the definition (e.g., government effectiveness), multidimensional approaches preclude essential investigation into variation in these concepts.

While favoring a lean conceptual definition, the Quality of Government Institute rejects a unidimensional operationalization that sees QoG as simply the absence of corruption. Although a corrupt society is the opposite of a high quality of government, the QoG is much more than this: lack of nepotism, clientelism, friendism, and other -isms that are a norm in the exercise of government authority in many parts of the world (Carlin, 2012; Dahlström et al., 2015).

Normativity

The quality of government as impartiality is undoubtedly a normative concept. In order to understand what high/low quality of government (or good/bad governance) is, it is necessary to define what constitutes "high" and "good." One way to define good institutions/high quality of government is to describe what outcomes such institutions bring about. For example, a celebrated book by Acemoglu and Robinson (2012, p. 74, 76) sees good institutions as those that "allow and encourage participation by the great mass of people in economic activities […] but also provide a level playing field that gives them the opportunity to do so." Defining good institutions/high quality of government in such a way provides "very little, if any, distance'" between the explanatory variable— good institutions— and the outcome to be explained (Rothstein & Tannenberg, 2015, p. 54). In other words, the explanatory power of outcome-based definitions of good institutions is low, and this undermines their value as a tool for scientific research.

Another way to define high quality of

government is to think of an underlying normative principle that should underpin the good exercise of power. In search of such a normative principle, Rothstein and Teorell (2008) took inspiration from Robert Dahl's (1989) principle of political equality. Political equality is the foremost important attribute of any government, as it generates political legitimacy and, consequently, ensures the very existence of political order: elected representatives' rule on behalf of citizens, while citizens obey the rules made by the representatives. Rothstein and Teorell (2008) argue that impartiality is the equivalent of Dahl's political equality, but for the output side of politics. Impartiality is a specific norm to which everyone and everything related to the exercise of government power are adherent to. If the norm of impartiality is followed in decision-making and decision implementation, this will lead to the improved well-being of societies as a whole (improved social welfare) and also to improved perceptions of government by citizens. Thus, defining the quality of government as a normative principle has the important methodological advantage of not falling into the trap of tautology, suffered by many non-normative conceptualizations of good institutions/good government, as discussed above.

It is important to note that the QoG Institute's approach towards the conceptualization of the quality of government as a normative principle does not come at the expense of the concept of the quality of government being alien to empirical operationalizations and measurements. On the contrary, impartiality

in the exercise of political authority has been successfully operationalized and measured in several ways — not only as the absence of corruption but also as the absence of clientelism and nepotism, and also as the use, for instance, of the principals of meritocracy and gender equality in the recruitment and appointment of civil servants.

Universality

Impartiality as the chief normative principle underpinning the execution of political authority is a principle; the meaning of which is understood in a similar fashion by individuals and communities around the world. Several purposeful reviews of surveys and other evidence suggest that respondents in East Asia and Sub-Saharan Africa strongly oppose corruption and demonstrate a similar understanding of the matter as the World Bank and Transparency International (Rothstein, 2014; Rothstein & Torsello, 2014; Rothstein & Varraich, 2017). As Figure 1 below shows, when faced with scenarios involving partial treatment by a government official, a majority of respondents in 18 African countries saw such actions as "wrong and punishable."

Such a universal understanding of the meaning of impartiality in the exercise of political power is similar to the universality of human rights. Just as the right to a fair trial or freedom of expression are "a common standard of achievements for all peoples and for all nations" (UN 1948), the right not to be discriminated against or not to pay a bribe for a publicly funded service is a broadly shared understanding of what treatment by a public

Figure 1 Understanding of partiality in 18 African countries, % of respondents
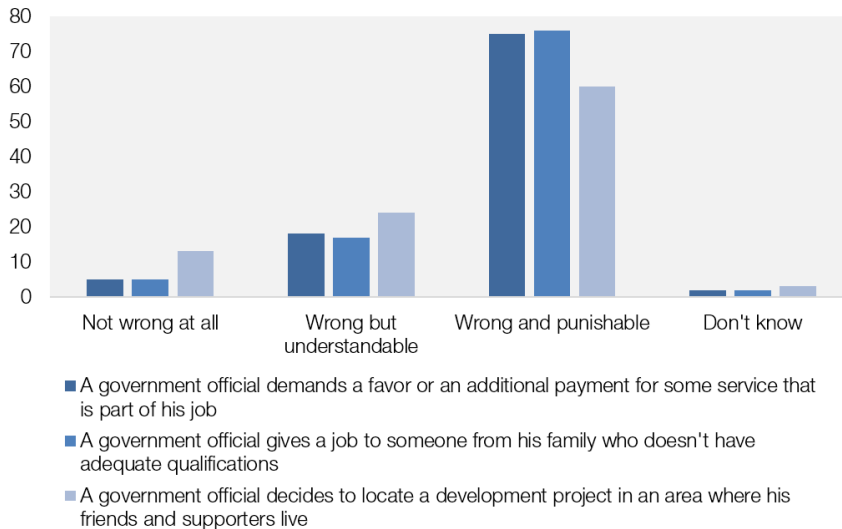
Source:

Rothstein & Tannenberg, 2015, p. 59

n=25,086; year=2006; countries: Benin, Botswana, Cape Verde, Ghana, Kenya, Lesotho, Madagascar, Malawi, Mali, Mozambique, Namibia, Nigeria, Senegal, South Africa, Tanzania, Uganda, Zambia, and Zimbabwe.

authority should look like.

The universality of the principle of impartiality has important methodological implications. Specifically, it enables comparison across political units. As Rothstein (2014) points out, one can only say that Denmark is less corrupt than Nigeria if what counts for corruption in the two countries are similarly understood.

Procedurality

The QoG conceptualization of good institutions rejects references to the content of government policies, adopting instead a procedural definition. The claim that good policies are the essence of good institutions in general and high quality of government

in particular, existed in the literature prior to Rothstein and Teorell (2008). For example, the World Bank's definition of good governance included "regulatory quality." The problem with this, according to Rothstein, is that "sound policies" do not have a universal content. In other words, what is a sound policy in one empirical context may not be so in another (Rothstein & Tanneberg 2015, p. 55-56; see also Andrews, 2013). Such a critique is fully justified by the failure of the so-called Washington consensus — a package of "sound policies" that developing countries were required to follow in exchange for World Bank loans in order to achieve higher levels of human well-being (Gore, 2000).

The procedural definition of the quality

of government — when deciding upon a case, a public official should not take into consideration anything about the applicant's circumstances, which is not stipulated in policy or law beforehand (Rothstein & Teorell, 2008, p. 170) — has universal applicability, and it is also completely divorced from policy content. This detachment from policy content has been a persistent point of critique of the quality of government literature. Both sound and bad, and even evil policies (Anaphors, 2013) can be impartially implemented. And while impartial implementation of sound policies is likely to improve the human condition, impartial implementation of bad/evil policies may only multiply human misery. This critique also has an empirical pillar. Suzuki and Demircioglu (2019a) found that for citizens with a vulnerable background (lower education and lower income) impartiality is not a necessary and sufficient criterion for such citizens to be satisfied with public services. Specifically, an increase in impartiality negatively influences the perceived quality of public education and health care services for vulnerable citizens. In other words, it is believed that impartiality does not equally benefit citizens with different backgrounds and may even be harmful for vulnerable citizens. Based on these findings, Suzuki and Demircioglu (2019a) argue that in addition to the focus on strictly enforcing laws and regulations in a neutral way, administrative processes should be more flexible to better accommodate the needs of vulnerable citizens.

The authors of the concept of the quality of government as impartiality accept this critique in general (Rothstein & and Tannenberg,

2015, p. 56-57), but they note that, in practice, discriminatory and other morally questionable policies rarely go hand in hand with truly impartial implementation. In most places around the world, the problem is not in impartial implementation of bad policies; rather, partiality in implementation undermines the "soundness" of many policies.

Quality of Government as Impartiality

In summary, the quality of government (QoG) is a normative, universal, and procedural conceptualization of the idea of "good institutions/good governance." The fact that the concept of the QoG is unidimensional and also divorced from the outcome-based conceptualizations of good institutions, enables it to be successfully operationalized, measured, and to be utilized in scientific research on the causes of human well-being in a meaningful way. The QoG's focus on the execution of political power distinguishes it from democracy — another powerful predictor of the human condition, thereby allowing research into the independent impact of the "input" (democracy) and "output" (QoG) sides of politics.

V. The Effects of the QoG on Socially Important Outcomes

In the last ten years, an impressive literature on the effects of quality of government has emerged, exploring the link between the extent of impartiality in the implementation of political authority and a host of socially important outcomes, ranging from the perceived

legitimacy of public authorities, corruption, and entrepreneurship to policy advice, public service provision, and the onset of civil wars. Whilst a full review of this literature is beyond the scope of this publication, in what follows, I have reviewed a selection of publications.

Meritocracy and Impartiality

One of the first and most influential studies on the effects of the QoG is a publication by Dahlström et al. (2012), which has had a profound impact (as of today, it has been cited nearly 400 times). This research was set to explore the link between meritocratic recruitment and public bureaucracy and the extent of corruption. This publication has a special place in the QoG literature, because it successfully argued that a meritocratic manner of recruitment to positions of public bureaucracy (rather than recruitment based on political or personal connections) is intrinsically linked with impartiality in the exercise of power by bureaucracy. In order to capture the extent of meritocratic recruitment, the Quality of Government Institute — a research group at the Department of Political Science, University of Gothenburg, Sweden, conducted an expert survey on the organizational design of public bureaucracies around the globe. Based on the assessment of at least three experts per country, the first QoG Expert Survey produced estimates of the extent of meritocratic recruitment in 52 countries (Dahlström et al., 2012). This data was then leveraged against the World Bank's data on corruption. The results of this exercise showed that corruption is lower in countries where meritocratic recruitment is

practiced more often. This primary result of the empirical analysis provided strong support for the idea that meritocratic recruitment to public bureaucracies is associated with higher impartiality (lower corruption) and set a trend in the scientific literature of empirically measuring impartiality through meritocratic recruitment to bureaucracy.

In a more recent study on the link between meritocracy and corruption, Charron and his co-authors (2017) examine the empirical link between a broad measure of meritocracy in the public sector (not meritocracy in recruitment) and a measure of corruption in the public procurement sector. They found that in EU regions where respondents tend to agree with the statement that "Hard work is no guarantee of success in the public sector for most people — it's more a matter of luck and connections," there are more instances of corruption in public procurement.

In addition to cross-country analysis, research, based on individual-level data, provides support for the conjecture that merit-based recruitment to public bureaucracy diminishes corruption in bureaucracy. For example, Meyer-Sahling and Mikkelsen (2016) used data from a survey of ministerial bureaucrats in five East European countries and showed that merit-based recruitment is strongly associated with less corruption.

Finally, a recent review of the literature on the organizational design of public bureaucracy and corruption found that merit-based entry to civil service is the only factor robustly associated with lower corruption (Meyer-Sahling et al., 2018). In other words, there is

a broad consensus that meritocratic public bureaucracies, particularly those practicing merit-based recruitment, are those which exhibit higher impartiality and, consequently, stand for higher quality of government.

Measuring Impartiality at the Country-level

The continued interest in the data on the extent of merit and other organizational features of public bureaucracies that safeguard impartiality (such as security of tenure), prompted the second and third waves of the QoG Expert Survey. The second wave was conducted in 2014 (Dahlström et al., 2015), and the data from that survey has been used in no less than 100 peer-reviewed and other publications. In 2020, the QoG Institute conducted the third wave of the expert survey, and the data release was scheduled for the end of 2020.

In addition to the cross-country data, the QoG Institute conducted an expert survey measuring merit, security of tenure, pay, and other features of the organizational design of bureaucracies in Russia's regions (Nistotskaya et al., 2015). This exercise demonstrated that the methodology of the survey works well not only in a cross-country context but is also applicable at the level of sub-national political units.

Another large survey conducted by the Quality of Government Institute is the European Quality of Government Index (EQI), which measured the quality of government in more than 200 regions of the European Union. Unlike the QoG Expert Survey, the EQI is based on perceptions of regional governments by roughly 200,000 residents of those regions. The EQI data

are available for the years 2010, 2013, and 2017 (Charron et al., 2019), with the fourth wave currently being under way. This data enabled a large literature explaining the different outcomes observed at the subnational level in 28 EU countries, where the quality of government is either the main explanatory factor or one of the key alternative explanations (see for example, Crescenzi et al., 2016; Nistotskaya et al., 2015).

In addition to this, the Varieties of Democracy Institute (V-Dem) — a big research consortium that provides expert-based data on the state of democracy at the cross-country level for a period of over 100 years — recently extended their data gathering effort to incorporate issues pertaining to impartiality in the exercise of political authority. Specifically, there is data on "the extent to which public officials generally abide by the law and treat like cases alike, or conversely, the extent to which public administration is characterized by arbitrariness and biases (i.e., nepotism, cronyism, or discrimination)" (Coppedge et al., 2018, p. 157). This measure captures the extent to which decisions made by public officials abide by written rules and are implemented in an impersonal manner.

In all the above-mentioned data gathering exercises, the survey questions explicitly relate to the *de facto* practices of human resource management and bureaucratic behaviour, and not just *de jure* regulations, because research has shown that legal provisions do not automatically translate into *de facto* practices and behavior in the bureaucracy (Lapuente & Nistotskaya, 2009). All of the above-mentioned data are available for researchers and all other

interested parties on the websites of the Quality of Government Institute[2] and the V-Dem Institute[3].

Quality of Government, Legitimacy, Support for Democracy and Trust in Political Institutions

The literature examining the effects of the quality of government on government legitimacy and satisfaction with democracy is a big part of the QoG literature. In a path-breaking study, Rothstein (2009) laid out an elaborate theoretical argument about how legitimacy is "created, maintained, and destroyed," not at the input, but at the output side of the political system. In other words, the quality of government is at least as consequential for political legitimacy as the capacity of electoral systems to create effective representations.

Building on this theoretical framework, Dahlberg and Holmberg (2014) examined the independent effects of the input and output sides of politics on peoples' satisfaction with how democracy works. Employing a large multilevel dataset, capturing different sides of the political process in 32 democracies, and individual-level satisfaction with democracy, they found that impartiality in the implementation of policies matters for peoples' satisfaction with democracy more than factors such as ideological congruence: the degree to which an individual's own political preferences coincide with the partisan colour of the

government.

Dahlberg and Holmberg's (2014, p.537) finding that "in understanding how people judge the functioning of their democratic rule, quality of government is more essential than quality of democracy" was subjected to further interrogation, yielding more fine-grained conclusions. For example, Boräng et al. (2017) examined the proposition that the quality of government factors may have a stronger effect on satisfaction with democracy in younger democracies, finding that higher QoG is indeed linked with higher levels of diffuse support (support for the principles of democracy), and that this effect is stronger in younger democracies, but that it has no robust effect on specific support (support of the performance of a democratic regime). Furthermore, the QoG factor became an important corrective in the literature that explains satisfaction with democracy and trust in political institutions in terms of a regime's economic performance. For example, Magalhães found that the conventional wisdom that satisfaction with the way democracies work and government approval is a fundamentally economic "performance-driven attitude" needs to be qualified: while economic evaluations are important, procedural fairness plays an important moderating role (Magalhães, 2016; Magalhães & Aguiar-Conraria, 2019).

Quality of Government, Political Participation, and Political Preferences

The quality of government factor has grown in prominence in the literature on political

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2   https://www.gu.se/en/quality-government/qog-data

3   https://www.v-dem.net

participation and voting behavior. A large subset of this literature examines the effects of the QoG, mostly proxies through corruption, on participation in democratic processes such as voting. This literature, rich in methodological approaches, empirical settings, and types of data, has reached a broad consensus that perceptions and experiences of poor quality of government suppress voting turnout (Dahlberg & Solevid, 2016; Hooghe & Quintelier, 2014; Kostadinova, 2009; Stockemer et al., 2013; Sundström & Stockemer, 2015).

In contrast to the literature on the link between corruption and the most profound empirical manifestation of partiality in the exercise of power and political participation, which is both voluminous and which, by and large, enjoys a consensus, the question of how perceptions and experience of the QoG affect peoples' political preferences and actual voting choices remains understudied. In addition to several publications pointing to a broad effect of personal experience with the quality of state institutions on political preferences and political behavior (Klašnja et al., 2016; Kumlin, 2004), there are a few publications, which specifically examine the QoG's effect on political preferences and voting behavior. An important step in the direction of better understanding the effects of the QoG on political preferences was made by Svallfors (2013) who found a clear independent effect of high QoG on attitudes toward higher taxes and spending. He also found that government quality conditions the impact of egalitarian attitudes on voters' preferences toward tax and spending: voters with egalitarian attitudes are more likely to

support higher taxes and more spending if they live under high QoG than egalitarian-minded voters living in low-QoG polities. Another important empirical link between the QoG and political preferences was found by Agerberg (2017). Specifically, Agerberg (2017) examined the link between individual perceptions of the quality of government and electoral support for populist parties. He argues that poor experience with state institutions makes citizens more susceptible to the rhetoric of populist parties, which exploit citizens' dissatisfaction with the establishment. Using a range of estimation techniques and data from 150 regions of the European Union, Agerberg (2017) finds strong support for the hypothesis that individual perception of low QoG leads to higher electoral support for populist parties.

Furthermore, there is a growing body of literature examining the conditional role of the quality of government on peoples' support for climate and other environmental policies (Davidovic & Harring, 2020; Harring, 2012, 2014). Thus, Harring (2012) found that people are more likely to make economic sacrifices for environmental protection when they trust in political institutions, compared to people who distrust their political institutions due to high corruption. Using data from the European Social Survey, Davidovic and Harring (2020) explored whether the cross-national variation in public support for different types of climate policy instruments is associated with QoG levels and trust in political institutions, concluding that higher QoG and generalized trust are associated with higher support for pro-environmental taxes, but not with support for

subsidies and bans.

Quality of Government, Economic Development, and Other Economics-Related Outcomes

The causes of economic development are a key research question not only for economists but also for researchers from other social sciences. As the concept of the quality of government has developed, so too has the empirical literature that examines its effects on economic development. One of the first publications in this literature was an article by Nistotskaya et al. (2015), examining the link between perceptions of government impartiality and entrepreneurship in the EU regions. Having bridged the QoG concept with the literature on entrepreneurial cognition, Nistotskaya et al. (2015) argued that the varying levels of entrepreneurial activity observed across the EU regions are not due to the lack of entrepreneurial spirit in the regional population, but to the lack of government impartiality. They argued that an individual with a good business idea, living under a government that practices partial treatment of its citizens, will be unlikely to pursue their business idea. Having envisaged multiple barriers (from delays in business registration to unwarranted inspections) that may have been erected by the partial government on the way to the realization of their business idea, entrepreneurial-minded individuals would factor costs associated with biased practices by public officials into the expected utility from the business venture, eventually leading them to a decision not to start a business. This theoretical argument finds support in the cross-sectional data: EU regions characterized by higher (perceived) impartiality of government show, on average, higher levels of entrepreneurial activity (new start-ups per 100,000 regional residents).

The link between higher quality of govern–ment and entrepreneurship was further tested by Nistotskaya and Cingolani (2016), with both cross-sectional and panel data for a large sample of countries. In the cross-sectional analysis, Nistotskaya and Cingolani (2016) utilized the data from the second wave of the QoG Expert Survey, leveraging it against the data on the quality of pro-business regulations in nearly 90 countries. They found that meritocratic recruitment is associated with the Ease of Doing Business— a set of measures developed by the World Bank to measure the ease of the administrative process to open and operate a business in different countries. Proxying impartiality with the security of contracts for high-ranking bureaucrats, the authors found strong support for the link between the quality of government and levels of entrepreneurship, which is considered to be the backbone of higher levels of economic development.

Several recent studies directly engage with the issue of the quality of government's effect on economic growth, arriving at different results. Employing the EQI data and the EU regions empirical design, Rodríguez-Pose and Garcilazo (2015) found a strong positive effect on economic growth. Having set their study in the context of Sub-Saharan Africa and using survey data from Afrobarometer from the late 1990s, Ahlerup et al. (2016) found that countries whose governments are perceived

as impartial are more likely to experience sustained economic growth of at least 2% for at least five consecutive years. However, research by Cornel et al. (2020), which utilized a cross-country design with long panel data, found that the positive effect of the impartial bureaucracy operates only in the short term and is stronger in recent decades. Considering that the data for impartiality comes from expert assessments and covers a period of more than 100 years of human history, there is a higher chance of measurement error — something that should be taken into consideration when reflecting on the results of this research.

Apart from broad economic development and entrepreneurship, the social science literature examined the impact of the quality of government on other economic outcomes, for example, transport infrastructure (Crescenzi et al., 2016). Similarly, several studies asserted that countries with professional and impartial public bureaucracy tend to have higher national-level innovation outputs, such as scientific productivity (Fernández-Carro & Lapuente-Giné, 2016), knowledge and technology, and creative outputs (Suzuki & Demircioglu, 2019b), which are important factors of economic growth. Finally, a small literature also examines the effects of impartiality on the quality of public policies, reaching the consistent conclusion that higher QoG leads to entrepreneurship-enhancing regulation (Cingolani & Nistotskaya, 2016), whereas lower QoG leads to "public policy knowledge that is strategically biased or suppressed in a manner that benefits incumbents" (Boräng et al., 2018, p. 7). Relatedly, Povitkina and Bolkvadze (2019)

argued that low QoG hampers the adoption and implementation of the long-term policies necessary for securing the adequate provision of such public goods as drinking water.

Quality of Government and Other Socially Valued Outcomes

The QoG Institute made a deliberate deci–sion to make human welfare its top research priority (Holmberg & Rothstein, 2012) and, consequently, there is a host of studies examining the link between the QoG and different aspects of human welfare, such as those examining the extent of poverty, public health issues, environmental issues, social welfare, and subjective well-being. In this section, I will review several publications on this matter, which have had a considerable impact on the literature.

In one of the earlier publications, Holmberg et al. (2009) pointed to the positive empirical relationship between the QoG and about twenty outcomes related to human welfare, albeit only using bivariate regressions.

In Rothstein et al. (2012), the authors employed the QoG theoretical framework to explain the size and generosity of the welfare state. Using data from 18 OECD countries across 1984-2000, they found a direct and conditional (through working class mobilization) effect of the QoG on the outcome of interest.

In 2013, Halleröd et al. published an important study revealing a robust empirical link between the quality of government and child poverty and child deprivation at the cross-country level. The theoretical framework

employed in this study is *bone fide* QoG, with a focus on impartiality in the exercise of government, but the empirical measure employed to capture the concept of the QoG is the World Bank's government effectiveness, which does not cleanly capture the concept of the QoG.

Drawing on the contrasting experiences of Sweden and Spain in the 1930s, Lapuente and Rothstein (2014) showed that a meritocratic bureaucratic structure had a stabilising effect during political turmoil and social conflict. Meritocratically recruited civil servants in Sweden, incentivized to maintain the state's neutrality by the fear that taking sides would put their careers at risk, tried to contain the political conflict with the executive sphere. Their actions mitigated class conflict and contributed to a peaceful solution in the form of a neo-corporatist agreement and welfare state. By way of contrast, officials in the highly politicised bureaucracy in Spain, hoping to advance their careers by political engagement, fuelled conflict, and contributed to the outbreak of the Spanish Civil War. This publication is a powerful narrative on how the quality of government may lead to two different paths of development in countries with many similar socio-economic conditions.

Povitkina has explored the role of the QoG in relation to the quality of the natural environment (Povitkina, 2015) and disaster preparedness (Persson & Povitkina, 2017). In an elaborate time-series analysis, she examined the interaction effects of democracy (input side of politics) and bureaucratic quality (the output side) on the levels of carbon dioxide emissions, finding that democracies emit less only if their bureaucratic capacity is high. If bureaucratic capacity is low, democracies do not do any better than authoritarian regimes. Persson and Povitkina (2017) find a seemingly similar result of the interaction between democracy and bureaucracy for the number of people being adversely affected by natural disasters.

Finally, the QoG factor is of interest to scholars of democracy and democratization. In the footsteps of a distinguished intellectual tradition in political science that argues for a "usable" state bureaucracy being in place in order for democracy to consolidate (Linz & Stepan, 1996), Cornell (2014) developed a conceptualization of such a usable bureaucracy as a low turnover bureaucracy and showed through a comparative case study (Peru and Bolivia) that high turnover rates of bureaucratic personnel negatively affect the implementation of democratic governance programs.

In sum, there is a large body of literature linking the quality of government as impartiality to a host of outcomes that matter for human well-being. This literature is varied in terms of methodological approaches, types of data, and empirical settings; and it is characterized by a broad consensus that the QoG matters for many outcomes, ranging from individual policy preferences to macro-outcomes such as public goods provision or environmental quality, affecting them directly and also indirectly.

VI. How to Get High Quality of Government?

Despite this broad consensus, moving

towards high quality of government presents a big problem for countries trapped in a low quality of government equilibrium. Broad structural (Charron & Lapuente, 2010; Dimant & Tosato, 2018; Goel & Nelson, 2010) and historical explanations (Alexander, 2010; Broms, 2017; Charron & Lapuente, 2011) of the QoG levels enjoyed by people today offer valuable insights into the problem, but they are of little use when it comes to policy advice, as they point to circumstances that are often beyond human intervention. What follows is a review of the literature on four institutions that seems to facilitate a move towards higher Quality of Government: *meritocracy, gender equality, universal education, and broad taxation.* This is not to suggest that this is an exhaustive list of causes of high QoG: the road to high QoG is neither simple nor straightforward, and a much longer list of factors is likely to be at play. Nevertheless, these four factors have been the most often discussed as necessary for high QoG.

Meritocratic Recruitment

The idea that the principle of merit, especially in the allocation of jobs in public bureaucracy, is a probable cause of a more educated and impartial bureaucracy is not original to the QoG approach. It has been around since at least the work of Max Weber, who laid down several principles for the organization of effective public bureaucracy, which was followed by a number of influential studies (Lewis, 1997; Miller, 2000; Rauch & Evans, 1999; Van Riper, 1958). Standing on the shoulders of these giants, QoG researchers were

able to add several important missing pieces to the argument that merit-based allocation of bureaucratic jobs sends out a very strong signal regarding the impartiality of the state (Dahlström et al., 2012; Dahlström & Lapuente, 2017; Nistotskaya & Cingolani, 2016). Following Miller (2000), Cingolani and Nistotskaya (2016) argued that merit-based recruitment to bureaucracy promotes impartiality by constraining the rent-seeking and other morally hazardous behaviour of individual politicians. On the other hand, Dahlström and Lapuente (2017) reasoned that meritocratic recruitment separates the careers of politicians and bureaucrats, creating a sub-system of checks and balances within the executive branch, thereby promoting adherence of both politicians and bureaucrats to the rule of law and improving effectiveness. Finally, the above-mentioned empirical work by Dahlström et al. (2012) revealed a robust relationship between merit and impartiality (the lack of corruption) in the, to date, largest sample of countries.

Gender Equality

The principle of impartiality in the exercise of power (and meritocratic recruitment) and the principle of gender equality—women and men should be treated equally and without discrimination or prejudice on the grounds of gender—are intuitively connected, and there is little surprise that there is high scholarly interest in the relationship between gender equality and impartiality/lack of corruption.

After decades of research in the 1990s and the 2000s, a strong empirical link between different indicators of gender equality and levels of

corruption emerged (Dollar et al., 2001; Esarey & Chirillo, 2013; Esarey & Schwindt-Bayer, 2017; Grimes & Wängnerud, 2010; Stensöta et al., 2015; Swamy et al., 2001; Tripp, 2001). Despite the broad acceptance of the link between gender equality and higher QoG, theoretical interpretation of this phenomenon lags behind empirical work. Stensöta and Wängnerud (2018) provide a detailed overview of the most prevailing theoretical mechanisms, ranging from the argument that women are simply the "fairer sex" to the argument that being tied to the family and the private sphere much more than men, women lack the opportunities to engage with corruption, while still other researchers highlight how the socialization of women as less risk averse and how caring leads to less detrimental behaviour. The largest evidence bases for evaluating this link comes from studies on women's political participation. Here, a separate discussion emerged concerning the role of female politicians' engagement in anti-corruption efforts, with some arguing that a shift towards greater numbers of women in political office could induce a form of checks and balances, as new players introduce elite competition and control, while others suggest that the increased number of women in positions of power may draw media attention to a new situation and send a signal to society in a changed situation. However, there is also a large body of literature that holds that the gender equality–low corruption link is a case of reverse causality: instead of higher proportions of women causing lower levels of corruption, corruption is seen as an obstacle to the political recruitment of women (Bjarnegård, 2013; Goetz, 2007; Stockemer,

2011; Sundström & Wängnerud, 2016).

In addition to the lack of clarity with regard to the mechanisms that explain the link between the increased political representation of women and lower corruption, there is little clarity concerning the role of women in public bureaucracy. While more women in parliaments are correlated with lower corruption, more women in the bureaucracy are not. Stensöta et al. (2015) explain this puzzling finding by pointing to the mediating role of institutional norms: while women in parliaments need to differentiate themselves from their male counterparts by demonstrating their incorruptibility, within a professional bureaucracy, personal attributes are less likely to be emphasized, requiring no such differentiation. The suggested difference between electoral and bureaucratic arenas is an important avenue for further research on the link between women in politics and corruption.

Rothstein (2011) has powerfully argued that increased gender equality may produce a "big bang" effect sufficient to disrupt a corrupt equilibrium. He uses the historical example of Sweden where a series of reforms, including the 1845 law on the right to equal inheritance by men and women, were followed by a remarkable decrease in the levels of corruption in the country. Taking the view that the disruption of established male-dominated power structures would in itself represent a "big bang," any reform aimed at creating such a disruption, such as gender quotas for political representation, should have been welcome. However, the track record of the impact of gender quotas, currently practiced in more

than 100 countries, on corruption is mixed (for review, see Bjarnegård et al., 2018), calling for more research into the mechanisms linking gender quotas with lowering corruption.

Universal Education

Uslaner and Rothstein (2016) argued that universal education offers another robust path to impartiality in the exercise of political power. The authors examined the relationship between historical universal education reforms and present-day corruption levels and revealed the path-dependent nature of such relationships over a century and a half. Specifically, they showed a strong correlation between the average number of years children spent in school in 1870 and corruption levels in states in 2010 in 78 countries, controlling for a number of alternative explanations. Their theoretical argument is multifold; educated people are less likely to tolerate nepotism and other forms of patrimony, and the very idea that every child, regardless of their parents' economic, social, or cultural status, should, as a right, have equal access to the opportunity to acquire the knowledge and skills for future advancement is a strong call for impartiality in the state's relationship with its citizens. Furthermore, education is an important public good, which plants seeds of trust in the institutions that provided people with this good, creating "bottom-up" support for such a norm as government impartiality.

Taxation

The role of taxation in bringing about impartiality in the exercise of power is by and large linked with the "bottom-up" pressure of the population on government. When governments do not need to raise taxes because they have large non-tax incomes (from natural resources or other windfall revenue), they face political incentives that affect the ways in which they seek, use, and retain power. The absence of pressure from taxpayers makes powerholders less responsive and accountable to citizens in relation to both the input and output sides. As Moore (2007) states, lacking broad taxation makes states "simultaneously arbitrary and weak." Conversely, paying taxes makes individuals more interested in politics (Broms, 2015; Persson & Rothstein, 2015), as the looting of natural resources or abuse of aid funds is of direct concern to those who do pay taxes, because it is their money. This is consequential, because people are more likely to engage in the monitoring of government performance and other costly political behaviors (Paler, 2013), eventually leading to a higher quality of government (Baskaran & Bigsten, 2013; Broms, 2011; Moore, 2007; Prichard, 2015). In other words, a functioning system of broad taxation is likely to generate popular pressure for not only political representation but also lower corruption and better public goods provision.

VII. Conclusion

The quality of government is a research field that sprouted from a paradigmatic change in the social sciences that associates the root cause of development with good institutions, especially good political institutions. Having rejected existing conceptualizations of good political

institutions, Rothstein and Teorell (2008) put forward a new conceptualization — the quality of government (QoG) approach. The vision of good political institutions as impartiality in the exercise of political authority enabled a large theoretical and empirical literature on the consequences of the quality of government. Currently, a broad interdisciplinary consensus exists that higher QoG leads to important, socially valued outcomes, ranging from better public goods provision and finishing with subjective wellbeing. While it is widely accepted that the impartiality of bureaucracy and other executive agencies is key to human well-being, the causes of high QoG are less understood. Nevertheless, four factors have been consistently linked with higher QoG. They are meritocracy in the allocation of jobs in public bureaucracies and other non-elected government posts; gender equality, specifically, higher political representation of women; universal education; and a system of broad taxation. The quest for a better understanding of the paths to higher QoG remains and is, however, far from being finished.

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The Future of Policy Tools: Promises and Pitfalls

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Abstract

The study of policy tools has been undertaken for several decades. It has isolated and examined many different types of tools utilized by governments over the course of history and examined in detail how they are arranged into policy mixes or portfolios of tools. Recent developments in society and technology, however, have brought to the fore the possibility of using new or previously little-used tools *such as platforms, co-production, nudges, as well as data-driven techniques, such as big data and artificial intelligence*. These are added to the toolbox governments have at their disposal when designing policy responses to both new and old problems. Like any other tool, however, each of these has its strengths and weaknesses. This paper addresses the promises and pitfalls of these new tools, and assesses the degree to which their deployment and effectiveness can be understood using the kinds of typologies and concepts developed to deal with more traditional policy instruments.

Keywords: Policy Tools, Digital Government, Big Data, Artificial Intelligence, Nudges, Co-Production

I. Introduction: The Tools Orientation in Policy Studies

Policy-making consists of matching solutions to problems, which, in a governance context, means matching policy tools to the goals governments would like to achieve while in office. Policy alternatives which policy-makers consider in the process of arriving at their decisions are composed of different sets or combinations of these tools.

Policy tools are the subject of deliberation and activity at all stages of the policymaking process and affect both the agenda-setting and policy formulation processes as well as decision-making, policy implementation, and evaluation (Howlett, 2005; Howlett et al., 2020).

Taken together they comprise the contents of the toolbox from which governments must choose in building or creating public policy. Thus, as Linder and Peters (1990) noted, policy instruments are especially significant to policy design, as they are the techniques or means through which states put their plans into action.

These tools generally fall into two types. *Substantive* implementation instruments are those used to directly affect the production, distribution, and consumption of goods and services in society. These include such well-known tools as state enterprises, regulatory agencies, and subsidies. *Procedural* implementation instruments, on the other hand are aimed at and affect policy processes and deliberations (Ostrom, 1986; Howlett, 2000, 2005). These tools are an important part of government activities aimed at altering policy interactions within policy sub-systems but, as Klijn et al. (1995) put it, they typically "structure ... the game without determining its outcome" (p. 441). That is, unlike substantive tools, procedural tools affect the manner in which policy-making and implementation unfolds without predetermining the results of those activities.

This distinction is apparent in common definitions of governing instruments, although its significance is sometimes overlooked. Vedung (1997), for example, defined policy instruments used in implementation activities as "the set of techniques by which governmental authorities wield their power in attempting to ensure support and effect social change" (p. 21). This definition thus includes both substantive tools — those Hood (1986) defined

as attempting to "effect or detect" change in the socio-economic system — as well as procedural tools designed to "ensure support" for government actions.

Substantive instruments are expected to alter some aspects of the production, distribution, and delivery of goods and services in society. This is a large field of action since it extends not only to goods and services provided or affected by markets but also well beyond them to state or public provision and regulation as well as those goods and services typically provided by the family, community, non-profit, and voluntary means (Salamon, 1989, 2002).

The deployment of substantive instruments, for example, affects the following:

1. Who produces a good or service — for example, via licensing, bureaucracy/procure–ment, or subsidies for new start-ups
2. The types of goods and services produced — for example, through bans or limits or encouragement
3. The quantity of goods or services provided — for example, via subsidies or quotas
4. The quality of goods or services produced — for example, via product standards and warranties
5. The methods of production — for example, via environmental standards or subsidies for modernization
6. The conditions of production — for example, via health and safety standards, employment standards acts, minimum wage laws, and inspections
7. The organization of production — for example, via unionization rules, antitrust or anti-combines legislation, securities

legislation, or tax laws

The consumption and distribution effects are also manifold. Some examples of these are as follows:

1. Prices of goods and services — such as regulated taxi fares or wartime rationing
2. Actual distribution of produced goods and services — affecting the location and types of schools or hospitals, and forest tenures or leases
3. Level of consumer demand for specific goods — for example, through information release, nutritional and dangerous goods labeling (cigarettes), export and import taxes and bans, and similar activities
4. Level of consumer demand in general — via interest rates and monetary and fiscal policies

Procedurally oriented implementation tools, on the other hand, affect production, consumption, and distribution processes only indirectly, if at all (Bingham et al., 2005). Rather they instead affect the behaviour of the actors involved in formulating policies, or how they are implemented. Just as substantive policy tools alter or affect the actions of citizens in the productive realm, so do procedural tools affect and alter aspects of the policy-making behaviour itself (Knoke, 1993).

Some of the kinds of policy-making activities that can be affected by the use of procedural tools (Klijn et al., 1995; Goldsmith & Eggers, 2004; Klijn & Koppenjan, 2007) are as follows:

1. Changing actor policy positions
2. Setting down, defining, or refining actor positions
3. Adding actors to policy networks
4. Changing access rules for actors to govern–ments and networks
5. Influencing network formation
6. Promoting network self-regulation
7. Modifying system-level policy parameters (e.g., levels of market reliance)
8. Changing the evaluative criteria for assessing policy outcomes, success, and failure
9. Influencing the pay-off structure for policy actors
10. Influencing professional and other codes of conduct affecting policy actor behaviour
11. Regulating inter-actor policy conflict
12. Changing policy actors' interaction procedures
13. Certifying or sanctioning certain types of policy-relevant behaviors
14. Changing supervisory relations between actors

II. Studying Traditional Policy Tools

Many scholars have looked at various specific kinds of tools in the past and have attempted to develop parsimonious ways of classifying them in order to ease the burden of their analysis and deployment. Cushman's (1941) study of regulatory agencies, for example, is often cited as one of the first efforts to systematically define the range of possible instruments which could be used in policy design.

Other efforts around the same time originated in the post-World War II planning exercises and reconstruction efforts undertaken by the United Nations and Organization for

Economic Co-operation and Development (OECD) in Europe, which looked at a wider range of tools typically used in the economic realm. Key figures in this research included Nobel Prize-winning development economists such as Jan Tinbergen and Etienne Sadi Kirschen, who published studies — including notably, *Economic Policy in Our Times* (Kirschen et al., 1964) — dealing with the instruments for economic policy they had viewed in operation in the process of post-war European reconstruction. One of the first inventories of instruments was Kirschen's identification of well over forty different types of implementation instruments then prevalent in European economic policy-making activities, ranging from public enterprises to various forms of government procurement, tax incentives, and subsidy schemes.

These studies were followed by many others examining the instruments prevalent in other areas such as banking and foreign policy (Hermann, 1982), adding to the list of tools, such as interest rate determination and other monetary and fiscal tools. Lowi (1966), in particular, developed on the insights first put forward by scholars like Cushman (1941) that governments had only a small number of alternative choices in any given regulatory situation, depending on the amount of coercion they wished to employ in that situation, suggesting that this emphasis shifted over time as policy targets changed.

Further studies refined the idea of only a limited number of "governing resources" lying behind each tool. Hood (1986), for example, argued that governments use four resources to either effect changes in their environment or detect them: *nodality*, meaning the resource that existed simply by nature of the fact that governments existed at the "centre" of social and political networks, but which can also be thought of as "information" or "knowledge"; *authority*; *treasure*; and *organization* (or "NATO" in Hood's terminology). In Hood's scheme, implementation instruments are grouped together according to which of the NATO resources they most or primarily rely upon for their effectiveness, fully recognizing that most policies use some combination of these resources in practice (Anderson, 1977; Hood, 1986).

Hood's taxonomy proved useful in providing a limited number of clearly differen–tiated categories or types of instruments (see Table 1).

All of the kinds of "traditional" substantive

Table 1 Hood's 1986 taxonomy of substantive policy instruments

		Governing resource			
		Nodality	Authority	Treasure	Organization
Principle use	Detectors	Surveys	Licencing	Policing	Record-keeping
	Effectors	Public information campaign	Regulation	Subsidies	Government agencies

Source: Adapted from Hood (1986)

Note. This analysis is easily extendable to procedural tools (Howlett, 2000).

Table 2 A resource-based taxonomy of procedural and substantive policy instruments

		Governing Resource			
		Information	*Authority*	*Treasure*	*Organization*
Purpose of tool	*Substantive*	Public information campaign	Independent regulatory agencies	Subsidies and grants	Public enterprises
	Procedural	Official secrets acts	Administrative advisory committees	Interest group funding	Government re-organizations

Source: Adapted from Howlett (2000), based on Hood (1986)

and procedural tools enumerated by Salamon (2002) can be placed into these categories, and many studies have examined each type of tool and why it has been utilized. These include traditional — more or less command-and-control oriented — "substantive" policy tools such as public enterprises, regulatory agencies, subsidies, and exhortation, and their "procedural" counterparts such as government re-organizations, reviews and inquiries, government-NGO partnerships, and stakeholder consultations (Klijn & Teisman, 1991; Peters & Van Nispen, 1998).

III. New Directions in Tool Use and the Use of "New" Policy Tools

If and how government preferences among tools change over time and how new tools join the toolbox of government are two key questions in this field that bear upon any inquiry into the future of policy tools.

1. Patterns in the Use of Traditional Tools

In the case of substantive tools, over the past several decades, there has been a noticeable movement, in many sectors, away from the use of direct government instruments and public enterprises, and toward the use of more indirect means of goods and services delivery, such as partnerships, special operating agencies, and quangos, among others. Public enterprises, for example, have grown dramatically in many countries, both in the developed world in association with war efforts and in developing countries as a function of decolonization and drives toward economic development (Howlett & Ramesh, 2020). The spread of privatization in almost every country between 1970 and 2000 undermined the use of this tool (Kamerman & Kahn, 1989; Suleiman & Waterbury, 1990).

However, this movement should not lead us to underestimate the resilience and continued presence of traditional direct government tools, especially line departments, which remain the backbone of most policy sectors (Aucoin, 1997). Thus, in the case of public enterprises, for example, it must be recalled that the term "privatization" carries at least two different, albeit related, meanings (Starr, 1989, 1990a, 1990b). In one common usage, the term is sometimes inaccurately used as a shorthand reference for general efforts made in many countries in the 1980s and 1990s to reduce the scale or scope of government. In the second sense, however, privatization refers only to

those very specific efforts made by the state to replace organizational instruments based on government ownership with those based on more indirect control — like independent regulatory commissions — which is much more limited in character and effect, and do not necessarily entail a shift towards a wholly new governance mode.

It is true, though, that over the same period, many regulatory activities did change in character, having been abolished or shifted from "enforcement" to "compliance" regimes in a parallel process of "deregulation" (Derthick & Quirk, 1985). With respect to authoritative substantive instruments, the traditional direct and indirect regulatory mechanisms which were a feature of implementation in many countries — were augmented throughout the 1970s and 1980s by efforts to promote more voluntary regulatory regimes in a wide variety of issue areas, from environmental protection to transportation and food safety. This deregulatory movement was offset in many jurisdictions and sectors in more recent decades, however, by return to direct or indirect regulation through re-regulation of areas such as telecommunications, water, and energy in many countries (Majone, 1997; Ramesh & Howlett, 2006).

There have also been some interesting developments in the patterns of use found in the use of traditional treasury instruments in recent decades. In the area of financial tools, changes in policy design have been more unidirectional, with most countries seeing a cross-sectoral government-wide shift in recent years from an emphasis on the use of more visible subsidies —

to alter the behaviour of firms and consumers in the marketplace — to a preference in many sectors for less visible forms of tax- and royalty-based expenditures. While most economic theories push for visible taxes and incentives in order to promote "rational" information-driven social and economic behaviour, the reality in most countries has been a trend toward more and more hidden financial tools, especially tax-based ones. These are much more difficult to trace and quantify, and hence, protect the disbursing governments from the charges of favoritism or other market-distorting practices (Howard, 1993, 1997).

And it is also now very much a matter of course for information campaigns to accompany all new government initiatives. Information dissemination remains relatively low-cost in terms of financial and personnel outlays, and efforts in this area are often thought to be highly cost-effective and, thus, preferable to other, more expensive tools (John, 2013). But compliance with government urgings is a major issue and, as in all advertising (Pepsi, Coke, etc.), evaluating the impact of these campaigns is very uncertain. Consumers may not pay attention to information provided by, for example nutritional or ecolabels, or may become inured to messages repeated too often (Howells, 2005). Effective campaigns can also take some time to get started and evoke any behavioural responses, while frown-upon behaviour — such as smoking or overeating — can revert back to old habits and patterns once a campaign stops. Or, where too much information is provided ("information overload") the target audience may stop listening, also leading to diminishing

returns over time (Bougherara et al., 2007). Thus, while inexpensive, comparatively speaking, the political risks to the government in using this tool may be high (Young, 2007).

With respect to procedural instruments, there has also been substantial growth in the use of consultative forums and mechanisms in many sectors and countries over the past several decades. This extends from the increased use of public hearings to the increased creation (and regulation) of advisory committees (Brown, 1955; Smith, 1977). In many countries as well, institutionalized forms of citizen involvement in policy-making have attempted to replace agenda-setting and policy influence by only those actors intimately involved in a project or programme ("special interests") with a process in which "outsiders" as well as "insiders" could promote new and alternative perspectives on these issues (Pierre, 1998).

On the procedural financial tool front, there is not a great deal of information available from which to judge, but a pattern in many countries and sectors has been the increased use of such tools over the past thirty years in the effort to enhance and control the operation of interest articulation and aggregation systems in many sectors. Many groups receive direct funding from governments, while others are funded indirectly through tax systems which allow, for example, transfer of funds to non-profit and charitable groups either directly or through foundations, and other similar mechanisms (Fraussen & Halpin, 2016; Wood & Hagerman, 2010).

There risks involved in such activities though, since outside funding promotes

oligarchy or formalization in voluntary associations, and can lead to discontent both among "co-opted" group memberships as well as from groups which do not receive funding (Lowndes & Skelcher, 1998; Smith, 2005). Ideological predispositions toward "free association" in deliberative democratic practices, too, are jeopardized by government manipulation of interest articulation systems, which can lead to further difficulties for governments who engage in this practice in a substantial way. As a result many such developments and tool deployments have been hidden in the tax system, or deployed somewhat irregularly (Pal, 1995).

Finally, in the area of information-based procedural tools, not only has the propensity for governments to undertake large-scale public information campaigns accelerated, as discussed above, but so has their use of devices such as surveys and other techniques for monitoring populations and the effort to render policy processes more transparent through the use of freedom of information and lobbying legislation, among others. However, an earlier generation's efforts to enhance information access for the public has been somewhat curtailed by the post-9/11 environment of enhanced security and state secrecy.

2. The Emergence and Use of New Tools

Thus, the pattern of use of traditional substantive and procedural tools has been a mixed one, with a general tendency towards the use of less direct government interventions, a decided increase in the use of information-based tools and a corresponding decrease in

direct government instruments. The strength of such movements has often been over-stated; however, governments of all types continue to deploy many kinds of tools in the effort to achieve their goals.

A key area in contemporary tools research, however, beyond monitoring how patterns in the use of traditional tools have evolved, concerns the analysis and inclusion in contemporary policy designs of new — or at least apparently new — kinds of tools (Hood & Margetts, 2007).

Most notable in the present era are concerns for a better understanding of the deployment, design, and operation of "digital tools" that, for example, utilize, for example, artificial intelligence (AI), as well as other kinds of "collaborative" tools and platforms such as crowdsourcing, co-production, and social media use, and a new set of "behavioural" instruments, including the use of defaults and other tools derived from the insights of research in behavioural economics. The latter include a variety of tools designed to affect the automatic cognitive system in humans and "nudge" them towards behaviours that are in their "best interests" (Thaler & Sunstein, 2009; Thaler et al., 2010).

New Digital Tools

Digital policy tools can be understood in two ways: *Tools that are themselves of a digital nature and tools enabling or prohibiting technology use and data collection*. The former category includes instruments that utilize technologies and new volumes or types of data to pursue policy goals — for example, the use of social media platforms (Liu, 2017; Taeihagh, 2017) to organize delivery of services through crowdsourcing and other "co-production" procedures (Pestoff, 2006; Pestoff et al., 2006).

This includes the digitization of back-office work processes of bureaucrats, which is a powerful procedural tool. Street-level bureaucrats' work has changed considerably because of digitization and automation, and many tasks traditionally conducted by bureaucrats are now carried out by computers (Bovens & Zouridis, 2002). Bureaucracies are further using digital systems to make routine decisions and at times replace bureaucrats altogether, not just in record-keeping and other kinds of clerical tasks, but also in decision-making and regulation, among others (Snellen, 2002). Numerous governmental organizations have already implemented AI technologies to support their processes, for example, for anomaly detection in the context of focusing on the identification of most likely tax evaders or criminal recidivists (Bullock, 2019). These tools can be labelled as *digitally enabled policy instruments* (Clarke & Craft, 2017).

Another way to look at digital tools is to focus on instruments that enable or prohibit certain technologies or data collection. This idea encompasses creating (or limiting) demand for various technologies through regulation, conducting and supporting R&D activities, as well as facilitating data sharing practices (Taylor et al., 2009). This is also where we often see a complex mix or layering of instruments due to existing regulations and requirements for new or updated tools for data collection or sharing practices. Smart meters, as tools to

change energy consumption behaviour, are a good example of such tools because they are usually deployed by private stakeholders (energy companies) but rely heavily on the public (data) infrastructure regulated by the government. If data regulation is not updated (in time), technology development might be delayed, limiting the nudge effect of smart meters (Giest, 2019).

Ultimately, both understandings of digital tools are linked and add to the repertoire of tools available to the government to include in policy mixes. They blend into each other when, for example, new (social media) data is used to enhance public data used for service delivery. Here, governments utilize new data to potentially sharpen existing instruments while also having to think about how data sharing practices are regulated and how to collaborate with private stakeholders.

It is often the case, however, that is not entirely new instruments which appear, but rather the salience of certain existing kinds of policy tools changes, as new possibilities for mixes are created when more data and the possibility of enhanced collaborative efforts with private stakeholders, for example, is more prevalent (Hood & Margetts, 2007). Thus, the automatic prominence of information in the digital process changes the supply of information available to be deployed as part of policy design, and the nature of the information and data resources to be brokered and consumed by political staff, elected officials, and citizens (Craft & Howlett, 2013).

For some instruments, digital twins of "analog" instruments are created. In the citizen-interaction space, this can be seen in the differences that exist between offline and online uses of certain tools. In the offline environment, for example, it is recognized that participatory processes are often dominated by the "'usual suspects,' people who are easily recruited, vocal, and reasonably comfortable in public arenas" (Bryson et al., 2013, p. 29). Digital participation opportunities, however, open up the playing field to the less vocal members of society, since the setting is less immediate and confrontational and more easily accessible compared with offline participation. At the same time, research points out that "internet use increasingly reflects known social, economic, and cultural relationships present in the offline world, including inequalities" (Van Deursen & Van Dijk, 2014, p. 521), and thus, to a certain extent, at least has been trending toward a mirroring of offline consultation, albeit on a far larger scale. Thus, it is possible that online platforms will only strengthen the participation of people who are readily motivated to participate through other channels, without being truly more inclusive (Clark et al., 2013; Van den Berg et al., 2020). A prominent idea in this setting is that of "government as a platform." In the policy tools context, the potential for platform-like settings is largely seen in service toolkits, where different government departments tap into the same set of instruments without additional procurement (Ansell & Miura, 2020).

Collaborative Tools

A second set of "new" tools exists in the large number of collaborative tools and mechanisms which have emerged, including the digital ones

highlighted above. The use of tools to promote collaboration and co-production is another growing area which has received very little treatment in the policy instruments literature until recently. These range from using disability and elderly support organizations to provide services to these populations ("co-production") as well as other activities such as the use of non-governmental "stewardship" councils to provide a basic framework of regulation ("best practices"), as occurs with groups such as the Forest Stewardship Council with respect to logging activities or the Marine Stewardship Council with respect to the fisheries, and many others (Ansell & Gash, 2008).

Co-production emerged as a concept that emphasized citizens' engagement in policy design and delivery, but its meaning has evolved to include a broader set of political-societal relations, including collaboration with civil society groups and non-profit organizations (Pestoff & Brandsen, 2009). This broader definition of co-production, which includes individual (i.e., citizens and quasi-professionals) and organizational levels (citizen groups, associations, and non-profit organizations) of collaboration with government agencies is now common, but its implications for policy design and implementation are not well understood.

Many of these "collaborative" governance arrangements have evaded detailed scrutiny from a tools perspective and are often prescribed without knowing exactly (a) what they are and (b) under what conditions they are likely to succeed or fail (Howlett & Ramesh, 2016). Although, often promoted as solutions to many policy and governance challenges,

an a priori preference for collaboration has little evidence of improved policy outcomes supporting it (Williams et al., 2020).

The use and abuse of such arrangements thus require better analysis. Unfortunately, poor definitions and poor theorization plague many accounts of collaboration in which otherwise dissimilar governance efforts are often clumped under the same rubric and their nuances and differences ignored. For example, Brandsen and Honingh (2016) have aimed to capture the range of distinctions within the concept of co-production by identifying "two variables along which different types of co-production can be distinguished: the extent to which citizens design services delivered to them and the proximity of co-production to the primary process" (p. 7), allowing for distinctions to be drawn based on whether communities are involved in the design and/or implementation of policy. However, the authors highlight the immense diversity of co-production possibilities while noting that this is fundamentally driven by the diversity of governance contexts — meaning deployment of such tools and any evaluation of their impact is challenging to compare conclusively.

Behavioural Tools

A third set of tools which has received a great deal of attention of late is composed those behavioural modifications premised on the deployment of the insights of behavioural economics and psychology. This is especially the case with the notion of "nudges," which has gained much traction within policymaking in recent times (Dolan & Galizzi, 2015),

including the idea of better designing "choice architectures" (Sunstein, 2014).

Sunstein (2014) has identified ten important nudge types which combine traditional procedural and substantive tools in sometimes new ways. These include: (i) default rules, (ii) simplification, (iii) use of social norms, (iv) increase in ease and convenience, (v) disclosure, (vi) warnings, graphic, or otherwise (vii) pre-commitment strategies, (viii) reminders, (ix) eliciting implementation intentions, and (x) informing people of the nature and consequences of their own past choices.

Most of these are variations on previous efforts to alter public and individual behaviour through information provision, although with a decidedly less conscious or "rational" bent. That is, many of these efforts are geared toward the use of what has been termed "system 1" thinking, which is the less cognitive and more automatic or reflexive mode of thinking compared to the more conscious "system 2" mode (Kahneman, 2013).

Underpinning this distinction is a conception that policy targets employ heuristics or mental "shortcuts" in their decision making based on "system 1" thinking, which may not always correspond with their individual or society's welfare (e.g., in terms of road safety or better use of public transport). Instead of relying on explicit incentives or direct coercion, which appeal to "system 2" thinking, the use of behavioural insights as policy tools involves indirectly affecting the situation within which individuals make publicly relevant decisions, such that when they employ their familiar heuristics (system 1), the most visible or easiest decision option for policy targets to take is one that is more welfare-promoting, whether this is realized or not. Examples include signs pointing to the stairs rather than escalators in subways to promote exercise, or, for example, using different coloured seats in public trains to signal commuters to relinquish them to those more in need (Moseley, 2020).

Such tools have received a great deal of attention from policy and behavioural labs, and have been deployed by many governments in recent years, albeit often with less than the expected impact on target behaviour, a phenomenon which has itself become the subject of research (Reynolds et al., 2019; Schubert, 2017; Sunstein, 2017). This literature has found that nudges are rarely stand-alone instruments being implemented. Instead, they are situated in a larger implementation context that includes existing regulations as well as potentially counter-acting nudges by private stakeholders (Ekhardt & Wieding, 2016).

Academics agree that more work is needed on devising supporting policy tools for nudges, which can help enhance cognitive and deliberative capacities (often called "boosts"), or rely on more reflection on the part of policy targets rather than simply responding to heuristic triggers (Hertwig, 2017). To address the complexity of nudges being implemented by third parties that potentially serve or counteract policy goals, the idea of "budging" has been increasingly prominent in the public administration and policy literature (Oliver, 2015). It captures the need to look at the regulatory and market structures that affect nudge implementation.

IV. Conclusion: Overall Patterns and Trends in New and Old Policy Tool Use — Less Movement than Meets the Eye?

As this discussion has shown, the patterns of tool use in contemporary policy design are much more varied than might initially be surmised. The general picture provided here, however, in terms of measures of government involvement in specific tool choices and policy designs, is of a number of discernible shifts. As Hood et al. (1999) and Majone (1997) have argued in the European case, for example, "modern states are placing more emphasis on the use of authority, rules[,] and standard-setting, partially displacing an earlier emphasis on public ownership, public subsidies, and directly provided services."

These trends, however, are much less dramatic than is often suggested, and the same is true of the deployment of the three categories of "new" policy tools cited above. New policy tool use must be compatible with previously existing governance modes if they are to survive the formulation process and be implemented successfully. For example, while nudging has gained the reputation of an integral new addition to modern policy toolkits, the academic discourse surrounding its contribution as a distinctly novel set of policy tools has yet to find agreement on why some nudges "work" while others do not.

Furthermore, this category of instruments relies significantly on the concurrent formulation of supporting regulatory measures, and alignment with existing institutional contexts conducive to their enactment (Giest, 2020; Kuehnhanss, 2019; Lepenies & Malecka, 2015). Thus, as Moseley (2020) has noted, the current policy instrument scholarship is still rife with debate regarding the ethical dimensions of nudging, despite "flourishing research on the efficacy, public acceptability, merits[,] and limitations of this approach within public policy" (p. 21).

Similar arguments have been raised for other novel digital and collaborative categories of policy instruments. That is, in these instances, the process of formulation also remains constrained by existing policy legacies and prevalent policy styles or preferences that determine the extent of government proclivity for adopting any tool, including new ones (Howlett & Tosun, 2018).

The context within which contemporary policy instruments are formulated and implemented can greatly determine how radically different or novel they are (Mavrot et al., 2019). Thus, the literature on policy design and modern policy formulation has reiterated time and again about how most policy choices linked with policy instruments take place through the incremental calibration of existing policy elements, or the layering of new policy instruments on existing toolkits (Capano, 2019; Howlett & Rayner, 2007).

New and transformative trajectories for policy instruments are significantly bound and dependent on how "any new policy attempts can navigate pre-existing policies and find ways to create a productive layering of existing and new policies" (Schot & Steinmueller, 2018, p. 1563). Howlett and Rayner (2007) have further argued

that the enactment of new policy programs rests heavily on governance processes linked with incremental policy learning, positive feedback mechanisms, sunk costs, and increasing returns within policy systems. This is especially the case as the potential "fit" or suitability of adding any new tools to an existing mix is dependent on maintaining coherence and consistency with active policy portfolios (Kern & Howlett, 2009).

In addition to these more contextual constraints, there are also concerns about the capacity of government in understanding and properly utilizing novel instruments. Deploying behavioural and digital tools, for example, requires extensive knowledge of the existing evidence on human behavior in specific contexts and how it might be changed. Digital instrument development, in particular, requires the allocation of resources to review available processes and integrate them with new tools and techniques (Dunleavy et al., 2006; Giest & Mukherjee, 2018; Mont et al., 2014). Research increasingly shows that "governments lack the expertise to match big data to draw on a broader foundation for designing some of these instruments in conjunction with traditional measures," a finding that has wide-ranging effects in different policy sectors, such as the development of "digital welfare systems" (Giest & Mukherjee, 2018, p. 362; Yeung, 2018).

Nevertheless, at a time of significant and visible transitions in many policy sectors, there has been a surge of interest in understanding the formulation of these new tools and how they can contribute alongside the more traditional tools in the development of innovative policy mixes to support government

policies and achieve government goals during these transitions. Better understanding and designing policy portfolios to deal with these developments requires equal consideration for the both the conditions that lead to effective implementation of traditional policy tools and programs, as well as more detailed knowledge of the strengths and weaknesses and advantages and disadvantages of the new ones.

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KIPA

Measuring the Inclusiveness of Modern States: What We Have and How We Can Improve

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Abstract

In 2018, the Moon Jae-in administration of South Korea proposed a national vision of an innovative and inclusive state where all people prosper together. However, there is still limited understanding of what such inclusiveness would actually entail, and how it should be measured. These are important issues to consider, as state inclusiveness must be both conceptualized and measured to diagnose the current level of inclusion in Korea and prepare specific strategic plans. In the summer of 2020, the Korea Institute of Public Administration launched a research project tasked with developing a state inclusiveness index, thus in response to the demand for a reliable and valid measurement tool. Based on a conceptualization of the inclusive state, this research will construct an indicator framework of state inclusiveness that consists of four main areas of political, economic, social, and global inclusiveness. This will be the first research project in the world targeted at conceptualizing and measuring state inclusiveness. This may facilitate future researchers in investigating the inclusive state as an alternative form of the postmodern state while providing a way to monitor any government efforts to make such a transition.

Keywords: state inclusiveness, national vision, inclusiveness index

I. The Need for a State Inclusiveness Index

Today, Korea faces a situation in which exclusion of other groups has been strengthened in all areas of national activity, including politics, the economy, society, and international relations. In politics, confrontation and hatred are now the dominant forces in a winner-

takes-all system, thus undermining notions of shared power, coexistence, and cooperation. As for the economy, income gaps continue to widen between classes and sectors. As for the social aspect, citizens have a weak sense of social solidarity, with each person walking along a different path in order to survive. Beyond borders, international openness and cooperation are diminishing, while superpowers compete head-to-head for global supremacy.

If Korea fails to overcome its problems of exclusion, concentrated at the political, economic, social, and global levels, it will be highly difficult to achieve sustainable development and prosperity. Economically and socially, the nation's 21st-century development model should be geared toward a fair and innovative market economy while reducing inequality and polarization. The nation must also pursue a global agenda of peace, coexistence, and prosperity by alleviating tensions in the Korean Peninsula and removing itself from the diplomatic dilemma of the G-2 hegemonic rivalry. However, these goals are problematized by an "adversarial democracy," which has resulted in stark divisions between polarized political groups. This makes it very difficult to reach political consensus in areas that require major policy change.

In 2018, the Moon Jae-in administration proposed a national vision of an innovative and inclusive state, in which all people prosper together. The innovative and inclusive state is described as a model of state that pursues qualitative growth over quantitative growth, promotes a society of coexistence and mutual gains over exclusion and winner-takes-all

monopoly, and innovates towards the future, eventually meaning Korea for all. In order to realize this national vision, it is first necessary to innovate the national system and policies across all sectors by centering on inclusiveness. This requires a measurement tool for assessing the current conditions.

A state inclusiveness index is a policy indicator designed to monitor performance when transitioning to an inclusive state. As the British physicist William Thompson (1824-1907) once said, "If you cannot measure it, you cannot improve it." State inclusiveness must be conceptualized and measured to diagnose the current level of inclusion, and then specific strategic plans can be prepared. This paper introduces a preliminary state inclusiveness index that was developed through a pilot study conducted by the Korea Institute of Public Administration (KIPA) in 2019. Drawing upon this, it also highlights ongoing areas of international collaborative research into state inclusiveness indices and discusses ways to improve our knowledge on measuring the degree of which individual state inclusiveness.

II. Review of Previous Research

1. Existing Inclusiveness-Related Indices

The UN Global Indicator Framework for SDGs

The United Nations (UN) Global Indicator Framework for Sustainable Development Goals contains 17 total Sustainable Development Goals (SDGs). Among these, SDG 16 asserts the need to promote justice, peace, and inclusiveness throughout society. This has direct

implications for state inclusiveness. Of the 12 specific targets outlined in SDG 16, Target 16.7 is the most relevant; it specifies the need to ensure responsive, inclusive, participatory, and representative decision-making at all levels, which is measured through two indicators (16.7.1 and 16.7.2). Indicator 16.7.1 has been defined as the "proportions of positions by sex, age, persons with disabilities and population groups in public institutions (national and local legislatures, public services, and judiciary) compared to national distributions," while Indicator 16.7.2 includes the "proportions of population who believe decision-making is inclusive and responsive, by sex, age, disability and population group" (Ritchie & Mispy, 2018).

The OECD Better Life Index

The OECD Better Life Index was created to measure material living conditions and quality of life in OECD countries. It is divided into the 11 sub-indices of housing, income, jobs, community, education, environment, civic engagement, health, life satisfaction, safety, and work-life balance. Each sub index is measured through two or three indicators. For example, civic engagement is measured by voter turnout and stakeholder engagement in the development of regulations (OECD, 2020).

The WEF Inclusive Development Index

The World Economic Forum (WEF) Inclusive Development Index (IDI) measures the state capacity to "contribute simultaneously to higher growth and wider social participation in the process and benefits of such growth" (World Economic Forum, 2018, p. 1). The IDI consists of three main components, including growth and development, inclusion, and intergenerational equity and sustainability. The growth and development component is measured based on GDP per capita, employment, labor productivity, and healthy life expectancy. Next, the inclusion component is measured based on median household income, the poverty rate, and Gini coefficients of income and wealth. Finally, the intergenerational equity and sustainability component is measured based on adjusted net savings, public debt as a share of GDP, the dependency ratio, and carbon intensity of GDP.

The KIHASA Social Cohesion Index

The Korea Institute for Health and Social Affairs developed a social cohesion index based on three pillars. The first of these is social inclusion, which is measured based on relative poverty, the gender gap, employment protections for non-regular workers, the share of involuntary temporary workers, and social expenditures for elderly people as a share of GDP. The second is social capital, which is measured based on civil liberties, general trust, institutional trust, tolerance, and civic participation. The third is social mobility, which is measured based on the amount of public expenditures for education, active labor market policy expenditures as a share of GDP, the decile dispersion ratio, academic achievement, and school dropout rates. Finally, the index also assesses social conflict management, which is measured based on suicide rates, the number of industrial disputes, the democracy index, the wage gap between regular and non-regular workers, and the labor

income share (Jung et al., 2016).

2. Limitations of Existing Indices

First, both the UN Indicators for SDGs and OECD Better Life Index are primarily focused on the conditions and outcomes of inclusion rather than the state of inclusion itself. That is, both indices are designed to measure material life conditions, quality of life, and socioeconomic development. In this context, a distinctive theory of state inclusiveness is required to distinguish between "inclusiveness" and "quality of life."

Second, most previous studies have been aimed toward social inclusion or social policy-oriented approaches. In this regard, there has been a lack of research into other fields of modern state activity, including politics, the economy, and international relations. Although it is clear that social policies are important tools when transitioning to an inclusive state, the current literature shows a lack of awareness about the importance of political governance in establishing social policy. If political governance is not sufficiently inclusive, then it is difficult to determine what constitutes an inclusive social policy. It is also difficult to continuously implement such a policy. As Kathleen McNamara pointed out, "It's the politics, stupid."

Third, existing indices of social inclusion are based on objective indicators, which correspond to the material conditions of social inclusion. For example, the WEF Inclusive Development Index uses the inclusion indicators of median household income, the poverty rate, and Gini coefficients, while the KIHASA Social Cohesion Index uses the relative poverty rate, gender gap, employment protection for non-regular workers, involuntary temporary workers ratio, and social spending for the elderly as a percentage of GDP. Due to a general focus on objective measures, these indices neglect the subjective dimensions of social inclusion, such as the exclusive perception of other groups, especially those representing minority interests.

## III. The 2019 KIPA State Inclusiveness Index

1. The Framework of the State Inclusiveness Index

The framework implements indices that measure inclusiveness in the four major areas of politics, the economy, society, and international relations (Figure 1). Each subindex is measured as a 0-1 normalized average without weighting.

Political Inclusiveness: Power Sharing Both at the Horizontal and Vertical Levels

According to Acemoglu and Robinson

Figure 1 Framework of the State Inclusiveness Index
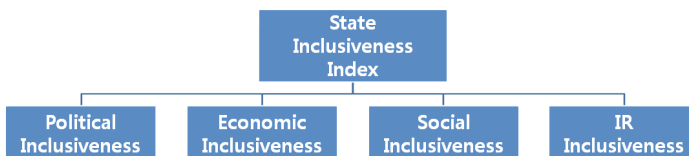
(2012), an inclusive political system is sufficiently centralized to maintain legal order, yet distribute power in a pluralistic fashion. By contrast, a political system is classified as exploitative if either of these conditions are not met. In the context of Max Weber's ideas on the monopoly of the legitimate use of coercive force, centralization implies that it is appropriate for national government organizations to be established and functioning. Following Acemoglu and Robinson, Somalia's political system may initially seem pluralistic because power is dispersed among the tribes; in reality, however, the system is divided into tribes without a centralized government, thus making it difficult to establish inclusiveness (p. 126). A pluralistic political system refers to one in which political power is not exclusive to an individual or group, but is evenly distributed and mutually balanced across society.

Lijphart (2012) categorized the democratic model into majoritarian and consensus types, with consensus democracies being more inclusive than majoritarian democracies. Indeed, in the majoritarian model, political power is institutionalized for a majority-supported party. This arrangement is based on the idea that democratic governments should respond to the political desires of a bare majority of the people. In a two-party system, the ruling party is therefore the majority-supported party, and thus, is able to establish legislative and executive power by shaping the government according to its own preferences. The electoral system used in the majoritarian model is the small-district plurality electoral system linked to the formation of two-party

systems. While not completely reaching ideal status, Lijphart classified the United Kingdom as the best example of a functional majoritarian model.

By contrast, the consensus model institutionalizes political power so that it is spread across parties. This arrangement is based on the idea that democratic governments should reflect political support from the largest population. Since it is rare for any election to produce a single majority party, such a government will more likely form through interparty coalitions. There is also a tendency to seek oversized cabinets and/or grand coalitions rather than remaining at the level achieved through the minimum winning coalition. The electoral system used in the consensus model is a proportional representation system, which produces a multiparty system through the even distribution of parliamentary seats among small parties, thus reflecting actual voting percentages. Lijphart classified Switzerland as the country thathas most closely achieved an ideal consensus model.

From a comparative standpoint, Lijphart (2012) argued that the "majoritarian model is exclusive, competitive and adversarial, while the consensus model is characterized by inclusiveness, bargaining and compromise." To summarize the main ideas presented by both Acemoglu and Robinson (2012) and Lijphart (2012), the practice of sharing and dispersing political power is therefore a key element for political inclusion. Going further, political power can be shared and dispersed along horizontal and vertical dimensions (Ahn, 2019). Looking along the horizontal dimension, inclusive

political power must be widely shared in the form of a consensus executive that involves multiparty participation. This is opposed to a unitary executive, in which a single person or party controls the entire executive branch. In order to share power at the horizontal level, the electoral system must be characterized by proportional representation with an institutional propensity for multiparty politics. Along the vertical dimension, it is vital to share power between the central and local governments, as well as between elites and other citizens. Focusing on the central and local governments, shared power is known to institutionalize a decentralized political structure (e.g., a federal system), which promotes inclusion, while achieving a balance between elites and other citizens requires institutions of direct democracy, including citizen-based initiatives, recalls, and referendums. It is also necessary to strengthen transparency throughout the policy process by allowing access to government data and providing more opportunities for citizens to participate.

Lijphart (2012) developed two dimensions, including the executives-parties and federal-unitary of the majoritarian-consensus typology, which seem appropriate for measuring horizontal and vertical political inclusiveness, respectively. The executives-parties dimension is an index of horizontal political inclusiveness, which Lijphart believed was integral to the majoritarian-consensus comparison. The executives-parties dimension is measured based on the effective number of political parties in a given parliament, the proportion of minimal-winning-coalition and single-party-

majority cabinets in duration, the relationship between the executive and parliament, and the proportionality of the electoral system. The relationship between the executive and parliament is further divided into two categories, including executive-parliamentary-balanced regimes (e.g., the United States and Switzerland) and executive-superior regimes (e.g., the United Kingdom). However, parliamentary superiority does not exist in reality. According to Lijphart, Switzerland employs the strongest consensus-based system, while the United Kingdom employs the strongest majoritarian system among all OECD countries.

It should be noted that Lijphart's two-dimensional indices lack many data for OECD countries. For that reason, this study used one of the key components of the first-dimension index (the proportionality of the electoral system) to measure the degree of power-sharing between majority and minority parties within the horizontal dimension. The Gallagher Index was developed to measure electoral disproportionality (Gallagher, 1991). It is computed by taking the square root of half the sum of the squares of the difference between the percentage of votes and the percentage of seats for each political party. The larger the index score, the larger the disproportionality. Christopher Gandrud updated the Gallagher Index data for 121 countries over the years 1945 to 2014.[1]

The Freedom House Political Rights and Civil Liberties Index seems suitable for

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1 See Christopher Gandrud's Website:
   http://christophergandrud.github.io/Disproportionality_Data/

measuring the degree of vertical power-sharing within the elite dimension. It is easier to properly check political power while promoting political inclusiveness when citizens are guaranteed a greater number of political rights and civil liberties.

The V-Dem Institute Participatory Democracy Index[2] also measures power sharing from the vertical perspective, thus encompassing political inclusiveness in both the central-local and elites-citizens dimensions. More specifically, the Participatory Component Index is measured based on the degree of civil society participation, direct democracy, and the power of local and regional governments.

The fiscal autonomy of local governments is also used to measure central and local power sharing and/or decentralization levels. The higher the fiscal autonomy of a local government, the higher the level of power sharing and/or decentralization between the central and local governments. Local fiscal autonomy is measured based on the ratio of the local government's own source revenue to the general government's total revenue.

In 2015, the OECD Political Inclusiveness Index showed that Switzerland was the most inclusive country, while Turkey was the least inclusive. Korea was ranked 30th among the 35 measured countries. Political inclusiveness is a simple unweighted average of the four political

2   The V-Dem Institute is a research organization affiliated with the University of Gothenburg, Sweden. They define democracy as a multidimensional concept consisting of five models (electoral, liberal, deliberative, egalitarian, and participatory). Each model of democracy uses a variety of indicators to conduct expert surveys for more than 200 countries each year.

inclusiveness indicators, which are normalized between 0 and 1.

Economic Inclusiveness: Fairness and Openness of the Market Economy

Acemoglu and Robinson (2012) argued that an inclusive economic system must ensure that any citizen can freely and fairly compete within the market while gaining rewards for innovation. An inclusive economy is not a system in which the government protects uncompetitive firms from market forces, but one in which market opportunities are open to all actors under the premise of fair competition, which entails an equitable legal system. Fair competition and low barriers to entry are key components of an inclusive economic system, in which competition must be active rather than limited. Further, market rewards for innovation are sufficient incentives for new firms to enter the industry. As Acemoglu and Robinson (2012) stated, an "inclusive economic system means that public services are provided to ensure private property, the legal system is implemented fairly, and a fair competitive environment where everyone can exchange and contract. Inclusive economic systems also allow the participation of new firms and guarantee individuals' freedom of job choice." Here, persons who are economically underprivileged should be protected in the area of social inclusion, not economic inclusion; this should be achieved through an effective social security system aimed at helping the disadvantaged rather than restricting market competition.

Baumol et al. (2007) distinguished between good and bad capitalism in a way by interring

that good capitalism implies an inclusive economy. They categorized the capitalist model into four types. The first is state-guided capitalism, which prevails in developmental states where the government determines winners in strategic industries and markets for the purpose of achieving national goals. The second is oligarchic capitalism, which appears in the developing world and requires that economic policies be determined through networks comprising a few political and economic elites. The third is big-firm capitalism, in which large corporations dominate major industries and drive economic growth. Finally, the fourth is entrepreneurial capitalism, in which innovative small and mid-sized enterprises (SMEs) drive growth in their respective industries.

Baumol et al. (2007) also argued that the combination of entrepreneurial and big-firm capitalism resulted in the best overall form, which can otherwise be referred to as an inclusive economy. These economies are not solely driven by SMEs to the exclusion of large firms. In other words, the inclusive economy is a system in which each type of entity is associated with different roles. For example, SMEs drive disruptive innovation, while big firms drive gradual innovation. The result is a "win-win system." SMEs are better at disruptive innovation because large companies tend to make heavy investments aimed at stabilizing their success models. For that reason, they are less likely to initiate disruptive innovation which could render existing success models obsolete. Instead, they focus on gradual innovation, which improves existing models.

Economic inclusion is measured through indicators of fairness and openness within the market economy. Measurements taken via the World Bank Rule of Law Index are based on whether governments equally and effectively apply the law for the purpose of achieving a smoothly operating market economy. This includes contract implementation, transaction security, and property rights protections.

The Corruption Perception Index of Transparency International measures the degree to which political corruption is likely to undermine fair competition. Such a measurement may not capture petty corruption enacted by street-level officials, but does represent the perception of the severity of grand corruption involving high-ranking officials (Rose-Ackerman & Palifka, 2016, p. 26).

The OECD Indicators of Production Market Regulation measure the degree to which market entry and competition are free and fair. This is important, as entry restrictions create an oligopolistic market that results in unfair competition. A larger product regulation index means that new companies are not free to enter the market, in which case existing entrants enjoy the rent.

Looking at 35 OECD countries, the Economic Inclusiveness Index shows that the Netherlands is the nation with the highest inclusivity, while Turkey is the lowest. Korea ranked 31st for economic inclusion. The Economic Inclusiveness Index consists of three indicators, including the Rule of Law Index, Corruption Perception Index, and Product Regulation Index. Each indicator is measured as a simple average without weighting after normalization to values between 0 and 1.

Social Inclusiveness: Addressing Poverty and Social Exclusion

The European Union focused on social inclusion to resolve poverty and social exclusion (Atkinson et al., 2004). The goals of social inclusion are as follows: (1) promoting labor market participation and access to resources, rights, goods, and services; (2) preventing the risk of exclusion; (3) supporting the most vulnerable; and (4) mobilizing all relevant agencies. According to the European Union, the policy targets of social inclusion can be defined as the poor and minorities.

There is a different approach to social inclusion that defines social inclusiveness based on individual and/or group identity issues (World Bank, 2013). In this context, social inclusion is considered the process by which factors of ability, opportunity, and dignity are improved for persons who are disadvantaged based on their identity. This follows the logic that identity is frequently used to socially exclude or embrace people at both the individual and group levels. The group identities that most often result in social exclusion include gender, race, ethnicity, religion, and disability.

Objective and subjective indicators are conjunctively used to measure social inclusiveness. As presented by Atkinson et al. (2004), objective indicators measure the concept of social inclusion from the perspective of the European Union, with a particular focus on material conditions such as income, employment, health, and education, all of which may result in the social exclusion of individuals and groups. More specifically, conditions are measured using the Gini coefficient (OECD), poverty rate (OECD), long-term unemployment rate (OECD), life expectancy at birth (Human Development Index, UNDP), and average and expected years of education (Human Development Index, UNDP).

Subjective indicators are used to measure discriminatory perceptions toward other individuals or groups, as deemed important by the World Bank (World Bank, 2013). For example, the questionnaire implemented by World Value Survey (WVS) is an example of a subjective indicator of social inclusion, as it asks respondents about their attitudes toward excluded groups. It poses specific questions about the degree to which immigrants, homosexuals, HIV/AIDS patients, and women are excluded, as follows: Would you have them as neighbors? Is university education more important for a boy than for a girl? Do men have more right to jobs when jobs are scarce? Do men make better political leaders than women?

Among 35 OECD countries measured with the Social Inclusiveness Index, Iceland was ranked the highest, while Turkey was ranked the lowest. Korea was ranked 31st. The index consists of 12 indicators that are equally divided to create objective and subjective components. More specifically, the six objective indicators include the Gini coefficient, poverty rate, long-term unemployment rate, life expectancy at birth, average years of education, and expected years of education, while the six subjective indicators include immigrants, homosexuals, AIDS patients, gender equality in professional work, gender education equality, and gender political equality. Values are normalized

between 0 and 1, then simply averaged without weighting.

International Relations Inclusiveness: Embracing Open and Multilateral Global Governance

From the international relations perspective, inclusiveness implies the diffusion of power at the global level as well as the pursuit of open economic order. Global inclusiveness is measured in two areas. The first is positive peace and coexistence based on multilateralism. Inclusive states aim for multilateral global governance across a large number of countries rather than facilitating a superpower-oriented hegemony. Countries with higher degrees of IR inclusiveness therefore pursue positive peace through dialogue and negotiation as opposed to negative peace, which merely refers to the absence of war based on the logic of power. This ideal is partially achieved through active efforts aimed at reconciliation and cooperation within the international community. Neoliberal institutionalist theory (Keohane, 1984) posits that international cooperation is possible with aid from international organizations and regimes, even in anarchy. This is a more appropriate model than that posited by Kenneth Waltz's neo-realist theory, in which voluntary international cooperation is difficult to achieve in the presence of anarchy, meaning that peace must be achieved through overwhelming power or the fear of power. An international regime can be defined as a spontaneously arising order that is enabled through the principle of international reciprocity. Typical examples include both the GATT system (trade) and

Bretton Woods system (monetary), which governed international economic order during the post-World War era (Ruggie, 1982).

The second area of global inclusiveness involves the promotion of globally inclusive growth through economic exchange. Inclusive states create opportunities in developing countries by consistently pursuing the free international movement of production elements and goods. The UN Conference on Trade and Development emphasizes the essentiality of an open, transparent, inclusive, and non-discriminatory multilateral trading system in order to achieve inclusive and sustainable economic development (UNCTAD, 2014).

In the context of international relations, the degree of inclusiveness is measured based on a combination of political, economic, and social dimensions. States with strong levels of international political inclusiveness actively participate in international peacekeeping efforts while refraining from expenditures aimed at military armaments. We therefore used two measures, including financial contributions to UN Peacekeeping functions as a share of GDP and expenditures on national defense as a share of GDP.

States with strong international economic inclusiveness are willing to open their borders to trade, thus promoting the exchange of goods and services while increasing the flow of money and labor. We therefore need relevant indicators, such as trade and investment freedom indices (Heritage Foundation) and measurements showing the ratio of foreign populations to total populations (OECD).

States with strong international social

inclusiveness work to reduce disparities between developed and developing countries through international transfers of wealth. This can be thought of in the same way as the social security system, which reduces the income gap by transferring wealth between individuals in the context of domestic society. We therefore used the Principled Aid Index from the Overseas Development Institute, which employs qualitative factors that complement the quantitative aspects of the Official Development Aid (ODA). In this regard, the ODA measures the extent to which purposes and methods meet the demands of developing countries, comply with international cooperation, and pursue publicity.

Among 35 OECD countries, International Relation Inclusiveness Index showed that

Luxembourg and Switzerland were ranked highest, while Korea was ranked lowest. The International Relation Inclusiveness Index is based on two international political inclusiveness indicators (UN Peacekeeping Contribution and Defense Expenses), three international economic inclusiveness indicators (Trade Freedom Index, Investment Freedom Index, and the share of foreign population), and one international social inclusiveness indicator (ODA). Values are normalized between 0 and 1, then simply averaged without weighting.

2. Estimating State Inclusiveness Scores for OECD Countries

The State Inclusiveness Index is measured as a simple average of inclusiveness indices that target four major areas, including political,

Figure 2 State Inclusiveness Index for OECD Countries
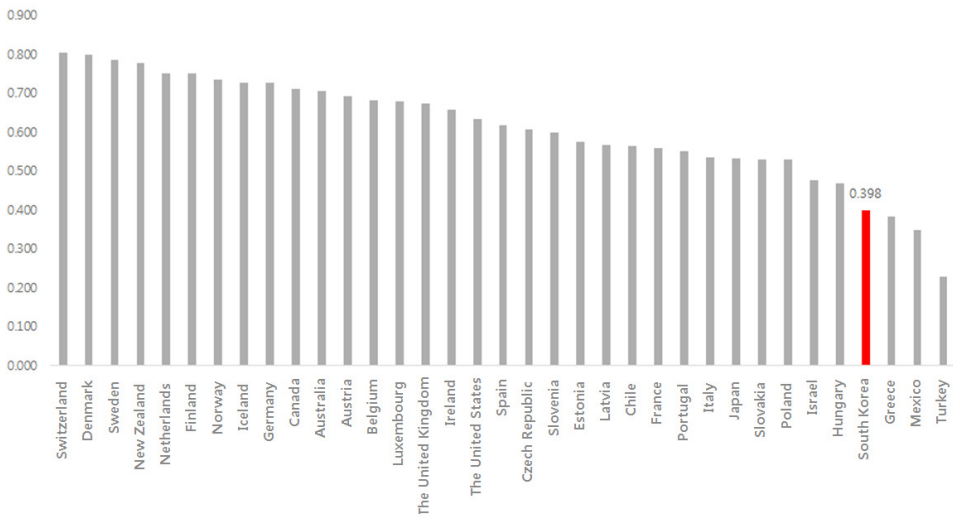
Note: Calculations based on data, circa 2015

Source: Korea Institute of Public Administration (2019, p. 258)

economic, social, and international relations. Based on data from 2015, the State Inclusiveness Index, which is the sum of the inclusiveness indices of four major areas including political, economic, social, and international relations, showed that Switzerland was ranked highest, followed by the Nordic countries (Denmark, Sweden, Finland, Norway, and Iceland), while Turkey was ranked lowest. States Inclusiveness Indices for other major countries show rankings of 9th, 15th, 17th, and 24th for Germany, the United Kingdom, the United States, and France, respectively. Korea's State Inclusiveness Index is very low, ranking 32nd among 35 OECD countries (Figure 2).

IV. The KIPA State Inclusiveness Index, 2020

1. Limitations of the 2019 Study on the State Inclusiveness Index

KIPA's 2019 project on the state inclusiveness index constituted a groundbreaking effort to measure and compare state inclusiveness between countries. However, there were some theoretical and methodological shortcomings.

From a theoretical standpoint, the 2019 index lacks an overarching concept of state inclusiveness. While it individually explains what inclusiveness means in the context of four dimensions (political, economic, social, and international relations), it does not provide a general definition for state inclusiveness itself. The individual dimensional explanations are also somewhat limited. This is because theoretical discussions were only briefly held for the purpose of selecting key words that

characterized state inclusiveness based on previous research. A more comprehensive study on the state inclusiveness index therefore requires a fuller conceptualization of the inclusive state. We can then draw theoretical implications for state inclusiveness in each of the four subfields based on the overarching concept thus developed.

Methodologically, the 2019 index is limited by both its small number of indicators and simple, non-weighted averages for those indicators without justifications. We implemented a total of 21 indicators, including four for the political inclusiveness index, three for the economic index, nine for the social index, and five for the international relations index. In this regard, we would like to conduct a more extensive search for available indicators. We can then explicitly determine how they should be aggregated.

2. Ongoing Research to Develop the State Inclusiveness Index

The Concept of the Inclusive State

Guy Peters (2020) defined an inclusive state as "a political system that attempts, to the extent possible, to involve fully all citizens in the political, economic, and social life of the country… to maximize the well-being and participation of all citizens." He further suggested that inclusiveness could be enhanced by "removing barriers" and "building bridges." More specifically, the practice of removing barriers refers to the elimination of structural and behavioral obstacles to inclusiveness, while the act of building bridges refers to

the formation of cooperative relationships between different groups. Based on this conception of state inclusiveness, it should be more extensively defined in areas of politics, economy, society, and global relations. This should be accompanied by the construction of an indicator framework to measure each area.

Areas and Sub-Areas of the Inclusive State

To maximize the wellbeing and participation of all citizens, efforts must be made to increase inclusiveness at both the state and policy levels, particularly in various dimensions of politics, the economy, and society. As a key area of the inclusive state, global inclusiveness must also be enhanced, thus reflecting a worldwide trend in which international cooperation is desired in all such dimensions. This goal is also supported by a recent political analysis of the UN SDGs, as well as the growing demand for national implementation to accommodate the Korean situation.

Following the theoretical evidence presented by research participants, four areas must be pursued in order to develop a comprehensive index for measuring inclusiveness, including politics, the economy, society, and global relations. Details are available in Table 1.

As shown above, each of the four areas comprises three to four sub-areas that aim to construction of an inclusive state. They also constitute the concepts of inclusiveness that each index is designed to measure within the context of overall state inclusiveness.

First, the sub-area of political inclusiveness can be summarized through the following components: (1) free formation and input of political preferences, (2) power sharing, and (3) effective civic participation. Political inclusiveness is aimed toward guaranteeing full political liberty for citizens while complementing the shortcomings of an existing representative democracy by sharing power with diverse political actors and promoting real and active citizen participation.

Second, the sub-area of economic inclu–siveness includes the following: (1) inclusiveness of human capital formation, (2) inclusiveness of the labor market, (3) inclusiveness of the financial market, and (4) inclusiveness of the business ecosystem. Economic inclusiveness requires equal opportunity, the cultivation of

Table 1 The Four Areas of the State Inclusiveness Index and Their Sub-Areas

State Inclusiveness			
Political	*Economic*	*Social*	*Global*
- Free formation and input of political preferences - Power sharing - Effective participation	- Inclusiveness of human capital formation - Inclusiveness of the labor market - Inclusiveness of the financial market - Inclusiveness of the business ecosystem	- Macro-level inclusiveness - Alleviating institutional exclusion - Social relationships	- International politics - International economy - International society - International environment - International cooperation

social competence through human capital, and the creation of a healthy business ecosystem.

Third, the sub-area of social inclusiveness is characterized by the following: (1) macro-level inclusiveness, (2) alleviating institutional exclusion, and (3) social relations. This type of inclusiveness involves individual social relations and connectivity at the micro level, and institutional and structural designs to promote social integration at the macro level.

Lastly, the sub-area of global inclusiveness contains the following components: (1) international politics, (2) international economy, (3) international society, (4) international environment, and (5) international cooperation, each of which are based on the "5 Ps" (peace, prosperity, people, planet, and partnership) listed in the UN's SDG framework. This area was developed based on the perspective that global inclusiveness and innovative global governance can actually be integrated in realpolitik.

V. Concluding Remarks

The state vision of inclusiveness will take a very long time to be realized in Korea. Indeed, it will require consistent reforms in every corner of politics, economy, and society. Political leadership and public support must be mobilized to improve the Korean state in a way that ensures a more inclusive structure. In this regard, all actors must work to overcome resistance and conflict stemming from entrenched interest groups.

The new state inclusiveness index for OECD countries will be presented to the public by the time this article is published. While the 2019 index was more of a preliminary output, the 2020 index is expected to be improved in terms of its theoretical and methodological rigor. Above all, it will constitute the world's first academic study dedicated to conceptualizing and measuring state inclusiveness. The research product should also facilitate future investigations into the inclusive state as an alternative to the modern state, while providing a way to monitor government efforts to make any such transition.

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Annex Indicators Used in the Framework of the State Inclusiveness Index

Areas	Indicators	Measured contents	Implications for inclusiveness	Data sources
Political	Proportionality of election results	The degree to which the percentage of seats given to a particular political party reflects the respective percentage of earned votes	Power sharing between political parties	- Gallagher Electoral Disproportionality Data - Christopher Gandrud's website
	Political rights and civil liberties	- Electoral process - Political pluralism and participation - Functioning of government - Freedom of expression and belief - Freedom of association - Rule of law - Personal autonomy and individual rights	-Power sharing between political parties -Power sharing between elites and citizens	- Freedom House - Freedom in the World
	Participatory democracy	- Voluntary participation in civil society organizations - Factors of direct democracy - Power reserved for local governments	-Power sharing between elites and citizens -Power sharing between central and local governments	- V-Dem Institute - Varieties of Democracy Data Version 9
	Local fiscal autonomy	Proportion of the local government's own-source revenue to general government's revenue	Power sharing between the central and local governments	- Korea Institute of Local Finance (2016)
	Rule of law	- Contract enforcement - Property rights	Safe environment for transactions	- World Bank - Worldwide Governance Indicators
	Corruption Perception Index	- Political corruption in collusion with business - Corrupt abuse of power	Fair competition	- Transparency International - Corruption Perception Index
Economic	Product market regulation	- Scope of public ownership and public enterprises - Government intervention in business operations - Regulatory complexity/restrictions on competition - Administrative burdens on start-ups - Barriers to entry in service/network industries - Barriers to entry in trade and investment	Free competition	- OECD - Indicators of Product Market Regulation

Areas	Indicators	Measured contents	Implications for inclusiveness	Data sources
Social	- Gini coefficient - Poverty rate - Long-term unemployment rate - Life expectancy at birth - Average and expected years of education	Material conditions that cause social exclusion	Objective social inclusion	- OECD Income Distribution Database - UNDP Human Development Index
	Attitudes toward excluded groups (immigrants, homosexuals, people with HIV/AIDS, and women)	Inclusive attitudes toward other social groups	Subjective social inclusion	World Values Survey
	- Financial contributions to UN peacekeeping operations (as a % of GDP) - Government expenditures on defense (as a % of GDP)	- Active participation in the peacekeeping efforts of international organizations - Refraining from national armaments	Promoting global peace through multilateral global governance	UN Global Peacekeeping Data Source: OECD
International Relations	- Trade and investment freedoms - The ratio of the foreign population to the total population	The extent to which a country opens its borders to the movement of goods/services, money, and people	Providing less-developed countries with opportunities for economic growth through participation in global trade and migration	Heritage Foundation Index of Economic Freedom Source: OECD
	Principled Aid Index	Considers not only the size of ODA but also qualitative aspects, such as meeting the critical needs of developing countries, facilitating global cooperation, and pursuing long-term development impacts.	Alleviation of the economic gap between developed and developing countries through the transfer of wealth	ODI (Overseas Development Institute) Principled Aid Index

KIPA

Government Innovation and State/ Social Resilience Enhancement after Disaster/Crisis: Focusing on Government Innovation Cases in the COVID-19 Response Process

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Abstract

This study aims to seek government innovation methods that could enhance state/social resilience after a disaster/crisis; toward this end, it analyzes cases of government innovation (henceforth, "government innovation cases") in the COVID-19 response process. Specifically, this study classifies government innovation methods into four types (data-based service innovation, data-based management innovation, system-based service innovation, and system-based management innovation); furthermore, it conducts in-depth analyses on South Korea's four government innovation cases in the COVID-19 response process (public data disclosure and COVID-19 map provision, introduction of a duplicate mask purchase verification system, introduction of drive-through screening clinics, and adoption of telecommuting and videoconferencing), which corresponded to three out of four government innovation types (data-based service innovation, system-based service innovation, and system-based management innovation). According to the research findings, the institutionalization of innovation processes based on infrastructure that has been established under existing government innovation directions and strategies has been one of the driving forces underlying government innovation in the COVID-19 response process. This study illustrates potentially effective government innovation methods for state/social resilience enhancement after a disaster/crisis; toward this end, the study incorporates actions to be undertaken continuously in the post-disaster/crisis settings and actions to be complemented in order to prepare for the next disaster/crisis based on the research findings.

Keywords: Government Innovation, COVID-19, Disaster/Crisis

I. Introduction

Many government innovation scholars and practitioners have shown that government innovation results from constant and continuous activities rather than from momentary and disruptive activities (Lee, 2000). They suggested that government innovation is actualized based on past experiences and learning accumulated in everyday life rather than any special capabilities and experiences accumulated during special situations. To achieve the intended effects of government innovation, it is important to combine the enhancement of existing human/material foundations, the institutionalization of innovation through human/material foundations, and the internalization of government innovation through experience and learning. That is, the starting point of government innovation is learning through accumulated experiences (involving trial-and-error or failure) in the implementation process.

In particular, government innovation should be actualized in everyday life so that innovative methods can be applied to situations characterized by high uncertainty and rapidly changing speeds, (e.g., disaster/crisis) (Lee et al., 2020). In disaster/crisis situations with absence of accumulated learning experiences, it may be difficult to solve a problem effectively through conventional methods; this can escalate demands and expectations regarding change and creative/innovative activities. During disaster/crisis situations, it is important to minimize damage through quick decision-making, and an innovation-friendly environment can be promoted with an increase in demands on diverse trials for creative problem-solving. To actualize innovative activities that could be used for deriving effective solutions in an innovation-friendly environment, innovation should be internalized within everyday lives.

The former South Korean governments have endeavored to design, implement, and internalize government innovation by establishing diverse institutions including permanent innovation-related organizations, introducing new organizations within offices, and enhancing performance management system in order to routinize/internalize innovation. However, one criticism has remained in this regard — chiefly, government innovation has not been sufficiently internalized by government officials. This situation can cause confusion and fatigue, as each former government modified innovation content and direction in accordance with the aim of state affairs. A survey on perception and training satisfaction with regard to government innovation, which was conducted by the Ministry of the Interior and Safety, showed that government officials provided responses such as "I cannot explain government innovation" (31%) and "It is not possible to make use of government innovation methods due to rigid organizational culture" (67%); this suggests that government officials found understanding or implementing innovation difficult (Byun, 2020). Moreover, "innovation fatigue" and negative perspectives on innovation emerged among government officials during the Rho Moo-Hyun administration (Lee, 2004).

Nevertheless, government innovation cases of COVID-19 response were evaluated positively within and outside the country; some of these cases were presented as exemplary models for instituting preventive measures against COVID-19 in advanced countries. In particular, it was determined that the creation of innovative ideas based on public data and (information) systems and the resultant interagency collaboration and public-private collaboration were effective for dealing with COVID-19 (Chosun Biz, 2020). Therefore, closely analyzing implementation processes, performances, and implications (success and limiting factors) in the COVID-19 response process is important for effectively preparing for or responding to disaster/crisis, especially with the aid of government innovation efforts.

In this vein, this study aims to seek govern–ment innovation methods for enhancing state/social resilience after a disaster/crisis by analyzing government innovation cases in the COVID-19 response process. Specifically, this study classifies government innovation into four types (data-based service innovation, data-based management innovation, system-based service innovation, and system-based management innovation) and conducts in-depth analyses on four government innovation cases in the COVID-19 response process (public data disclosure and COVID-19 map provision, introduction of a duplicate mask purchase verification system, introduction of drive-through screening clinics, promotion of telecommuting and videoconferencing), which corresponded to three government innovation types (data-based service innovation, system-

based service innovation, system-based management innovation). According to research findings, the institutionalization of innovation based on infrastructure established under the existing government innovation directions and strategies aided government innovation in the COVID-19 response process. The study recommends actions to be undertaken continuously after the conclusion of a disaster/crisis and other complementary actions to be taken in order to prepare for the next disaster/crisis based on the performance and limitations of the government innovation cases in the COVID-19 response process.

This study is structured as follows. Section 2 critically reviews theoretical discussions on the typology of government innovation and relevant literature on the role of the government during disasters/crises. Section 3 illustrates the study's analytical framework based on the typology of government innovation and explains case selection, case-related data collection, and research methods. Section 4 analyzes four government innovation cases in the COVID-19 response process that correspond to three government innovation types from among the four government innovation types illustrated in the analytical framework. Section 5 presents the actions that should be undertaken continuously in a post disaster/crisis settings and actions that should be complemented in order to prepare for the next disaster/crisis; these issues are regarded from the perspective of government innovation on the basis of current research findings. Section 6 describes some policy recommendations derived from the research findings and future research directions in this regard.

II. Theoretical Background and Literature Review

1. Theoretical background: Typology of government innovation

Locus of government innovation: service innovation, management innovation, and process innovation

One way to understand government innovation involves the public values pursued by government organizations as its aim, subject, and scope. Jørgensen and Bozeman (2007) classify public values pursued by government organizations into seven types. First, general social values include common good, altruism, sustainability, and regime dignity. Second, the transformation of government interests into government decisions encompasses majority rule, user democracy, and protection of minorities. Third, the relationship between politics and administration includes political loyalty. Fourth, the relationship between the public sector and environment encompasses openness versus secrecy, advocacy versus neutrality, and competition versus collaboration. Fifth, the internal organization of the public sector must include robustness, innovation, and productivity. Sixth, the behavior of public-sector employees encompasses the self-development of public officials and accountability. Seventh, the relationship between the administration and citizens includes legality, equity, public opinion, and user orientation.

If the aims, subjects, and scopes of government innovation are regarded as public values to be pursued by government organizations, the public values illustrated by Jørgensen and Boz-

eman (2007) could act as criteria for the identification of government innovation aims, directions, and types (for example, service innovation, management innovation, and process innovation) (Cho et al., 2018). First, service innovation is associated with the customized design of public services and the diversity of public service delivery systems; these pursue public values such as legality (equal service provision through rule of law), equity (solutions to service-related problems based on justice), efficiency (maximization of citizen convenience), and openness (active response to administrative demands). Second, management innovation is associated with government organizations' internal management, which often pursues public values including stability, robustness, productivity, and accountability of the administrative system. Third, process innovation is associated with collaborations between government organizations and citizens; these often pursue public values such as democracy (citizens' participation in the entire policy process), public opinion, and coordination (recognition of the importance of the public opinion process and mediation of values among the stakeholders in this process).

The foundation of government innovation: data-based innovation and system-based innovation

Data and systems function as the foundation for actualizing creative government innovation ideas. First, the theoretical discussion of data as the foundation of government innovation is associated with data quality or accuracy (Ballou & Tayi, 1999). When data accuracy, appropriateness, and consistency

are insufficient or when data are not properly structured and defined, establishing channels for connecting creative ideas to government innovation becomes difficult. In order to initiate successful government innovations, it is important to develop appropriate data structures and definitions through interagency collaboration and information sharing (UN & ASPA, 2002). Furthermore, system users' constant and continuous feedback constitutes a crucial strategy for improving data quality and accuracy (Hamilton & Chervany, 1981).

Second, a theoretical discussion of the system as the foundation of government innovation also includes concepts such as system usability and ease of use. One typical challenge in this regard is system incompatibility (Brown & Brundney, 1998). The old system, which was highly heterogeneous, increased the complexity of the foundation (or infrastructure) for actualizing creative government innovation ideas. Insufficient technical capability and the newness or complexity of newly adopted technology are also factors that can hinder government innovation success (Dawes & Pardo, 2002). To initiate successful government innovation, it is necessary to maintain the manager's strong technical capability and expertise while engaging in system development and utilization.

2. Literature review: Government role in disaster/crisis management

Designing government disaster/crisis management organizations

The existing literature on designing government disaster/crisis management organizations mainly analyzes issues related to the internal management of government organizations, focusing on ways to conduct efficient disaster/crisis management in pursuit of public values such as stability, robustness, productivity, and accountability (Joo, 2016; No, 2017). Joo (2016) analyzed the United States (US) disaster management system — decentralized on the whole with the federal government and local governments playing different roles in disaster management systems, while the federal government-centric disaster management system operates during major disaster outbreaks — and discussed its implications for the Republic of Korea. According to Joo's research findings, the US disaster management system is characterized by the following elements: integration of crisis management, division of roles between central and local governments, arrangement of crisis management planning and evaluation programs, quick disaster alert services, collaborative governance, and systematic disaster-related educational activities. These findings have several implications for government innovation in disaster management: efficient operation and website launches for disaster management organizations, reinforcement of people's capabilities through disaster/safety education, enhancement of understanding with regard to disaster management organizations' salient tasks, development of collaborative governance systems among central government, local government, and private sectors, and reinforcement of government's capability to prepare for disaster through the development of disaster management risk and evaluation

systems in the Republic of Korea.

No (2017) illustrates the way governments respond to a disaster/crisis efficiently by analyzing the Korean government's crisis management system and national security crisis system, major countries' crisis manage–ment systems, and reorganization efforts associated with crisis management in the Moon Jae-In government as follows. First, a crisis management coordination function should be integrated. It is necessary to have a "control tower" for facilitating comprehensive coordination/control at the central government level in the event of a national crisis. Second, a crisis management system should be managed effectively. It is important to document crisis management planning activities that are consistent with the actual phenomena. Third, a crisis management collaboration system should be established by the government. There should be institutionally established role allocation between central and local governments, and a collaboration system based on trust and transparent administrative management should be established between residents and local governments. Fourth, an evaluation system should be established for assessing local governments' crisis management capabilities. The established institutional system should enable residents to choose governors for carrying out crisis management effectively.

Managing administrative resources for disaster/crisis management

The literature on the management of administrative resources for disaster/crisis management mainly examines issues related to disaster/crisis-related workforce and budget management, focusing on how to conduct efficient disaster/crisis management in the pursuit of public values such as stability, robustness, productivity, and accountability (S. Jung, 2020; Yoo & Eom, 2017). Yoo and Eom (2017) examined South Korean local governments' strategic behaviors during disaster management by analyzing disaster management funds. According to their research findings, local governments showed budget allocation strategies for disaster management; disaster-related budgets were reduced when there was a high possibility of external financial resources being transferred to local governments' disaster management funds. Thus, through its empirical analysis, this study sought to reveal factors that made it difficult for local governments to learn from disasters and the reasons why the dangers and magnitudes of disasters were not reflected in their administrative activities; this subject deserves scholarly and practical recognition.

S. Jung (2020) analyzed government expenditure-related factors influencing disaster management by considering the financial capabilities of local governments. Traditionally, influential factors with regard to local governments' expenditures have been categorized into the following factor types: structural, demand-related, political, and incremental. This study hypothesized that these factors would have a differential influence on government expenditure with regard to disaster management depending on the relevant local governments' financial capabilities. According to Jung's research findings, structural and political factors had strong statistical significance. That is,

organizational environments and characteristics can influence decisions regarding disaster management budgets. The research statistically showed why disaster-related budgets are often accorded a low priority in the real world, why there are often no increases in disaster-related budgets for the next fiscal year even after disaster outbreaks, and why disasters are not treated as learning experiences within governments. It also demonstrated that local finances are determined by structural, political, and financial factors, rather than situational demands.

3. Critical review

The existing literature on governments' role in disaster/crisis management seem to have the following limitations. First, it mainly emphasizes innovation in internal management from the perspective of government innovation. Most studies analyze issues like government reorganization, human resources, and budget management, focusing on how to conduct efficient disaster/crisis management in the pursuit of public values such as stability, robustness, productivity, and accountability. However, it seems that few studies have examined issues related to the customized design of public services and the diversity of public service delivery systems or illustrated how to conduct efficient disaster/crisis management in the pursuit of public values such as legality, equity, and openness.

Second, current literature on government roles in disaster/crisis management used literature reviews to primarily focus on illustrating the current status, problems, and solutions of polices and laws/institutions regarding issues related to

the internal management of domestic/foreign government organizations. However, few studies have empirically analyzed government roles in disaster/crisis management (e.g., in-depth analysis of the case and derivation of implications based on the analytical framework illustrated in the theoretical discussion).

Accordingly, this study has classified government innovation into four types based on the locus (service innovation and management innovation) and foundation (data-based innovation and system-based innovation) of government innovation; furthermore, it has conducted in-depth analyses of government innovation cases in South Korea's early COVID-19 response process, corresponding to three government innovation types (data-based service innovation, system-based service innovation, and system-based management innovation).

III. Research Design

1. Analytical framework

This section demonstrates the analytical framework employed to analyze selected government innovation cases in the early COVID-19 response process, based on theoretical discussions regarding the locus and foundation of government innovation. Table 1 shows that government innovation is classified into four types — data-based service innovation, data-based management innovation, system-based service innovation, and system-based management innovation. This study conducted an in-depth analysis of four government innovation cases in the COVID-19 response

Table 1 Analytical framework

		Locus of government innovation	
		Service innovation	Management innovation
Foundation of government innovation	Data-based innovation	Data-based service innovation	Data-based management innovation
	System-based innovation	System-based service innovation	System-based management innovation

process; these correspond to three government innovation types (data-based service innovation, system-based service innovation, and system-based management innovation) with regard to the implementation process, outcomes, and implications (success and limiting factors).

2. Data collection and research method

The COVID-19 response process–related government innovation cases selected for the analysis correspond to three government innovation types from among the four types illustrated in the analytical framework. First, this study selected a case on "public data disclosure and COVID-19 map provision" for analysis with regard to data-based service innovation. Second, the case studies on the "introduction of a duplicate mask purchase verification system" and the "introduction of drive-through screening clinics" were selected with regard to system-based service innovation. Third, a case on the "promotion of telecommuting and videoconferencing" was selected for analysis with regard to system-based management innovation.[1] For analyzing

these cases, this study collected multi-sourced references including newspaper articles, official government documents, research reports, scholarly articles, and dissertations.

IV. Case Analyses

1. Data-based service innovation: Public data disclosure and COVID-19 map provision

Implementation process

The Korea Centers for Disease Control and Prevention (KCDC) released data on COVID-19 (e.g., travel logs, number of confirmed cases, quarantine facilities for confirmed cases, and number of cases with symptoms) to the public on January 20, 2020, immediately after the first COVID-19 case was confirmed in the country (Jung et al., 2020). The COVID-19 data were provided in the form of a file and an open API through the KCDC's public data portal[2] and its own website.[3] On January 30, 2020, a college student created a

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1 Analyses involving cases of data-based management innovation have been excluded from this study because of difficulty in case selection. Analyses involving cases of system-based service innovation include those on the case of "introduction of a duplicate mask purchase verification

system" (that emphasizes system) and those involving the case of "introduction of drive-through screening clinics" (that emphasizes service).

2 Public data portal (https://www.data.go.kr/).

3 Coronavirus infection-19 (COVID-19) (https://ncov.mohw.go.kr/).

Corona Map within a single day by using the aforementioned COVID-19 data and released it free of charge (Cho, 2020). Corona Map enabled users to check confirmed patients' travel histories, which were updated in real time by using the KCDC data. On January 31, 2020, the day after the map was released, it recorded 2.4 million cumulative views, and as of February 13, 2020, it recorded an average of 1 million visitors per day and 13 million cumulative views (Kim, 2020).

Since the Corona Map's release, private sector developers and companies have actively produced data and services to help citizens cope with COVID-19 as well as to predict other potential future infectious disease risks (Kim & Oh, 2020). Some developers and companies have downloaded public data not only from the KCDC, but also from the National Geographic Information Institute and the Korea Local Information Research & Development Institute in order to produce advanced, precise, and comprehensive COVID-19 maps.

The comprehensive COVID-19 map provided customized services to meet different users' needs (e.g., checking patients' travel logs, information about facilities where confirmed cases were located, and searching for testing and treatment hospitals) (Kim & Oh, 2020). Some developers and companies have used artificial intelligence (AI) and machine learning to develop databases on the travel histories of confirmed patients, which were offered as open-source data, or have developed visualization services in order to create COVID-19 scenarios and models to help predict not only transmission patterns for the virus but also for other infectious diseases.

Outcomes

There are three outcomes from this case analysis. First, the case has helped to build a social consensus on the importance of opening public data to citizens. Although open data initiatives have been promoted continuously as part of government innovation strategies, the importance of the strategies was not recognized at the societal levels before the COVID-19 crisis. The Corona Map thus confirms the potential for creative and innovative public service development by facilitating open data access at the national and societal levels.

Second, the Corona Map contributed toward preventing civil unrest and social confusion that can be caused by the dissemination of fake news and false information. Such dissemination was rampant during the early stages of the COVID-19 outbreak, leading to concerns about civil unrest and social confusion. The development and utilization of COVID-19 maps allowed citizens to locate accurate and timely information, and thus helped to prevent civil unrest and social confusion.

Third, the evolution of several varied maps created a virtuous cycle for public–private collaborations. The development and utilization of COVID-19 maps confirmed the importance of providing data access in order to encourage the development of creative and innovative public services within the public and private sectors; this, in turn, leads to the creation of public value. The experience of this virtuous cycle will encourage the private sector to demand additional data access for public service

development purposes, and the public sector will reinforce the private sector's motivations through such efforts.

Implications

This case presents some success factors and limitations. The success factors were accessibility, experimentation, speed, and public–private collaboration. The public sector (through KCDC) improved the private sector's access to public data by making COVID-19 data accessible as part of its efforts to open up data to the public. Making public data accessible could encourage the private sector to undertake further experimentation in its development of services for providing accurate and timely information to citizens. While doing the experimentation, the private sector quickly developed tailored services, which were rapidly provided to and utilized by the public. The development and use of COVID-19 maps suggested the importance of rapid service provision based on improved public data access and the spread of experimentation within the private sector during a crisis.

However, there are some limitations to the case. Owing to a lack of service quality assurance measures, the creators of the COVID-19 tracker maps stopped their services (Lee, 2020). They did not have enough manpower, technology, and financing to maintain their services. Therefore, it is necessary to provide more systematic support and financial incentives at the government level to promote such testing activities and fast service development during crises. For instance, the college student who developed the Corona Map provided it free of

charge, despite having spent his own time and money to manage the server; consequently, the server went down because of user congestion.

2. System-based service innovation 1: The introduction of a duplicate mask purchase verification system

Implementation process

During the initial phase of the COVID-19 outbreak, citizens faced difficulties in purchasing masks due to high demand but low supply. Widespread mask hoarding and frequent transfer of masks to family and friends overseas were reported; citizens were forced to wait in long lines to purchase masks, and masks often went out of stock. In this situation, the Korean government announced a plan to supply masks through the public distribution network as a countermeasure against the mask crisis; however, it failed to officially announce the timing and volume of mask supply (Park, 2020).

The creation of a duplicate mask purchase verification system (DMPVS) contributed toward easing the civil unrest that had caused the widespread mask hoarding, supply shortage, and price rise. The idea for this system was suggested by a pharmacist (Kim, 2020), who suggested linking purchase records with the Drug Safety Use Service (DUR), which was originally used to prevent duplicate filling of medication prescriptions. However, some argued that this would prove ineffective against mask hoarding because the DUR had no specific legal conditions for masks, which are considered non-pharmaceutical products, and

limitations for the scope of the information provided by the system.

However, this initial idea provoked another innovative supplementary idea, which originated among staff at the Health Insurance Review and Assessment Service (HIRA). The staff proposed using the nursing home business portal to prevent mask hoarding (M. Kang, 2020). The nursing home business portal is used by pharmacies and other medical institutions to bill items covered under the national health insurance; thus, this portal allowed for an effective mask purchase verification method to be immediately put into practice in pharmacies.

The government then established a separate DMPVS in the HIRA nursing home business portal to prevent duplicate purchases while introducing the "five-day rotation system for mask distribution"; this policy allowed people to purchase masks on designated days based on their birth years. HIRA added a "mask-sales-list-up" section to the nursing home business portal, thus allowing pharmacists to enter mask purchase counts per customer and also record mask availability. As all pharmacists had used the nursing home business portal, they were able to use the newly adopted DMPVS effectively (Kang, 2020). Finally, a comprehensive system for preventing duplicate purchases and mask hoarding was completed by linking the DMPVS with all pharmacies and designated public mask distributors (e.g., the post office and the National Agricultural Cooperative Federation).

Outcomes

Through system building and linkage, the government was able to effectively manage the COVID-19 mask shortage crisis. It reduced mask hoarding and balanced the supply and demand by utilizing the "five-day rotation rule for mask distribution." Furthermore, this policy measure reduced growing anxiety when the number of confirmed COVID-19 cases in Korea was rapidly increasing. The DMPVS thus dramatically reduced uncertainty regarding mask purchasing and consequently eased health- and safety-related social confusion.

Implications

The creation of the linkage system was made possible because of the ideas from the field, experimentations, agility, and real-time system linkage. The idea for system linkage was initiated within the pharmacy field rather than from the government; these ideas were rapidly embraced in the actual decision-making process. They were then implemented immediately and developed into systems that contributed toward resolving the mask crisis through trial-and-error learning. Various processes, including presentation and execution of ideas, trial-and-error learning, corrective actions, and re-execution, were implemented within a short period; this helped to create an effective solution for the mask crisis. A comprehensive system was thus made available for all public mask vendors, which prevented mask hoarding and resolved the supply–demand imbalance by recording mask-purchase information, which was then verified and shared in real time.

However, this system also had some limitations including lack of system stability

and information accuracy, constraints in tapping into the private system, and lack of experts. During the early phases of building the DMPVS, some pharmacies experienced technical difficulties while using the system because of the connection delays caused by temporary errors (Y. Jung, 2020). Furthermore, wrong information was sometimes entered into the system, and this subsequently inconvenienced the citizens. To improve, advance, and customize systems, it is necessary to remove legal and institutional constraints on the utilization of private systems and experts in the creation of systems. For example, it is necessary to readjust standards for converting public institutions' systems into private clouds or establishing public and private information-sharing systems.

3. System-based service innovation 2: The introduction of drive-through screening clinics

Implementation process

During the early stages of the COVID-19 crisis, South Korea began to operate screening clinics in order to control the rising infection rates that could occur if infected people were allowed to mingle with uninfected people. However, infection control methods, such as building clinics with negative pressure rooms, disinfecting clinics after each patient was examined and sent home, and conducting testing only after replacing medical staff's protective clothing, were incredibly costly and slowed down the screening process. Problems were solved by separating test clinics

from shifting "separation of fixed space" to "movement of already separated space," which were moving vehicles.

This shift was attributable to the unrestricted spread of field expert knowledge and rapid decision-making with regard to standardization of test clinics (Shin, 2020). The government quickly accepted experts' views during the widespread transmission phase of COVID-19 and considered their input in its rapid decision-making. The drive-through screening clinic idea was first introduced by a medical expert; it was gradually adopted by the private clinics/ hospitals, the local government, and the central government. Regarding the private sector, Kyungpook National University Hospital in Chilgok (February 23, 2020) and Yeungnam University Medical Center in Daegu (February 26, 2020) initiated the operation of drive-through screening clinics. Among the local governments, Goyang City, Sejong City (February 26, 2020), and Incheon Metropolitan City (February 27, 2020) adopted drive-through screening clinics one after the other. Regarding the central government agencies, the Central Disaster and Safety Countermeasures Headquarters prepared a standard operation model for automobile screening clinics and distributed it nationwide. Since then, hospitals, equipment, and screening centers have been secured for handling rapid sample collection and large volumes of tests. After the Middle East respiratory syndrome (MERS) outbreak in 2015, the emergency response system was restructured. Examination equipment and manuals used during that crisis were reused for improving and strengthening the public

and private hospitals' testing networks and related institutions; this helped to enhance the country's diagnostic testing capabilities. Therefore, by learning from its past crisis experience, South Korea was able to quickly respond to the COVID-19 pandemic by following systematic guidelines for public health emergencies (Meil Business Newspaper, 2020). The KCDC laid the foundation for emergency approval for COVID-19 diagnosis reagents, and the expansion of COVID-19 testing centers allowed for rapid sample collection and testing. The number of testing locations increased rapidly from 31 locations nationwide on February 20, 2020 (4 Institutes of Health and Environment and 27 private clinical laboratories and hospitals) to 95 as of March 9, 2020 (14 Institutes of Health and Environment and 81 private clinical laboratories and hospitals).

Outcomes

The positive results of introducing drive-through screening clinics can be summarized as follows. First, this minimized medical staff's exposure to infection and prevented virus transmission by reducing visitor mobility. Safe and rapid testing was performed by reducing the risk of cross-contamination between patients with respiratory diseases and medical staff and by limiting the examination time to a maximum of 10 minutes. Furthermore, the public's exposure to the virus was minimized because visitors used their own vehicles instead of public transportation for commuting; this reduced potentially infected visitors' contact with the public.

Second, there was an international expansion

of quarantine models (K-quarantine model) (Dong-A Ilbo, 2020). More countries began to utilize the South Korean drive-through clinic model, including the United Kingdom, the United States, Australia, Germany, and so on. The application of such ideas in several actual cases facilitated the spread of the Korean models with regard to operational expertise and data accumulation.

Third, there was an increase in the adoption of similar ideas. The adoption of the Incheon Airport Open Walk-Through clinic is one such example (Ko, 2020). Furthermore, this led to the expansion of "drive-through farmers' markets" for selling agricultural and seafood products, which, in turn, helped to save the local economy from the impact of the COVID-19 crisis.

Implications

In the adoption of drive-through screening clinics, innovation readiness and flexible decision-making were considered as success factors. First, the medical system for infectious disease management was improved based on the lessons learned from the MERS crisis ("innovation readiness based on lessons from experience") — for example, building large-scale diagnostic testing capabilities. Second, the government accepted field experts' ideas (creativity). This active acceptance of expert ideas resulted in quick decision-making and implementation and rapid distribution of the standard operating model by the Central Disaster and Safety Countermeasures Headquarters. Third, officials, including health care professionals, showed fast and accurate decision-making and communicated with

private experts very effectively (quick decision-making). Due to the nature of the KCDC, medical experts participated in the organization, and acted as leaders in response to the crisis and effectively communicated with private experts.

However, this undertaking also had some limiting factors such as potential fundamental obstacles in the use and installation of infrastructures. First, there were some limitations regarding the scope of drive-through clinic users (range of users). Since only those with automobiles could access and use the drive-through screening clinics, the government had to find other measures to ensure safe testing for disadvantaged groups. Second, the spatial installation conditions of the drive-through screening clinics also formed a constraint (installation conditions) (Kim, 2020). A drive-through screening center must be established in a place where vehicular movement is possible; this ensures efficient and easy vehicular traffic flow. Such clinics should not cause traffic jams and should be located far away from residential areas; furthermore, they should have space for medical waste storage. Thus, local governments had to make decisions considering the spatial

conditions and safety of residents in areas where such clinics were installed.

4. System-based management innovation: Promotion of telecommuting and videoconferencing

Implementation process

To promote social distancing, the government encouraged non-face-to-face (called "untact" in Korea) forms of work and asked for the public's cooperation. The government actively adopted "remote work," which included "work from home" and "smart work." Government and public institutions that had formerly held very traditional ideas regarding the performance of service provision not only encouraged employees to work from home, but also required them to work from home on a rotational basis. Furthermore, the government utilized video conferences instead of face-to-face meetings across multiple departments and agencies. An advanced e-government system and the expansion of teleworking infrastructure, which had been established before the COVID-19 outbreak,

Table 2 History of On-nara system: Development and distribution

Year	Content
2005	Development of the government project management system "On-nara Business Process System"
2006	Development of government policy research and management system "PRISM" (Policy Research Information Service & Management) and the "On-nara Policy Research"
2008	Development of government integrated knowledge management system GKMC ("On-nara Knowledge")
2014	Development of government integrated communication system Nara-e-eum ("On-nara e-eum")
2015	Redevelopment of the On-nara system and GKMC to adapt to cloud storage techniques
2016	Start of integrated On-nara Service/Some agencies start using On-nara Document 2.0

Source: Seo (2017, p. 60-63)

facilitated smooth teleworking and online cooperation during the crisis. Adoption of the Government Virtual Private Network (GVPN) allowed for the extension of a private network across a public one and enabled users to send and receive data across shared or public networks as if their computing devices were directly connected to the private network (See Table 2).

The separation of physical spaces in public organizations, such as working from home and videoconferencing, was triggered by the COVID-19 crisis. The Ministry of Personnel Management delivered COVID-19-related service management guidelines over seven times after the infectious disease crisis alert was raised to the "serious" level on March 10, 2020. On March 12, 2020, the Ministry of Personnel Management made it mandatory for public officials to work from home on a rotational basis (55 central administrative agencies) (Kwon, 2020). On March 13, 2020, government ministries started working from home based on a shift system (Lee, 2020). On March 22, 2020, local government officials also began working from home in shifts (Choi, 2020).

Outcomes

The expansion of telecommuting and videoconferencing services and equipment produced many positive results. First, this improved employees' remote working experiences and the understanding of public officials with regard to telecommuting. There was an increase in the use of teleworking infrastructure and online collaboration tools, which had been previously developed but were

underutilized, as part of a change in the work format. The number of GVPN subscribers increased from 19,425 at the end of December 2019 to 81,799 as of March 26, 2020. With an increase in the number of subscribers, the number of daily users also increased to about 25,000 (NIRS, 2020). Government officials were expected to embrace changes in their working environments based on their user experience. Second, this situation provided an opportunity to redesign the work platform (Ahn, 2020). The government had an opportunity to redesign the work platform based on the trends of untact, remote work, and automation. Adopting a system for automating simple and repetitive tasks by introducing AI-based robotic process automation (RPA) allows users to work with the administrative system at any time and in any way (for example, on mobile devices or remotely) (Smart Integrated Administrative Work Environment and Security Enhancement ISP Project). This digital transformation caused changes in the working patterns of public officials as well as significant improvement in the digital environments.

Implications

Success factors that expanded telecom–muting and videoconferencing were analyzed with regard to institutional and infrastructure maintenance for the active utilization of established infrastructures. First, changing working patterns in response to unprecedented crises were driven (system flexibility). The Ministry of Personnel Management's decision, which mandated shift-based telecommuting and flexible work for the first time in its history,

significantly lowered entry barriers to the public sector adoption of telecommuting. Second, videoconferencing equipment, systems, and telecommuting infrastructure were quickly procured and maintained (infrastructure maintenance). The rapid increase in the number of GVPN users and videoconferencing users led to rapid improvement and maintenance of videoconferencing equipment not only by government agencies but also by public organizations that were working with the government.

However, the expansion of telecommuting and videoconferencing had some limiting factors: poor business efficiency and system maladjustment issues. First, some concerns were raised regarding reduced work efficiency and online tool adaptation issues (work efficiency). There were some problems with regard to users' psychological rejection of and

organizations' negative perception toward working from home (concerns regarding reduced work efficiency and incompatibility with organizational culture). Second, it is important to help employees who are unfamiliar with online tools adapt and learn how to use them (system utilization), and "Working from home" and "videoconferencing" manuals are important in this regard. With regard to changes in work formats, employees should receive continuous training for using new formats. For instance, during the early stages of the COVID-19 crisis, videoconferencing was sometimes interrupted because of employees' lack of training in equipment usage. Third, compared to offline communication that takes place in the working environment, online communication is insufficient for creating emotional connections such as empathy and understanding. Therefore, it is necessary to find

Table 3 Success and limiting factors for government innovation cases in the COVID-19 response process

Government innovation cases	Success factors	Limiting factors
Public data disclosure and COVID-19 map provision	- Accessibility - Experimentation - Speed - Public-private partnership	- Service quality - Support system
Introduction of duplicate mask purchase verification system	- Field experience - Experimentation - Speed - Real-time linkage system	- System stability - Information accuracy - Utilization of private system and experts
Introduction of drive-through screening clinics	- Innovation readiness - Creativity - Quick decision-making	- Range of users - Installation conditions
Promotion of telecommuting and videoconferencing	- System flexibility - Infrastructure maintenance	- Work efficiency - System utilization - Emotional connection - Guidelines

a way to supplement emotional connections (emotional connections). Fourth, since working environments differ across different workplaces, telecommuting etiquette and guidelines for online meetings (e.g., camera, microphone, and speaker instructions and so on) should consider distinct contexts (guidelines).

V. Discussion and Interpretation

The South Korean government was able to utilize innovative strategies in its response to the COVID-19 crisis because of certain well-established infrastructures, which were initiated under the existing innovation agenda and strategy, the institutionalization of innovation based on infrastructures, and the internalization of innovation through learning and experience. Through case analyses, this study drew the following implications and focused on some post-crisis measures that should be maintained and upgrades that must be prepped for dealing with the next disaster or crisis.

Lesson 1. The importance of speed in solving policy problems: Large organizations, such as government agencies, are often driven by different interests and complex processes; these conditions can cause delays and long intervals in decision-making processes and thus slow down response times. Rapid experiments can help create agile responses to policy problems.

Lesson 2. Overcoming physical space beyond the formal work environment: It is important to surmount physical space through virtual work in order to maintain social distancing during the COVID-19 crisis. Work interactions must

transition beyond the traditional formal work environment to an environment where diverse generations and devices can coexist — that is, a space where individuals and groups, work and life balance, and creativity and collaboration are possible.

Lesson 3. Building various networks for u tilizing collective intelligence: It is important to move toward openness by providing creative opportunities to diverse stakeholders, thus embracing different perspectives. The government must accommodate new external knowledge and use it to solve problems. This requires the establishment of collaborative platforms that can allow citizens with creative ideas to participate in solving policy problems.

Lesson 4. Expanding the role of local governments: During a crisis situation, on-site judgment and responses are important for eliminating uncertainty within a short time period. With regard to the COVID-19 crisis, in order to utilize the golden hour for stopping the virus transmission, it was necessary to grant authority to those working in the field — including local governments.

Lesson 5. Spreading innovative ideas by thinking outside the box: The introduction of drive-through screening centers, which gained global recognition, was made possible because of the significant role of on-site experts and the government's open and cooperative support for innovative idea implementation. The drive-through screening concept, which was introduced by a private healthcare expert, exemplified this free flow of and rapid experimentation with innovative "ideas" through internetwork interactions, autonomous

execution, and benchmarking in the private sector; this was unhampered by bureaucratic procedures, and subsequently proliferated because of government guidance. Therefore, in order to detect problems based on field expertise and to seek optimal alternatives, the government must maintain an open attitude toward utilizing innovative ideas from external stakeholders and also improve its problem-solving skills by systemizing the implementation of these ideas (Cho, 2019).

VI. Conclusion and Policy Recommendations

This study attempted to suggest a new analytical framework for facilitating govern–ment innovation, especially with regard to improving state/social resilience in a pandemic aftermath. Toward this end, it analyzed the Korean government's COVID-19 responses. Specifically, this study categorized government innovation into four types based on the locus and foundation of government innovation and analyzed four government innovation cases (public data disclosure and COVID-19 map provision, the introduction of a duplicate mask purchase verification system, the introduction of drive-through screening clinics, and the promotion of telecommuting and videoconferencing) in the COVID-19 response process.

Based on analyses of the South Korean government's COVID-19 crisis responses, this study presented six strategies for improving government innovation. First, the authority of field experts must be strengthened. Field

expertise can provide a new perspective on policy issues and contribute toward detecting real problems, thus offering innovative solutions. During the COVID-19 crisis, such experts convincingly demonstrated their ability to respond to such crises. Field experts must thus receive more opportunities for collaborative innovation, which needs supporting and coordinating with the facilitative leaderships of higher-level organizations.

Second, it is important to establish a real-time prediction analysis system. Such an immediate detection-and-response system could be used for checking both the effects of policies as well as citizens responses to such policies by combining past and real-time information. In order to accelerate innovation, big data platforms that can predict and analyze information in real time must be expanded to all government-level platforms rather than scattered across several different departments.

Third, the government's cloud system must be continued. The South Korean government is currently pursuing a cloud-first policy. The cloud is a key infrastructural element that can support new national information and communication technology (ICT) convergence industries, such as those focusing on big data, Internet of Things (IoT), and intelligent information and communication, which require large data resources. To secure free space for large amounts of data while maintaining security, it is necessary to build a cloud system that integrates data from the entire public sector.

Fourth, it is important to implement a step-by-step strategy for time and business management. A detailed guide is necessary for

improving work practice and efficiency and for expanding time management in order to include elements such as the existing smart offices and flexible work systems. Some examples of such changes include improving workflow through telecommuting and videoconferencing, continuing user education and campaigns to enhance emotional connection skills and sense of belonging, supporting connectivity, and maintaining business etiquette.

Fifth, it is important to develop a module for open innovation. Such open innovation emerged during the COVID-19 response process, which was supported by the crowdsourcing of public–private collaborations, embracing capabilities and ideas from non-government stakeholders and combining them with resources and functions within the government. Here, it should be noted that crowdsourcing is an effective means for resolving problems that are clearly defined, wherein collaboration can be simplified, and the knowledge required to solve a problem can exist outside the government (Liu, 2017: 659). Thus, detailed modules should be developed to allow for a more effective open innovation; this will make it possible to create and disseminate innovative ideas, derive creative solutions for policy problems, and co-produce services and policy agendas (Liu, 2017, p. 656; Nam, 2012).

Sixth, it is important to strengthen innovation by learning through iterative experimentation. Through the COVID-19 response process, the Korean government learned that it was possible to develop hypotheses about policy effects and the prototypes that implement these polices as well as to implement policies and services

that can reduce errors while rapidly increasing effectiveness through repeated experiments with prototypes (Cho et al., 2018; 2019).

As policies and public services are closely linked to government values such as accountability and responsibility, there is a high demand from both inside and outside the government for the implementation of policies and services based on highly complete plans in Korea. Thus, acceptance levels for policy experimentation are not high. However, in the course of the COVID-19 response, it became evident that policy experiments (based on a bottom-up approach) that were centered on policy demands could be conducted. Therefore, innovation and learning must occur within the government so that such policy experiments can be utilized not only in crisis response processes, when conditions are not conducive to designing highly perfected plans, but also during normal policy processes.

Analyses involving cases of data-based management innovation, which is one of the four types of government innovation, could not be included in this study because of a difficulty in selecting the right cases from the COVID-19 responses. However, it should be noted that, recently, there have been some institutional and policy efforts toward implementing data-based management innovations. For instance, the South Korean government enacted the "Data-based Public Administration Act" to strengthen collaborative public administration by establishing a data integration management platform for efficient provision, linkage, and joint utilization of data among public organizations. It also provides procedures and

guidelines for promoting joint data utilization among public organizations (to be implemented on December 10, 2020). In addition, the government announced the "Korean New Deal," which promotes the strengthening of data infrastructure through the strengthening of the ecosystem for entire data cycles and the establishment of large-scale ICT infrastructures such as a "Data Dam." Therefore, follow-up research should be conducted on this subject in order to explore data-based management innovation cases in disaster/crisis situations. Conducting an in-depth analysis of these cases will contribute toward creating a comprehensive and integrated framework for government innovation during disaster/crisis management and for enhancing state/social resilience in the post-disaster/crisis era.

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Exploring the influential factors of citizen satisfaction with smart city services: A resource-based theory perspective

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Abstract

In recent years, scholarly and practical discussion on a "human-oriented smart city" has been vibrant as interest in the successful actualization of a smart city or sustainable operation of a smart city has been increasing. The main objective of a human-oriented smart city is to provide citizens with personalized and customized public services, which is consistent with the policy direction of government innovation based on citizen-centric state affairs. In order to actualize a smart city wherein citizens can feel connected and that contributes to improvement in citizens' quality of life, it is necessary to spread data-centric evidence-based policy and extend the operating body from the public sector (e.g., the central and local governments) to the private sector (e.g., civil society, enterprise). In this regard, this study explores the influential factors of citizen satisfaction with smart city services through multiple regression analysis based on a survey of perception of a smart city among the residents of Seongdong-gu of Seoul City, Yangcheon-gu of Seoul City, Songdo of Incheon City, and 1-3 living zone of Sejong City (n=600). The findings indicated that citizens' satisfaction with smart city services increases if they perceive the level of smart city service actualization as high, acquire more experience with smart city services, and perceive the level of smart city service recognition as high. This study also discusses the factors and alternatives that contribute to the actualization of a citizen-centric smart city based on the research findings of the empirical analyses conducted.

Keywords: Smart City, Citizen Satisfaction, Resource-based Theory

I. Introduction

The World Urbanization Prospects Report predicted that the proportion of people living in an urban area among the entire global population will increase from 30% in 1950 to 66% in 2020. As the number of people living in urban areas is increasing, it is necessary to solve chronic urban issues such as the expansion of urban infrastructure, supply of energy and housing, and provision of employment as well as quantitative expansion of urban infrastructure and qualitative improvement in public service (Kim, 2019). Cities and people maintain a win-win relationship as they interact with each other as an organic combination. A smart city is receiving attention from scholars and practitioners as an innovative platform to solve diverse social problems such as crime, disaster, pollution, unemployment, and infectious disease in cities, to secure city competitiveness, and to improve citizens' quality of life.

As interest in the successful actualization of a smart city or the sustainable operation of a smart city has been increasing, scholarly and practical discussions on a human-oriented smart city have been vibrant. The main objective of a "human-oriented smart city" is to provide citizens with personalized and customized public services, which is consistent with the policy direction of government innovation based on citizen-centric state affairs. In order to actualize a smart city wherein citizens can feel connected and that contributes to improving citizens' quality of life, it is necessary to spread data-centric evidence-based policy and extend the operating body from the public sector (e.g.,

the central and local government) to the private sector (e.g., civil society, enterprise) (Yoon, 2019).

This study aims to explore the factors that influence citizen satisfaction with smart city services since citizens are the subject as well as the object of a smart city. The importance of citizens as the subject and object of smart city policy has been discussed at the normative and nominal level (Albino et al., 2015). Most of the related literature focuses on improvement in government responsiveness to citizens (as the policy object) and policy-making through citizen participation (as the policy subject) as the core requirements for the sustainable operation of a smart city; that is, the public sector's close examination of citizens' demands and needs and transforming them into policy and service in an appropriate manner, and citizens' participation in the policy process vigorously and engagement in policymaking are essential to the sustainable operation of a smart city.

Focusing on the importance of citizens as the object of smart city policy, this study focuses on citizen-centric smart city policy and seeks ways to actualize the sustainable operation of a smart city. Specifically, this study analyzes current status, experience, and satisfaction with regard to smart city services through a survey of perception of a smart city among residents of Seongdong-gu of Seoul City, Yangcheon-gu of Seoul City, Songdo of Incheon City, and 1-3 living zone of Sejong City. It is expected that this study will contribute to illustrating directions and alternatives for citizen-centric smart city policy.

This study is structured as follows. Section 2 provides theory and research on a smart city and sets out the hypotheses that formed the basis for examining the influential factors of citizen satisfaction with smart city services from the perspective of resource-based theory. Section 3 demonstrates the research design, which includes an outline of the survey of perception of a smart city, measurement tools, and analytical tools. Section 4 presents the descriptive statistics and multiple regression analysis results in exploring the influential factors of citizen satisfaction with smart city services. Section 5 discusses the implications derived from the empirical analyses. Section 6 summarizes the research findings and illustrates research limitations and future research directions.

II. Theory and Research on Smart City

1. Defining smart city

In recent years, the concept of a smart city has been receiving attention from scholars and practitioners. In academia, there has been ongoing discussion on ways to improve citizens' efficiency, equity, and quality of life through the interaction between new technology (e.g., Internet of Things, artificial intelligence) and social structure (e.g., social relation, institution), as a smart city is understood as a "synergy design and creation between new technology and social structure at the city level" (Meijer & Bolivar, 2015). In practice, governments worldwide have formed policy visions, objectives, strategies, and tasks to actualize a smart city, as a smart city is understood as "the city model that solves urban problems and improves quality of life through combination of new technology with a city" (Ministry of Land, Infrastructure and Transport, 2019).

Despite the increasing scholarly and practical interest, a smart city has not yet been defined in a general and universal manner. According to an examination by the International Telecommunication Union in 2014, a smart city is not only defined in 116 ways in multi-sourced references, but it is also defined in several different ways to the point where it is difficult to regard those definitions as referring to the same term (ITU, 2014). For instance, some scholars regard a city in which information and communications technology (ICT) infrastructure is established, developed, and enhanced as a smart city, whereas other scholars regard a city in which citizens' quality of life is improved without the support of ICT as a smart city (Hwang, 2017).

The reason for the diverse definitions of a smart city can be explained in a scholarly and practical sense. In academia, a smart city is applied to both of two different sectors: hardware (e.g., building, natural resources, water/waste, mobility, and logistics) and software (e.g., education, culture, policy innovation, social inclusion, and government). These sectors lend themselves to multiple ways of understanding a smart city (Albino et al., 2015). In practice, smart is understood variously because its subjects and strategies differ depending on the economy/development level of each state/region and the situation/condition of each city (Ministry of Land, Infrastructure

and Transport, 2019). For instance, in developed countries, the smart city subject and strategy are the private sector and quality of life, respectively, whereas, in developing countries, the smart city subject and strategy are the public sector and reinforcement of international competitiveness, respectively.

Therefore, this study classifies smart city definitions into three perspectives (evolutionary, element-oriented, and stakeholder-oriented perspective) and illustrates them according to each perspective, rather than provide universal/general definitions of a smart city (see Table 1). First, the evolutionary perspective describes the development process of a smart city in a series of stages and understands a smart city as the process through which it proceeds from lower to higher stages. Hwang (2017) illustrates the development stage, which is composed of five stages with consideration of smart city development trends, such as horizontal convergence/expansion and evolution from system to platform. In the first stage (infrastructure establishment), cyberspace is formed and the city is modernized as the information and communications network establishment project is initiated. In the second stage (vertical establishment), the project through which hardware-centric ICT such as sensors is applied to city spaces in each city sphere is promoted. In the fourth stage (city platform), the city functions as a platform. In the fifth stage (future city), the city structure is transformed due to advancement in a smart city.

Second, the element-oriented perspective identifies conceptual elements of a smart city

and understands a smart city as a combination of those elements. Van der Hoogen, Scholtz, and Calitz (2019) illustrate, through an analysis of smart city typologies, six elements of smart cities, as follows: (1) smart economy (innovative spirit, entrepreneurship, economic image/trademark, productivity, labor market flexibility, and international embeddedness); (2) smart citizen (qualification level, preference for lifelong learning, social/ethnic plurality, flexibility, creativity, cosmopolitanism and open mind, participation in public life and smart city initiatives, and synergy through partnership and collaboration); (3) smart governance (participation in decision-making, public/social service, and transparent governance); (4) smart environment (attractiveness of natural conditions, pollution, protection of environment, sustainable resource management, and usability in the future); (5) smart mobility (accessibility to region, accessibility to the world, and sustainable/innovative/safe transportation system); and (6) smart living (cultural facility, medical condition, individual safety, housing quality, educational facility, attractiveness of tourist attraction, and social cohesiveness).

Third, the stakeholder-oriented perspective identifies the stakeholders associated with a smart city and understand a smart city through the role of each stakeholder or relationship between them. Jayasena et al. (2019) illustrate the internal and external stakeholders of a smart city through an analysis of smart city stakeholders in the literature. Internal stakeholders include energy suppliers, ICT sector representatives, citizens, governments,

Table 1 Definitions of smart city

Perspective	Definitions of smart city
Evolutionary perspective	- It describes the development process of a smart city in a series of stages and understands a smart city as the process through which it proceeds from lower to higher stages. - e.g., Hwang (2017): (1) infrastructure establishment → (2) vertical establishment → (3) horizontal establishment → (4) city platform → (5) future city
Element-oriented perspective	- It identifies conceptual elements of a smart city and understands a smart city as a combination of those elements. - e.g., Van der Hoogen et al. (2019): (1) smart economy, (2) smart citizen, (3) smart governance, (4) smart environment, (5) smart mobility, (6) and smart living
Stakeholder-oriented perspective	- It identifies the stakeholders associated with a smart city and understands a smart city through the role of each stakeholder or relationship between them. - e.g., Jayasena et al. (2019): (1) internal stakeholder (e.g., citizen, government) and (2) external stakeholder (e.g., academia, research institute)

local/regional administrative agencies, real estate developers, financial suppliers/investors, planners, policymakers, and experts/scientists. External stakeholders encompass academia and research institutes, non-profit organizations, political institutes, and the media. Internal and external stakeholders exert their influence on or contribute to smart city development in each smart city process (planning, strategy development, strategy implementation, and follow-up action).

2. Smart city performance and its influential factors

Smart city performance is measured by indices classified into five categories (Giap et al., 2019). First, economic vibrancy refers to macroeconomic efficiency in terms of growth, sustainable prosperity, value creation for enterprises, economic freedom, and connection with the world economy. The measurement indices of economic vibrancy/ competitiveness are composed of (1) economic

performance, (2) economic openness, and (3) infrastructure. Second, environmental friendliness/sustainability is often at odds with economic development, which raises the need to balance the former and latter in many cities. The measurement indices of environmental friendliness/sustainability are composed of (1) pollution, (2) depletion of natural resources, and (3) environmental initiatives. Third, domestic security/stability evaluates peace and order in urban areas such as social/political stability and protective actions against terror. The measurement indices of domestic security/ stability are composed of (1) crime rate, (2) threat to national stability, and (3) civil unrest. Fourth, social/cultural conditions include the far-reaching issues associated with social/ public services. The measurement indices of social/cultural conditions are composed of (1) healthcare, (2) education, (3) housing/ hygiene/transportation, (4) income inequality and population burden, and (5) diversity and community cohesiveness. Fifth, political

Table 2 Measurement of smart city performance

Type	Measurement of smart city performance
Economic vibrancy/ competitiveness	(1) economic performance, (2) economic openness, (3) infrastructure
Environmental friendliness/ sustainability	(1) pollution, (2) depletion of natural resources, (3) environmental initiative
Domestic security/stability	(1) crime rate, (2) threat to national stability, (3) civil unrest
Social/cultural condition	(1) healthcare, (2) education, (3) housing/hygiene/transportation, (4) income inequality and population burden, (5) diversity and community cohesiveness
Political governance	(1) policy decision/implementation, (2) government system, (3) transparency/accountability, (4) corruption

Source: Giap et al. (2019)

governance includes the right to speak and accountability, political stability and the absence of terror/violence, government effectiveness, quality of regulation, rule of law, and control of corruption. Political governance measurement indices are composed of (1) policy decision/ implementation, (2) government system, (3) transparency/accountability, and (4) corruption (see Table 2).

The influential factors of a smart city are classified into data/technology, organization/ management, institution/politics, and environment/context factors. First, data/ technological factors consider data quality/ accuracy, technology/system usability, and ease of use, which influence smart city performance (Caffrey, 1998; Davis, 1989). Data factors emphasize data quality and accuracy, which influence smart city performance (Ballou & Tayi, 1999; Kaplan, 1998). It is difficult to lead smart city projects to success if data are inappropriate, inaccurate, or inconsistent, and data are problematic in terms of structure and definition. In order to render a smart

city successful, it is important to develop appropriate structures and definitions of data through collaboration and information sharing among organizations or agencies (UN & ASPA, 2002). Constant feedback from technology/ system users is also a core strategy to improve data quality/accuracy (Deloitte Research, 2001; Hamilton, 2002).

Technology factors consider technology/ system usability and ease of use, which influence smart city performance. The most remarkable challenge is technological incompatibility (Brown, 2001). The old-fashioned system with heterogeneous quality increases the complexity of a smart city project. Moreover, a smart city project faces challenges if the number of participants or technological capability is insufficient (Dawes & Pardo, 2002). The newness or complexity of adopted technology also hinders a smart city project (Dawes & Nelson, 1995). In order to lead a smart city project to success, project leaders and managers must have strong technological capability and expertise (Barki et al., 1993; Rivard & Talbot,

1993). In particular, it is necessary for the project manager to be prepared for a situation in which the workforce that satisfices technological qualifications is not sufficient.

Second, organization/management factors are composed of organizational characteristics, processes, structures, and relationships, which influence smart city performance (Gil-Garcia, 2012; Gil-Garcia & Sayogo, 2016; Klievink & Janssen, 2009; Mergel, 2015; Mergel & Desouza, 2015). Smart city performance depends on leadership, organizational structure (e.g., centralization as a barrier to information stream, communication channel among agencies), involvement of external advisors, and size of financial resources. The requirements for information systems sharing as smart city infrastructure (e.g., full support and willingness of top-tier decisionmakers, capability to make use of ICT with other agencies, occupational education/training, degree of user-centric task automation, and business collaboration system with other agencies) also influence smart city performance.

Third, institution/politics factors encompass laws, regulations, and practices that function as guidance or constraints on individual behavior

and thereby influence smart city performance (Fountain, 2004; Gil-Garcia, 2012; Gil-Garcia & Sayogo, 2016). Smart city performance depends on institutional legitimacy (e.g., involvement of politically appointed high-ranking officials in a project), the way politically appointed officials exert their power/authority, which influences the formation of trust and respect among the participants in a smart city project, and the political environment surrounding public organizations (e.g., conflicts of interest among the organizations participating in a smart city project). Political/social support, power relationships surrounding information possession (e.g., asymmetric information usability), open investigation to achieve responsiveness/accountability, and performance evaluation also influence smart city performance.

Fourth, environment/context factors include the situational factors that are embedded in data/technology, organization/management, and institution/politics, thereby influencing smart city performance (Gil-Garcia & Pardo, 2005; Gil-Garcia & Sayogo, 2016; Yang & Maxwell, 2011). Smart city performance depends on political, economic, and social

Table 3 Influential factors of smart city performance

Type	Influential factors of smart city performance
Data/technology factors	Data quality and accuracy, technology/system usability, and ease of use
Organization/management factors	Leadership, organizational structure/behavior, expertise, consistency between an organizational goal and project goal
Institution/politics factors	Institutional legitimacy, political support, authority relationship surrounding information possession, performance evaluation
Environment/context factors	Political, economic, and social environment, social network, value/culture that favors collaboration

environment factors (e.g., spatial environment as challenges and driving forces of a smart city project, demographic characteristics, and economic conditions) and respected social networks that enable constant participation of various individuals and organizations participating in a smart city project. The culture in which the value of collaboration is recognized provides informal incentives to smart city performance, while the culture in which the value of collaboration is not recognized raises the need to provide other kinds of incentives (e.g., financial incentives) to promote smart city performance (see Table 3).

3. Citizen satisfaction with smart city services and its influential factors: From the perspective of resource-based theory

Smart city projects are faced with constraints if there is a gap between an organizational objective and a smart city project objective or if the objectives of a smart city project in organizations are multiple and conflictual (Brown & Brudney, 1998). Moreover, the organizational actors' behavior, which is consistent with their organizational interest, causes resistance to change, internal conflict, and turf war at the organizational level in the smart city project implementation process. In order to lead a smart city project to success, it is important to set a clear and realistic objective about a smart city and make it consistent with an organization's objective or an inter-organizational objective (Flowers, 1996). Smart city managers' technical, managerial, and political capabilities are also key to a smart city

project.

This study explains the relationship between citizen satisfaction with smart city services and its antecedent factors from the perspective of resource-based theory. According to resource-based theory, organizational ICT capability (ability to combine, mobilize, and deploy ICT-based resources or ability to proceed with ICT-based resources and capabilities and other resources and capabilities jointly) is a core factor enhancing organizational performance, such as smart city performance (Bharadwaj, 2000). Accordingly, this study presumes that the degree of smart city satisfaction varies according to the level of organizational capability or level of resource possession in the city that provides smart city services.

Resource-based theory has been the main theory used to explain enterprises' performance in the private sector. It emphasizes internal resources and capabilities in organizations and points out the importance of internal resources and capabilities in gaining a competitive advantage in advance and maximizing performance in an organization (Barney, 1991; Peteraf, 1993). Moreover, it connotes that performance depends on the resources and capabilities possessed by an organization rather than the external environment. From the perspective of resource-based theory, "resources" include a variety of assets, abilities, knowledge, and organizational characteristics required to achieve organizational objectives (Bryson et al., 2007). Furthermore, capability refers to how to provide services or how to perform a task successfully on the basis of available resources in resource-based theory

(Teece et al., 1997).

Accordingly, this study regards the perceived level of smart city service actualization, experience, and recognition by the residents of smart city areas as the resources explained in resource-based theory. The main hypothesis and sub-hypotheses are provided below.

Hypothesis: The richer the smart city service resources are perceived as being, the higher the perceived level of smart city service satisfaction.

Hypothesis 1-1: The higher the perceived level of smart city service actualization, the higher the perceived level of smart city service satisfaction.

Hypothesis 1-2: The higher the perceived level of smart city service experience, the higher the perceived level of smart city service satisfaction.

Hypothesis 1-3: The higher the perceived level of smart city service recognition, the higher the perceived level of smart city service satisfaction.

III. Research Design

1. Data collection

This study sought to empirically address the relationship between the level of smart city resource awareness and citizen satisfaction with smart city services. In order to confirm the research hypotheses statistically, this research drew upon a survey of citizens who live in smart city areas and measured the degree of their perception of the level of smart city service actualization, experience, and recognition as well as their perception of the level of smart city satisfaction. The sample includes residents of four smart city areas (Seongdong-gu of Seoul City, Yangcheon-gu of Seoul City, Songdo of Incheon City, and 1-3 living zone of Sejong

City) and was selected by the decision on well-served smart city areas relative to other smart city areas based on previous research, case analysis, and interviews with government officials.[1] In addition, there are a variety of opinions on the definition of the geographic scope of a smart city, but the scope of this study is limited to the unit of "district," the smart service administration areas in local governments.

In order to overcome the innate limitations of the research design (the fact that it is necessary to directly explain to the residents the major smart city services provided in the area where they live), an interview survey was conducted. The survey was conducted from June 22nd to July 10th. A structured questionnaire was used as a data collection tool, and a final survey questionnaire was reviewed by seven experts to ascertain the objectivity, reliability, and validity of the questionnaire (see Table 4).

The survey questionnaire asked about gender, age, residential district, residence period, educational level, and occupation to assess the respondents' demographic characteristics (see Table 5). Also, it was composed of questions on the degree of the respondents' perception of smart city service satisfaction, actualization, experience, and recognition. Furthermore, we used random assignment technique, which allocates region, gender, and age evenly to reduce the statistical bias that might arise from

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1 The district selected as the research sample provide lifestyle-oriented administrative services through South Korean smart city policy, and they preemptively provide smart city services than other regions.

Table 4 Survey design

Category	Contents
Survey title	A survey of citizens' perception of smart city services
Survey target	Adult men and women over 19 years of age living in Seongdong-gu of Seoul City, Yangcheon-gu of Seoul City, Songdo of Incheon City, and 1-3 living zone of Sejong City
Sampling	Random assignment with consideration of gender, age, and district
Sample size	600 citizens (valid sample) Seongdong-gu: 150 citizens Yangcheon-gu: 150 citizens Songdo: 150 citizens 1-3 living zone: 150 citizens
Survey method	Face-to-face interview with structured questions
Survey period	From June 22nd to July 10th

differences in region, gender, and age.

In terms of district, the citizens who live in Seongdong-gu, Yangcheon-gu, Songdo , and 1-3 living zone comprised 150 respondents (25% for each). In terms of gender, males and females comprised 300 respondents (50% for each). In terms of age, 120 respondents were in their 20s, 30s, 40s, 50s, and 60s (20% for each). In terms of residence period, "over 20 years" was the most frequently reported (145 respondents, 24.3%), followed by "5 years ~ 10 years" (135 respondents, 22.5%), and "10 years ~ 15 years" (130 respondents, 21.7%). Since the respondents who had lived in their residential area for "over 5 years" accounted for 68.5%, we assumed that they are well aware of the smart city services provided in their residential area. In terms of educational level, graduation from university (or college) was the most frequently reported (333 respondents, 55.5%), followed by graduation from high school (228 respondents, 38%). Since the respondents whose educational level was beyond graduation from a high school accounted for more than 95%, we

assumed that they do not have major problems with familiarity and accessibility to smart city services and ICT. In terms of occupation, an office/managerial/professional position was the most frequently reported (190 respondents, 31.7%), followed by self-employment (146 respondents, 24.3%), and sales/service (136 respondents, 22.7%).

2. Variable measurement

The research variables comprise seven types of smart city services that local governments in four smart city areas (Seongdong-gu, Yangcheon -gu, Songdo , and 1-3 living area) provided to citizens through various policy instruments in this study. Table 6 presents these services and a detailed description of each.

The dependent variable (perceived level of smart city service satisfaction) was composed of seven types of smart city services and measured using a seven-point Likert scale (1: strong dissatisfaction ~ 7: strong satisfaction). We used it as the final research variable after adding up the scores of the seven types of

Table 5 Characteristics of survey respondents

Characteristics of respondents		Sample (n)	Frequency (%)
		600	100
District	Seongdong-gu (Seoul City)	150	25
	Yangcheon-gu (Seoul City)	150	25
	Songdo (Incheon City)	150	25
	1-3 living zone (Sejong City)	150	25
Gender	Male	300	50
	Female	300	50
Age	20s	120	20
	30s	120	20
	40s	120	20
	50s	120	20
	Over 60s	120	20
Residence period	Under 1 year	9	1.5
	1 year ~ 5 years	98	16.3
	5 years ~ 10 years	135	22.5
	10 years ~ 15 years	130	21.7
	15 years ~ 20 years	82	13.7
	20 years or more	146	24.3
Educational level	Less than high school	24	4
	High school	228	38
	Bachelor's degree	333	55.5
	Higher than a master's degree	15	2.5
Occupation	Agriculture/forestry/fishing/livestock	2	0.3
	Self-employment	146	24.3
	Sales/marketing/service	136	22.7
	Production/technical/labor position	22	3.7
	Office/managerial/professional	190	31.7
	Housewife	84	14
	Student	15	2.5
	Other	5	0.8

smart city services and calculating their average value. Exploratory factor analysis (EFA) with the Promax rotation technique was used to combine the intercorrelated variables into one general and underlying variable. We computed factor extraction (using eigenvalues greater than 1.0) and found composite factor scores for each of the identified constructs in the research model. Cronbach's alpha was 0.796, which exceeds the required threshold of > 0.7,

Table 6 Types of smart city services

Types of smart city services	Contents
Safety service	Emergency bell/CCTV expansion installation and advancement, Internet of Things-based fire monitoring service in traditional markets, etc.
Welfare service	Disabled/elderly protection service, integrated welfare information service, etc.
Health service	Smart mental health service, mobile healthcare service, etc.
Administration service	Online reservation service for public facilities, integrated lifelong learning program, etc.
Transportation service	Smart parking system, unmanned rental bicycle service, etc.
Culture/tourism service	Tour assistance service, integrated ticketing service online tourism, unmanned library, etc.
City/environmental service	Wi-Fi expansion service, smart bench/park environment management, environmental automatic read service, etc.

validating the reliability of the measurement tool (Hair et al., 2006).

The independent variables were 1) perceived level of smart city service actualization, 2) perceived level of smart city service experience, and 3) perceived level of smart city service recognition. We selected the final research variables after choosing the questionnaire items that were the most representative among all items and calculating the average value of the highly representative questionnaire items.

Perceived level of smart city service actualization refers to how citizens perceive the level of smart city service completion in their residential area and is measured using a five-point Likert scale (1 = strong disagreement ~ 5 = strong agreement). In order to extract two variables (perceived level of smart city service actualization, perceived level of smart city service experience), we employed factor analysis. Cronbach's alpha ranged from 0.792 (perceived level of smart city service actualization) to 0.857 (perceived level of smart city service experience), which exceeded the

Table 7 Measurement of outcome and predictors

Variables		Types of smart city services	Measurement
Dependent variable	Perceived level of smart city service satisfaction	1. Safety service 2. Welfare service 3. Health service 4. Administration service 5. Transportation service 6. Culture/tourism service 7. City/environmental service	Degree of citizens' satisfaction with smart city services
Independent variables	Perceived level of smart city service actualization		Degree of citizens' perception of smart city service completion
	Perceived level of smart city service experience		Degree of citizens' perception of smart city service experience
	Perceived level of smart city service recognition		Degree of citizens' perception of smart city service recognition
Control variables	Residence period		How long respondents have lived in their residential areas
	District		Smart city area where respondents live
	Educational level		Respondents' level of educational attainment

required threshold of > 0.7 (Hair et al., 2006). Therefore, we regarded those variables as having satisfactory validity and reliability. In addition, we asked the question, "how often do you recognize smart city services in your everyday life?" using a five-point Likert scale (1 = never, 2 = rare, 3 = occasionally, 4 = often, 5 = always) to assess the perceived level of smart city service recognition.

Residence period, district, and educational level were designated as control variables to minimize spurious relationships between the dependent variable and independent variables (Babbie, 2007). Furthermore, Seongdong-gu was selected as the reference group to confirm the effect of comparative groups such as Yangcheon-gu, Songdo, and 1-3 living areas on the dependent variable.

3. Research method

We employed multiple regression analysis to empirically assess whether antecedent variables (i.e., perceived level of smart city service actualization, perceived level of smart city service experience, and perceived level of smart city service recognition) affect the perceived level of smart city service satisfaction. To determine whether multiple regression analysis is an appropriate methodology to verify the hypotheses in this study or whether research findings from multiple regression analysis are reliable, we performed tests such as Shaprio-Wilk, normality graphs, and linearity of residuals.

According to the verification test results, there was no significant statistical problem with hypothesis testing through multiple regression

analysis. We also checked the value of variance inflation factor (VIF)[2] to determine the degree of multicollinearity among the dependent variable and the independent variables. Since the value of VIF was 1.61, we suggest that the variables were not highly correlated. However, we confirmed that residuals were distributed with heteroscedasticity after testing the Breusch-Pagan to confirm the equal variance of residuals. More specifically, a null hypothesis (H0 = There is no heterogeneity of residuals among variables) is rejected to set for statistical confirmation. To solve these statistical problems, this study empirically verified the hypothesis through robust regression analysis.[3]

IV. Research Findings

1. Descriptive statistics analysis results

Based on the descriptive statistics of the data, we analyzed the characteristics of the variables, and the descriptive statistics analysis results are illustrated in Table 8. Since the main variables were continuous in nature and the variables were derived from the actor or average value, we calculated the average, standard deviation (SD), maximum value, and minimum value. Table 8 shows the SDs of the independent variables;

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2 A variation inflation factor (VIF) of 10 is commonly used as the rule of thumb to indicate excessive or serious multicollinearity (Tinkler and Zhao, 2020, p. 356). This research model has value of VIF below 3, judging that all of the research variables are independent each other.

3 Robust regression analysis is a method of estimating the coefficient so that the sum of the absolute values is minimal instead of the square of the residual. When the absolute value is used, distortion phenomenon is alleviated, causing a decrease in the influence of the outlier (Kim et al., 2017).

Table 8 Descriptive statistics analysis results

Continuous variables		Mean	SD	Min.	Max.
Dependent variable	Perceived level of smart city service satisfaction	4.829	.624	2	6.428
Independent variables	Perceived level of smart city service actualization	3.523	.551	1.571	4.857
	Perceived level of smart city service experience	2.627	.789	1	4.714
	Perceived level of smart city service recognition	3.33	.709	1	5

all SDs were below 1. More specifically, the SD of the perceived level of smart city service actualization was the lowest (0.551) compared to the other variables, indicating that there was not much difference in the perceived level of smart city service actualization among the survey respondents.

2. Regression analysis results

In order to confirm the effects of the antecedent variables on citizens' satisfaction with smart city services, we analyzed the relationship between the variables based on four targeted regions that provide smart city services (see Table 9). According to the analysis results, the value of F (8.591) was 121.68, which shows that the hypothesis of this study was statistically significant. In addition, it shows that robust regression analysis is an appropriate method to conduct statistical analysis of hypotheses, since it is suggested that it poses no statistical bias regarding reliability and validity. As noted previously, however, we did not present the value of R-squared (which indicates the

Table 9 Robust regression analysis results

Variables			Regression coefficient	Standard error	Significance
Independent variables	Perceived level of smart city service actualization		0.676***	0.036	0.000
	Perceived level of smart city service experience		0.225***	0.024	0.000
	Perceived level of smart city service recognition		0.064***	0.024	0.009
Control variables	District	Yangcheon-gu	0.181***	0.047	0.000
		Songdo	-0.023	0.047	0.619
		1-3 living zone	-0.047	0.052	0.365
	Residence period		-0.013	0.013	0.295
	Educational level		-0.042	0.027	0.115
Constant			1.780***	0.143	0.000
F (8, 591) = 121.68. Sig. = 0.000, Obs.=600					

*** $p < 0.01$

statistical influence on the relationship between the dependent variable and the independent/control variables) because the equation of regression analysis used in this study is robust.

Table 9 shows how the independent variables affected the perceived level of smart city service satisfaction. The findings statistically confirmed all of the hypotheses. Taken together, the findings suggest that the perceived level of smart city service satisfaction will increase if the citizens perceive the level of smart city service actualization as high. In addition, the findings suggest that the perceived level of smart city service satisfaction will increase as long as they acquire more experience of smart city services. This study verifies empirically that the more the citizens experience smart city services in their lives, the higher their satisfaction with these services. Finally, the perceived level of smart city service recognition has a positive effect on the perceived level of smart city service satisfaction. In other words, if many types of smart services are provided in their residential areas, the perceived level of smart city service satisfaction will increase.

Among the control variables, only district had a statistically significant effect on the perceived level of smart city service satisfaction. According to the analysis of verifying the influence of the three other regions (Yangcheon -gu, Songdo , and 1-3 living zone) with the designation of Seongdong-gu as the reference group, the citizens living in Yangcheon-gu had statistically significantly higher levels of satisfaction with the smart city services than did citizens living in the other areas. This suggests that it is possible to improve

citizens' satisfaction with smart city services by adopting the citizens' preference and then providing physical resources such as smart city services, because citizens' demands and needs for essential smart city services might differ depending on the district in which they live. We found no statistically significant relationship between residence period and educational level, used as the control variables, and the dependent variable.

V. Discussion and Implications

The present study was motivated by two main goals: (1) to empirically verify the relationship between antecedent variables and citizens' satisfaction with smart city services through multiple regression analysis from the perspective of resource-based theory, and (2) to investigate the effect of district on citizens' satisfaction with smart city services at a district level. The findings suggest that there is a meaningful relationship among the variables (i.e., citizens will be satisfied with smart city services if they perceive smart city resources as being rich). These findings implicate that if the government invests in proper capacity and resources to succeed in smart city implementation and citizens use government-provided smart city services actively, citizens' satisfaction with smart city services will be higher than in other areas.

These findings, which corroborate resource-based theory, support the argument that citizens' satisfaction with smart city services (i.e., the performance encompassed in resource-based theory) will increase if (1) citizens

perceive smart city services as actualized sufficiently, (2) citizens can experience smart city services whenever or wherever they need to, and (3) a city can reserve the resources that citizens often use by serving a variety of smart city services. Thus, in order to improve citizens' satisfaction with smart city services, the government needs to obtain smart city resources and enhance capabilities to manage these resources. Furthermore, these resources and capacities should be set up in accordance with the level of citizens' expectations.

Notably, the fact that a high perceived level of smart city service actualization positively influenced the perceived level of smart city service satisfaction suggests that the government receives positive feedback from citizens by providing smart city services with sophisticated analysis of citizens' demands and needs for smart city services. That is, this study suggests that citizen-oriented smart city services should be designed to apply the concept of a smart city in the right place as well as to tailor the smart city services to the citizens' needs in their real lives. Consequently, a smart city needs to be managed as a type of village-centered living lab to operate the smart city services through the collection of citizens' ideas and needs.

A living lab is predicated on the premise that a smart city can be used as a real-world testing ground for new ideas, technologies, and services (Cosgrave et al., 2013). A village-centered living lab functions as a platform through which citizens interact with each other in order to solve their own urban problems with their own ideas. Then, the government transforms these ideas into actual policies or services so that

citizens' demands and needs can be reflected in the real world (Kareborn & Stahlbrost, 2009). The citizens engaged in a village-centered living lab are likely to perceive a high level of smart city service actualization since they observe that the ideas and alternatives suggested by them are incorporated into the government's policies or services and actualized in the real world.

This shows that the government needs to enhance citizens' perceived level of smart city service actualization through the sophisticated design of participatory smart city services, such as a village-centered living lab. For example, Bucheon City ran a living lab in order to find an alternative to reduce fine dust through smart technology. This living lab received positive feedback from the mass media due to the combination of voluntary participation of citizens and experts, the adoption of innovative technology, the productive discussion on alternatives, and the application of technologies and alternatives in the field.[4] The government needs to focus on citizen-oriented smart city implementation through the sharing of living lab success stories, such as the aforementioned case of Bucheon City, which might increase citizens' perceived level of smart city service actualization.

Second, the fact that the high perceived level of smart city service experience had a positive influence on the perceived level of smart city service satisfaction suggests that the government receives positive feedback from citizens by inducing citizens to increase their frequency of

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4 Etnews. Bucheon City to hold an advisory meeting to reduce fine dust... living lab receives positive feedback (May 26th, 2020).

exposure to smart city services. Increasing the frequency of exposure to smart city services means that citizens have more opportunities to experience ICT, which is necessary for using smart city services. This reflects that citizens' proficiency in using smart city services has a strong impact on their satisfaction with smart city services. Therefore, a smart city needs to be operated under the provision of sufficient education and training so that the number of citizens who experience a variety of smart city technologies and services constantly increases.

In particular, the government needs to provide education and training on the use of ICT for digitally marginalized groups to improve the perceived level of citizens' satisfaction with smart city services. In general, older or less educated groups have difficulty in utilizing new ICT. This so-called "digital divide" could worsen in a smart city era because smart city services are expected to be provided under the foundation of fast-changing and disruptive technologies (Masucci et al., 2020). The citizens educated and trained by government-provided smart city programs are likely to perceive a high level of smart city service experience since they have the chance to experience ICT, which is necessary for using smart city services that could not be accessed otherwise.

Thus, government employees or service developers need to consider how to provide digitally marginalized groups with effective and practical smart city programs. In addition, government employees or service developers need to consider how to provide smart city services in a more universal way for digitally marginalized groups when designing smart

city services so that citizens can easily use them. For example, Suwon City planned to provide children and elderly people with a mixed reality (MR) environment that combined sports and education in a community place for sports activities through a smart city project.[5] The government needs to focus on citizen-oriented smart city implementation through the dissemination of exemplary education and training programs, which might increase citizens' perceived level of smart city service experience.

Third, the fact that a high perceived level of smart city service recognition had a positive influence on the perceived level of smart city service satisfaction suggests that the government receives positive feedback from citizens by promoting a smart city plan, current status, and performance, thereby informing citizens of what a smart city is, how it operates, and how it is beneficial to them. That is, this study suggests that citizen-oriented smart city services need to be underpinned by the government's efforts to make citizens familiar with smart city technologies and services. In doing so, the government can actualize a smart city in which citizens can feel connected and that contributes to citizens' easy access to smart city technologies and services.

The government's efforts to inform citizens of public policy accurately and specifically provide citizens (policy consumers) with policy information, which, in turn, helps them to make use of government services without any

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5 *Newsis*, "Yeonmu-dong, old district of Suwon, is to be reborn with smart city" (July 30th, 2020)

constraints and induces them to participate in the policy process voluntarily (Baskin et al., 1997). Empirical analysis shows that the government's efforts to inform citizens of public policy accurately and specifically have a positive influence on government performance, such as policy acceptance, trust in government, and social capital (Lee, I. & Lee, C., 2018). This study also illustrates that a high perceived level of smart city service recognition has a positive influence on citizens' satisfaction with smart city services. This suggests that the government's efforts to inform citizens of public policy accurately and specifically also matter in the smart city policy process.

Therefore, government employees need to consider how to make constructive public relations with citizens in the smart city policy process and inform the citizens of the smart city plan, current status, and performance accurately and specifically. For example, Seoul City runs the "Smart Seoul Portal" (a website aiming to inform citizens or website visitors of smart city technologies and services in Seoul City) in order to provide smart city-related policy information and collect citizens' opinions, such as complaints and recommendations, and reflect them in the next smart city policy process.[6] The government needs to focus on citizen-oriented smart city implementation through the active provision of policy information to citizens, which might increase citizens' perceived level of smart city service recognition.

VI. Conclusion

This study aimed to explore the factors that influence citizen satisfaction with smart city services. Focusing on the importance of citizens as the object of smart city policy, this study is oriented toward citizen-centric smart city policy and sought ways to actualize the sustainable operation of a smart city. Specifically, this study investigated current status, experience, and satisfaction with regard to smart city services through a survey of perception of a smart city among the residents of Seongdong-gu of Seoul City, Yangcheon-gu of Seoul City, Songdo of Incheon City, and 1-3 living zone of Sejong City.

The findings statistically confirmed all of the research hypotheses. Taken together, the findings implicate that satisfaction with smart city services will increase if the citizens perceive the level of smart city service actualization as high. The findings also implicate that citizens' satisfaction with smart city services will increase as long as they have more experience with smart city services. Finally, the perceived level of smart city service recognition has a positive effect on citizens' satisfaction with smart city services. In other words, if many types of smart services are provided in their residential areas, citizens' satisfaction with smart city services will increase.

The findings of this study have implications for filling the needs of researchers and practitioners in researching a citizen-centric smart city. These research findings also verify the antecedent factors of citizens' satisfaction with smart city services through empirical analysis and lend themselves to the implications

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6   https://smart.seoul.go.kr/index.do

that have been mentioned. Although this study provides meaningful implications, it also has limitations. In order to deal with these limitations, future research directions are presented in the context of smart city-related research.

First, this study did not consider environ–ment factors to confirm the relationship between satisfaction with smart city services and the independent variables. According to environmental determinism, environment/context factors have an important influence on smart city performance. These factors are significantly associated with smart city performance while shaping organizational characteristics. Kraemer and Perry (1989) argued that some scholars of environmental determinism believe that environment/context factors can influence smart city performance and sometimes incapacitate the influence of organization/management factors on smart city performance. Environment/context factors cover political, economic, social, and demographic factors. Some empirical research reports that economic factors (e.g., economic growth and income) and demographic factors (e.g., age, gender, culture, and religion) have a significant impact on smart city performance. As such, follow-up research should consider the influence of environment/context factors on smart city performance.

Second, this study explained the relationship among the research variables by adopting resource-based theory, but this theory usually explains the relationship between resource/capacity retention and performance at the organizational level. Therefore, there are constraints on elaborating on the perceived level of citizens' satisfaction with smart city services depending on the level of physical resource provision in the cities. Relatedly, future research should use the Tiebout hypothesis4 to explain how environment factors affect these relationships. Doing so will help (1) to find the best way to secure the budget through the inflow of citizens, and (2) to consider the smart city policy to induce the inflow of citizens who live in other cities. It should be noted that the provision of smart city services based on citizens' demands and needs is a key factor for the success of decentralization in local areas. Further, follow-up research needs to confirm the hypothesis that public goods (smart city services) will be distributed effectively under the decentralization rubric in terms of the Tiebout hypothesis according to the principle of competition.

Finally, this study shows that Songdo and 1-3 living zones, the control variables in this study, do not have statistically significant influences on citizens' satisfaction with smart city services. However, it is anticipated that the relationship between the districts Songdo and 1-3 living zone and satisfaction with smart city services would be statistically significant if the perceived level of smart city service actualization, perceived level of smart city service experience, and perceived level of smart city service recognition were high in Songdo and 1-3 living zones, as resource - based theory predicts. Thus, follow-up research needs to control for factors such as age and the educational level of citizens living in those districts, which might affect the use of digital

devices and services. Furthermore, follow-up research should consider objective variables such as whether a smart city is designed through a citizen participatory budget and whether a communication platform is prepared.

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