PUBLIC ADMINISTRATION ISSUES

Research and Educational Journal

The PUBLIC ADMINISTRATION ISSUES journal has been published at the National Research University Higher School of Economics (HSE) in Moscow, Russian Federation since 2007.

The mission of the journal is to create a modern platform of full value for discussion, exchange of international and national experience and specific knowledge among professionals in the field of Public Administration; for working out and further correcting the development strategy of public and municipal administration.

The editorial policy is to provide a very clear emphasis on the specific subject along with a focus on the interconnection of the proper public administration problems with the relative economic, legal, political science and managerial problems, including the interaction of the state and civil society.

The following key issues are addressed:
- The theory and practices of the public administration;
- Legal aspects of the state and municipal administration;
- The analyses of experts;
- The discussions;
- Case Studies;
- The training and the improvement of specialists in public administration.

The journal is meant for analysts and researchers as well as workers in the public and municipal administration, for academic purposes and for a wider readership interested in current status and development of the system of public and municipal administration in the Russian Federation and abroad.

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THE THEORY AND PRACTICES OF PUBLIC ADMINISTRATION

INTRODUCTION

The articles of this Special Issue were prepared before March 2022, and their content is reflecting the trends that were dominant for pre- and COVID-19 epoch. The content of the Issue is divided into 3 main blocks: Participation and openness; Bureaucracy, leadership and intergovernmental cooperation; State audit, public services and its quality. The final article of the Issue is literature review that is dedicated to usage of digital technologies in public administration in the context of government performance quality. Eight articles of the Issue are representing a broad spectrum of countries from Europe, Eurasia, and Asia, that shows the interest of many scholars of these regions of the World in public administration research, and the contribution of different administrative cultures and research traditions into the field of governance.

The focal point of the first Block of the Issue, *participation and openness*, is the usage of high technologies. Public participation in governance is analyzed in the cover article of the Issue as ability of states to support e-participation. As shown for EU countries, the platforms and programs dedicated to cooperation have led to a reduction in the costs of operating the administrative apparatus and its decrease. Open Government Data and its openness in Ireland is discussed in the second article of the Block. The authors show that the use of Open Government Data make more of the data available through electronically accessible formats and have the potential to play an important role in achieving transparency, and accountability, enabling new forms of civic participation.

The quantitative instruments of research are the central for the second Block, dedicated to *bureaucracy behavior and its functional coordination*. Quantitative methods were applied for comparative analysis of the influence of leadership styles in state apparatus on employee job satisfaction in Vietnam. It was shown that three leadership styles (task-oriented, relation-oriented, change-oriented) directly predicted positive moods, but only task-oriented and change-oriented leadership directly affected employee job satisfaction. In the second research article, the Indonesian government activities on terrorism and radicalization were analyzed in different government institutions by using the key words corpus linguistics and critical discourse analysis. The authors found that the explored agencies developed quite different and fragmented concepts due to their local tasks, goals and funding.

The usage of data, observations and regression analysis are in the focus of the articles from the third Block (*audit of corruption, public services, and their quality*). The first study of the Block investigates the roles and contributions of Supreme Audit Institutions (SAIs) to anti-corruption in Yemen, using collected data, reports, and questionnaires. The results of research show that despite the ability to detect corruption, the SAIs failed to prevent corruption due to weak political stability and lack of application of laws. The second article of the Block investigates the local government internal au-

dit functions in Indonesia in supervising local public services quality. The secondary data from all local governments in Indonesia for the 2016–2019 fiscal year have been used. The authors found a positive effect of local government internal audit function maturity and expertise on public service quality. The last article is dedicated to investigating the impact of the size of local government units in Armenia on the provision of local public services. The authors collected and analyzed a complex of financial and socio-economic indicators from 465 amalgamated communities in Armenia, as well as 52 formed clusters. The analysis quantitatively proved that for certain public services it would be more favorable to have larger local government units.

The literature review, presented at the end of the Issue, encompasses in its content general orientation of all Blocks both to high technologies and data analysis. It uses surveys for evaluating digital government performance published in 2011–2021 in over 50 countries. An analytical framework of the survey includes four levels of digital government performance (inputs and outputs characterizing government digitalization process, and outcomes and impacts representing public values) as well as cost and risk constructs. The analysis of empirical papers examining digital government performance demonstrates that survey-based methods vary in the level of digital maturity.

To conclude the Guest editor preface, I would like to express my feeling that this issue can be named as the relevant representation of "pre-crisis problematics", with a strong researcher's belief in continual progress in governance. However, the COVID-19 became the first mark of global turbulence process that was hidden under COVID-19 coverage. The focus of research in public administration and public policy is changing now dramatically. We are spectators of the re-orientation of governance analytics to risks and threats that are far beyond COVID-19 challenges. Despite ongoing COVID-19 epidemic that continues to hit the World, and that all countries recently are more or less under the pressure of social and economic limitations due to pandemic threats, other events and tendencies have emerged and occupy the leading positions in academic reasoning right now. The challenges for common World order, the lack of natural resources, food crises, climate change are creating the enormous pressure for national and international systems of governance. That is why, I guess, the risks- and threats-related issues in governance will dominate in the nearest future.

The transfer of researcher's interest towards new areas and approaches has two sides. First, there is a more critical attitude toward existing theories and modes of explanations, because available data belong mostly to "old times" and can be not relevant for the recent situation. The priorities of governments and politicians are concentrated recently around problems of survival in the face of complex crisis and aiming at protecting their countries from emerged risks and threats, not at doing business "as usual". It is far from theoretical motto of almost finished epoch of well-being improvement, public services extension in volume, its growth in quality and in variety. Second, there is positive orientation to new subjects and ways of research. The matter is not that the "old" subjects will have to be neglected, but that those subjects should be re-conceptualized and embedded into the frame of risk management approaches.

Special Issue Guest Editor
Alexey G. Barabashev

E-PARTICIPATION IN EUROPE:
A COMPARATIVE PERSPECTIVE

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Abstract: Public participation is a way for stakeholders of public institutions to participate in the public decision-making process, planning, organizing, and financing activities to achieve common public goals. The research underlying this paper examines the ability of EU states to support e-participation in various ways and activities. The aim of the research is to identify the particularities of EU countries regarding e-participation and to analyze comparatively the changes that took place in the administrations of European states in the period 2010–2018. For this, EViews was applied with the ARDL model (Autoregressive Distributed Lag) to analyze both the variables and the dynamics of the relations between them in the considered period. The data on which the research was conducted were selected from the Eurostat portal, the World Bank, and the United Nations E-Government Database. The results show that during the period analyzed, in most European countries platforms and programs dedicated to cooperation and consultation between the administration, citizens, and economic agents were developed. These changes have led to a reduction in the costs of operating the administrative apparatus and a considerable decrease in administrative bureaucracy. The originality of the research lies in using the ARDL analysis model on e-participation data series in most European countries when ICT (information and communication technology) had a major impact on accelerating the cooperation of administrations with their stakeholders. Good e-participation practices identified in European countries show that efforts to integrate information and communication technologies into state administrations and their relations with citizens are needed and generate major

economic and social benefits. States can take models from each other and adapt good practices to their specific realities. Research has highlighted the real need to accelerate this process in Europe, for effective communication between state administrations and between them and their stakeholders.

Introduction

To be full members of the democratic system, citizens should be informed, active, and use opportunities to join others in society to participate in achieving common goals. There is a history of public participation. Recently, in more and more legislative systems, the right to public participation is written into law, being considered as a fundamental right of the citizens. Since 1970, many laws in New Zealand (in the fields of health, local government, the environment, etc.) have required the public administration to consult those affected by public decisions. States such as the Netherlands, Germany, Denmark, and Sweden have long regulated, in various forms, public participation and freedom of information. There are several perspectives for approaching public participation (Wang and Wan Wart, 2007). Some of the most important are presented below.

Public participation is a tool used to increase the accountability of authorities and the administration. Public participation aims to facilitate their involvement in making public decisions. The principle of public participation refers to the fact that those affected by a public decision have the right to be involved in the decision-making process. According to existing OSCE, MCIC, ECNL data (2010), the quantity and quality of the information provided by governments have increased significantly over the last 30 years, and the legal right to information is increasingly respected in OECD countries. In 1980, only 20% of OECD countries had legislation in the field of free access to public information, while in 1990 the figure doubled to 40%, and in 2000 it doubled again to 80%, exceeding 87% in 2020.

Governments in democratic states aim to initiate, diversify and encourage activities through which citizens can express their views and be heard directly and immediately by the authorities. Current models of public participation show that the efficiency of participation is achieved by integrating legal guarantees in internal rules, the main tools and methods in this regard being: e-participation; tools for monitoring the implementation of these provisions; establishing structures dedicated to bilateral cooperation; the insertion of sanctions for non-compliance with these guarantees. The efficiency of public participation depends directly on free,

fair, and complete access to information of public interest. Thus, the rules on public participation include or are related, as a rule, to the issue of the right of access to information of public interest. Social participation is not only necessary but also beneficial. This has multiple effects: it improves governance and, in general, makes society more cohesive (Barabashev et al., 2019). The degree of public participation is significantly influenced by the trust that citizens have in public institutions in a country (Teo et al., 2009). In our opinion, trust in institutions is a prerequisite for successful mobilization for effective public participation. The main reason why people need to have at least a level of trust in state institutions is that most forms of public participation involve interaction with central, regional, or local government institutions (Im et al., 2014; Im et al., 2003). If citizens do not trust these institutions, then they will not want to interact with them, the result being a civil society that is separate from the state and a conflictual relationship rather than cooperation (Kim and Lee, 2012; Shin, 2010).

E-participation is a more recent form of manifestation of e-democracy. The COVID-19 pandemic has made electronic democracy (e-democracy) more relevant and influential than ever. Social media has transformed and moved democratic processes from conventional physical spaces to virtual and digitized spaces. In 2020, COVID-19 affected the entire planet, prompting countries around the world to implement security measures to protect citizens and government employees. These administrative measures have led to major changes in the behavior of citizens and administrative institutions (Androniceanu, 2020). Thus, dialogue with citizens has been significantly reduced, and the state administrations are concentrating to find solutions for the efficient management of a diversity of economic, social, and often political issues (Barabashev, 2016). There is a need for their continuous adaptation to the context marked by the restrictions caused by the Covid-19 pandemic. The order of priorities in addressing these issues has changed and for many governments, there are only two points on this order: the health of the population and the maintenance of the economic system. Therefore, public participation was determined to adapt to the particularities of the new context. However, thanks to digital platforms such as Instagram, Facebook, or Twitter, citizens continue to express their views, send messages of mobilization for social movements, and intend to encourage change. It is a certainty that participatory activities have been facilitated by online platforms, and social networks have been increasingly used by the government to keep up with public trends and to identify political issues that citizens are interested in (Miori and Russo, 201). Popular platforms such as Twitter and Facebook have allowed users to actively engage in online politics, expressing their views and political opinions, as well as organizing movements to draw attention to important issues (Davies and Chandler, 2013). Instant sharing and response mechanisms generated by social networking platforms have become an important e-participation tool that enables citizens to engage in decision-making and government agencies to take the lead in addressing public agenda concerns (Sanford and Rose, 2007). Several tools and templates have emerged as part of Web 2.0, which can be used or inspire the design of architecture for e-participation (Koc-Michalska et al., 2014).

The emergence of online communities geared towards creating useful applications suggests that it would be possible to design a social mediation technology that would support government public collaborations. Social networking services, such as popular media platforms and blogs, have built online platforms that allow citizens to connect with others and participate in interactive activities. There are differences between states regarding access to online environments and ICT (information and communication technology) infrastructure. Our research integrates these variables. Therefore, e-participation is influenced by the digital divide. This is also the reason why we chose to make a comparative analysis of e-participation in the states of the European Union. On the other hand, e-participation is largely based on the population's access to new technologies and connection to the infrastructure needed to use them. The disparity in e-government and e-democracy between developed and developing countries has been attributed to the digital divide. There is also skepticism about the impact that citizens can have through online participation (Al-Hujran et al., 2011; Androniceanu et al., 2020). The government must be able to ensure that online communications are secure and do not violate people's privacy.

Along with infrastructure, an essential role in e-participation is played by the education of citizens and their IT skills for e-government (Abu-Shanab, 2014, 2015; Kersting, 2013). This variable has been integrated and analyzed in the research process that underlies this work. The digital divide on the education component of citizens prevents and limits their ability to express their opinions, and excludes them from participation, handing back the initial goal of e-participation (Aichholzer and Rose, 2020; Colesca and Dobrică, 2008; Rose and Skiftenes Flak, 2008).

E-participation has evolved as a social activity involving collaboration between politicians, administration, citizens, and civil society (Greenwood, 2012). It relies on information and communication technologies to mediate this collaboration. The development of information and communication technologies is the largest and most important tool that has driven the increase of e-participation in EU countries, enabling and facilitating better collaboration between the public and governments. ICT tools help cooperation between authorities and citizens to improve legislation, but also to provide some complex services (Hung et al., 2013). These complex services require considerable interaction, including searching, selecting options based on multiple criteria, calculating results, notifications, surveys, complaints, and many other activities. Citizens need to be able to get involved in the process, at a time and place that is convenient for them, where their opinions matter. Governments need to ensure that structures are designed to cope with increased public participation and are secure. To ensure that issues are discussed in a democratic, inclusive, tolerant, and productive way, the role that intermediaries and representative organizations can play should be considered.

Through our research, we answer the following questions: (Q1) What are the similarities and differences between EU states regarding e-participation in the period analyzed? (Q2) What are the main correlations between the variables included in the research, their intensity, and how do they influence the increase of e-participation in the EU states in the period analyzed?

The research hypotheses are as follows: (H1): EU states with a higher e-government index, an advanced level of e-government indexation, and robust economic development. (H2) There is a direct correlation between the ICT infrastructure, digital skills, and education of EU citizens with an impact on the e-participation index.

Public institutions with responsibilities in certain social areas (such as employment, higher education, and child protection) are (or should be) open to all. If citizens perceive negatively the way these institutions fulfill their responsibilities, then they will not be stimulated to interact with them. Through our research, a series of particularities have been identified and analyzed.

Literature about e-participation and other key connected concepts

European citizens are increasingly demanding transparency and accountability from state governments (Androniceanu, 2021; Ballesteros et al., 2014). New forms of active participation are emerging in the formulation of public policies that influence the activities and lives of citizens. In recent years, we have witnessed a growing concern in Europe for governments to explore new ways to inform and engage citizens and civil society organizations in decision-making. Public participation becomes an objective that ensures a democratic framework for decision-making through consultation with their main beneficiaries.

The participatory approach to political and legislative processes at the EU level is guaranteed by the Treaty of Lisbon in the sense that "Every citizen shall have the right to participate in the democratic life of the Union. Decisions shall be taken as openly and as closely as possible to the citizen" (Boussaguet, 2016). Article 11 provides: "1. The institutions shall, by appropriate means, allow citizens and representative organizations to make themselves known and to exchange views publicly on all areas of activity of the Union. 2. The institutions shall maintain an open, transparent and regular dialogue with representative associations and NGOs". The Treaty obliges the European Commission to consult with stakeholders. Before the adoption of the Treaty of Lisbon, the European Commission drew up several documents emphasizing the importance of public participation and providing principles for implementation in practice.

E-participation refers to the direct public participation of the stakeholders of an administration in public decisions in the fields: social, economic, political, legislative, environmental, security, culture, etc. (Moreno-Enguix et al., 2019). In the last decade, electronic means have been used for this. Thus, e-participation has emerged, which is largely part of e-democracy and largely involves the use of ICT by governments, the media, political parties, and interest groups, civil society organizations, international governmental organizations or citizens and voters in any of the political processes of regions and nations, local and global communities. When participation becomes complicated, decision-making with citizen participation is necessary (Monaghan, 2012). Instead of accepting knowledge as disseminated by the media and government, through e-participation, citizens become an active part and directly contribute to the creation or development of a democratic society (Carrara, 2012; Cegarra-Navarro et al., 2014).

Electronic participation is also developing in government e-services systems. These influence the decision-making process regarding public services, and subsequent changes will be difficult to make after the existing procedures have been implemented in ICT systems. The advantages offered by ICT have facilitated the emergence of e-participation. Electronic participation or e-participation refers to the use of ICT by the stakeholders of the administrative system in a country for sustained participation in the administration, provision of services, decision making, and policy-making.

E-participation arose from a real need for interaction between the interests of citizens and public service providers. To a large extent, the conditions of the institutional framework of the chosen democratic model define in which part of the democratic processes participation is allowed (such as direct or representative democracy or any intermediate forms). The development of e-government towards the provision of increasingly complex services is another factor that has contributed to the increase of e-participation (Lironi, 2016).

E-participation is a process that enhances and deepens political participation and allows citizens to interact with each other, as well as with their elected representatives and civil servants using information and communication technologies.

The complexity of e-participation processes results from a large number of different areas of participation, the stakeholders involved, the levels of involvement, and the stages of the public policy-making process. Developments in e-democracy since the late 1990s have also contributed to the origins of e-participation. Interest has rapidly evolved from electronic voting to several forms of ICT-supported interaction, such as consultations, lobbying, petitioning, and voting. To these can be added those pursued outside the government, including elections, campaigns, and community information.

The term "e-participation" appeared in the early 2000s and comes from the concept of increasing civic participation in public policies through the use of information and communication technologies. Electronic participation depends directly on the development of ICTs, the growth of e-democracy, and the growth of e-government (Shkarlet et al., 2020). The development of information and communication technologies is one of the most important factors that has driven the growth of e-participation. The development of CSCW (Computer Supported Cooperative Work) and group programs aimed at different collaboration environments better supports ICT-mediated interaction, both in the workplace and in the social environment.

The United Nations (2014; 2016) calculates an e-Participation Index (EPI). It was designed by the UN Department of Economic and Social Affairs as "an additional index to the UN e-government survey". EPI is used to assess the effectiveness of online services that stimulate the interaction and exchange of information between government and citizens, as well as the involvement of citizens in policy-making and decision-making. It is assessed based on how well a government transmits information to its constituents, how engaged citizens are in policy-making, and how empowered citizens feel in decision-making. The framework for approaching e-participation from a UN perspective consists of: (1) e-information; (2) e-consultation and (3) e-decision-making.

E-information consists of creating the possibility for citizens to have free access to information from the administration. Informing citizens requires the least degree of involvement of citizens who are informed about the activity of public institutions. In the case of e-information, citizens remain outside the administrative process. However, e-information means that the governance process is transparent enough for citizens to obtain the information needed to see to what extent the government keeps its promises and to be able to analyze what is happening in various policy areas. The information can then be used to form opinions or to organize various actions to put pressure on governments.

E-consultation is a way to support participatory democracy (Albrecht, 2012; Alemanno, 2018). Participatory democracy aims to bring decisions as close as possible to the beneficiaries, who are informed and consulted. Following the dialogue between the authorities and the citizens, as far as possible, the suggestions of the latter are integrated into the governmental interventions, thus aiming at satisfying the needs of the local communities. The principle of citizen consultation is a basic principle of public administration that Western democracies follow closely so that a series of studies, comments, and good practices have developed around it. The public administration in the administrative-territorial units is organized and functions based on the principles of consulting the citizens in solving the local problems of special interest. E-consultation facilitates an increased degree of involvement of citizens who not only read and get information but have the opportunity to express their views during the consultations. Citizens are consulted on both issues of national and local interest. E-consultation can be done by: consulting citizens in public debates; citizens' participation in the meetings of national and local legislative and decision-making forums; referendum; legislative initiatives; and other partnerships.

E-decision-making consists of the direct involvement of citizens in decision-making processes, which generate a series of benefits with a direct impact on the quality and appropriate adaptation of public policies.

Based on the three components, the e-participation index is determined. The resulting index score is a basic measure that reflects how inclusive a government is. E-participation implies the maximum participation from the citizens who should show initiative, maturity, and dedication becoming co-participants of the governing process.

Active e-participation is a higher stage, which allows citizens to become decision-making partners in public policy. It is a dialogue on positions of collaboration between the public institution and the citizens. Active participation requires that citizens be involved in setting public policy objectives, be able to express their views on various alternative solutions, and propose implementation strategies. This type of participation is, at the moment, quite rare. From an OECD (2021) perspective, e-participation, with its three forms, is a key tool to strengthen the transparency, efficiency, and effectiveness of legal regulations, improving the quality of rules and programs and reducing the costs borne by both governments and citizens (Grimmelikhuijsen and Meijer, 2014).

The rules and principles of e-participation are regulated differently in various states. Some have mandatory value (Bosnia and Herzegovina, Romania), others

do not (Austria, Croatia, UK). Regulations adopted at the national level should capitalize on existing practices or create higher standards. Citizen participation can take various forms, tools, and methods, during all procedural stages of drafting and implementing regulation or policy. The choice of applicable forms of consultation is influenced by specific factors, as it resulted from our research (Panopoulou et al., 2014).

The role and contributions of European institutions to the creation and development of e-participation in Europe

Public participation is based on several important principles specified by both European institutions and other international organizations. In 2002, The European Commission adopted the General Principles and Minimum Standards for Stakeholder Consultation by the Commission. These are the following:

– participation – which covers all stages of developing a public policy, from design to implementation;
– openness and accountability – the European institutions must act openly and explain and take responsibility for their activities, to be understood and credible;
– efficiency – stakeholders must be involved in the development of public policy early, respecting the principle of proportionality to the impact of the proposal;
– coherence – participation must include feedback, evaluation, and review mechanisms.

One of the recent Council of Europe documents is the "Guidelines for Civil Participation in the Political Decision-Making Process", adopted by the Council of Ministers in 2017. According to the Council of Europe, there are four main forms of participation:

– Information: At all levels of decision-making, all necessary information should be presented in a clear and easy-to-understand language, as well as in an appropriate and accessible format, without unjustified administrative obstacles and, in principle, free of charge, by open data principles. Public authorities should ensure free access, both offline and online, to unrestricted public documents and information, as well as the re-use of such information.
– Consultation: Public policy views should be compiled, as part of the official procedure, by individuals, NGOs, etc., through various tools such as meetings, public hearings, focus groups, surveys, questionnaires, and digital tools. Public authorities should provide public feedback on the outcome of the consultations, giving reasons for the final decisions.
– Dialogue: Dialogue is a structured, long-term, and result-oriented process, based on a mutual interest in exchanging views between public authorities, individuals, NGOs, and civil society in general. Various platforms can be established as a permanent space for dialogue and participation, platforms that can include regular public hearings, public forums, advisory boards, or similar structures.

– Active involvement: This refers to the opportunities for citizen participation in decision-making processes offered by public authorities to individuals, NGOs, and civil society in general that extend beyond the limits of the three forms of participation listed above. Working groups or committees for the co-elaboration of documents, based on transparent criteria and processes, can be included here.

The Council of Europe (2016), through the Code of Good Practice for Civil Participation in the Decision-Making Process, has established several important principles for civil participation:

– Participation, as a way of collecting and channeling the views of interested citizens, through non-governmental organizations, to the political decision-making process.

– Trust, as the honest interaction between the actors involved.

– Assumption of responsibility and transparency, both by non-governmental organizations and by the authorities.

– The independence of NGOs, as they must be recognized as free and independent entities about their aims, decisions, and activities.

The Guidelines for Civil Participation in the Political Decision-Making Process, adopted by the Council of Ministers in 2017, also specify the principles that should govern the participation of all stakeholders in public decisions:

– mutual respect between all actors, as a basis for honest interaction and mutual trust;

– respect for the opinion of NGOs, regardless of whether or not their opinions coincide with the opinion of public authorities;

– respect for the positions expressed by public authorities, which have the competence and responsibility for public decisions;

– openness, transparency, and accountability;

– receptivity, all actors involved providing adequate feedback;

– non-discrimination and inclusion so that all voices, including those of the underprivileged or the most vulnerable, can be heard and taken into account;

– gender equality and equal participation of all groups, including those with special interests and needs, such as young people, the elderly, people with disabilities or minorities;

– accessibility through the use of a clear language and appropriate means of participation, offline or online, as well as through any device.

The European framework for e-participation is constantly evolving. The key document that offers guarantees of public participation is the Convention for the Protection of Human Rights and Fundamental Freedoms, through Article 10, which protects freedom of expression, and Article 11 – freedom of assembly and association. According to the statement in the Report of the Secretary General of the Council of Europe (2015), "exercised together, they support a complete and effective system of power balance, in which power is responsible. Guaranteeing the exercise of these rights is a precondition for the active participation of civil society in the decision-making process at all levels of government".

The right of access to relevant information held by public bodies, in particular by those acting in the public interest, is a precondition for effective participation.

The 2009 Convention on Access to Official Documents expressly stipulates the conditions for exercising this right, introducing both the minimum standards to be applied by the authorities in processing requests for access to official documents and the right of the signatories to the Convention to ensure greater accessibility. Article 10 of the Convention provides: "On its initiative and where deemed appropriate, a public authority shall take the necessary measures to publish its official documents in the interest of promoting transparency and efficiency of public administration and encouraging informed public participation in such matters of general interest".

Electronic democracy is a form of public participation in the EU. The 2001 Recommendation of the Committee of Ministers to the Member States on citizen participation in local public life was the first instrument in this regard, recommending that governments develop a public policy in this area. The 2009 Recommendation of the Committee of Ministers to the Member States on electronic democracy (e-democracy) recognizes that electronic information and communication facilitates greater democratic participation of individuals and groups, as well as greater transparency and accountability of democratic institutions and processes. The resolution also contains concrete guidelines for the introduction and development of e-democracy.

The importance of public participation has been recognized by many other Council of Europe instruments, many of which target the local level. The Committee of Ministers' Recommendation (2009) on the evaluation, audit, and monitoring of participation and participation policies at local and regional levels also includes a tool for self-assessment of citizen participation.

The right to participate in the work of local authorities was introduced by the Additional Protocol to the European Charter of Local Self-Government, regulating the measures for the practical application of this right and establishing the authorities to which it applies. Article 1 contains legislative measures introducing binding guarantees to ensure the right to participate.

The Congress of Local and Regional Authorities pays special attention to the participation of citizens through non-governmental organizations. Resolution 385 of 2015 on "Promoting active citizenship by building partnerships with civil society" focuses on the application and updating of the above-mentioned Code of Good Practice for Civic Participation in the Decision-Making Process.

In the states of the European Union, there is a continuous concern for the diversification and consolidation of forms of e-participation to increase the quality of interaction between public institutions and citizens so that public participation in decision-making processes contributes to strengthening e-democracy. Some examples of progress in the field of e-participation in European countries are presented in the next section of our paper.

Good practices of e-participation in EU member states

In the states of the European Union, there are a variety of ways in which states support e-participation. Some relevant examples are presented below.

In France, the data.assemblee-nationale.fr platform operates, which aims to ensure access to information and consultation at the level of national institu-

tions, aiming at a series of specific objectives, such as: strengthening the mechanisms for transparency of legislative processes and the functioning of the National Assembly; strengthening the links between citizens and their elected representatives; and soliciting the opinion and expertise of citizens. This platform offers citizens the opportunity to develop tools or applications by reusing the data provided and to participate in democratic debates; making available more than 800,000 documents of the National Assembly. Another digital platform is Data.gouv.fr. This is an online platform that collects various information on taxes, budgets, subsidies, expenses, land use, unemployment, housing renovation, air quality measures, public service addresses, delinquency and crime, tourism statistics, election results, and social security costs. Through the platform, citizens can produce, consolidate or supplement data or exchange data of public interest. There are four levels of use: (1) as a citizen – accessing public data; (2) as a manufacturer – the creation of innovative data sets; (3) as a re-user – transformation and visualization of available data sets; (4) as a developer – the use of data on its site.

The optimal functioning of the platform depends on its continuous updating with new data from all areas of the public sector. In March 2016, it included 22,996 data items, 98,739 resources, 1,438 reuses, 13,660 users and 677 registered organizations.

The Open Municipal Information (Open State) program was created in the Netherlands to increase the level of information and active participation of citizens. It has been applied at the level of local public authorities, with the specific aim of creating a "democracy of action", in which citizens can address social issues alone, without the intervention of a public authority, through access to all data in the public sector. This program offers citizens the opportunity to submit alternative proposals on how to address specific issues in the community. In June 2015, the "Law on the re-use of public authorities' information" was adopted in the Netherlands, transposing EU Directive 81/37/2013 on the re-use of public sector information, adopted in 2013 by the European Parliament and the EU Council (EC, 2016). Through this law, the legal framework has been created through which ministries, municipalities, provinces, museums, libraries, and archives are obliged both to provide all information from the public sector for their reuse and to respond to requests for reuse.

Standards of Public Participation have been developed and implemented in Austria. They have been applied at the level of federal authorities and all sectors of public administration to maximize the effectiveness and efficiency of public participation, the document called Standards of Public Participation emphasizes information, consultation, and active participation of citizens. Improvements have been made to the consultation process through the adoption and implementation of these standards. The standards are currently recommended for use in all sectors of general government and are divided into three sections, as follows: (1) standards for the preparation of the participation process; (2) standards for the implementation of the participation process; (3) monitoring and evaluation standards after the participation process.

Denmark has been involved in the adoption of e-democracy solutions for over 15 years. Thus, Denmark currently has a mechanism for involving and

consulting citizens called eDem, which is composed of numerous initiatives to support and complement democracy and dialogue with citizens through applications. The key elements of the eDem implementation are: (1) the existence of awareness-raising events, both at the level of citizens and the level of public authorities, regarding participatory approaches; (2) the creation of a general mechanism for public participation, including different levels of participation and tools used; (3) the introduction of effective inclusion policies that enable everyone to participate in decision-making processes, such as people with disabilities or the elderly.

In Belgium, there is a platform that provides a participatory regulatory framework by developing a comprehensive system of passive and active open government instruments for all agencies at all levels of public authority. Thus, the existence of the normative framework for participation creates the possibility of applying a unitary and complete open system of governance for all public authorities' agencies located in the Flemish community and the Flemish region. In addition, the Flemish authorities are setting up a special body to deal with requests for guarantees of open governance.

In Finland, the project for the electronification and digitization of the participation process called the National e-Participation Environment project was implemented. Through this, the national and local authorities in Finland seek to support consultation and active involvement, with the overall aim of developing community services and promoting efficient administration. To promote a proactive approach to democracy and to facilitate interaction between citizens, non-governmental organizations, decision-makers of central and local public authorities, and public administration, six different electronic services have been developed that allow different forms of participation, all easily accessible to all. An example is the digital platform Kansalaisaloite.fi. This is an online platform for submitting initiatives for Finnish citizens with the right to vote to launch initiatives and obtain statements in support of these initiatives. The second example is the online platform Kuntalaisaloite.fi. It is used for submitting citizens' initiatives to municipal authorities. It is an online system similar to the one presented above, used to collect and support citizens' initiatives, but only locally. According to the Law on local public authority, the inhabitants of the municipality have the right to submit initiatives related to the activities of the municipality, which can be of three types: (1) normal, submitted by municipal residents; (2) initiatives on a matter within the competence of the municipal council, supported by at least 2% of persons with the right to vote; (3) initiatives regarding a municipal referendum, submitted by at least 5% of persons with the right to vote. The third example is the online digital platform Otakantaa.fi. This is an online platform for dialogue, which allows for various forms of public consultation and participation from the development of laws, strategies, and planning programs, the evaluation of services and policies, to the mapping of citizens' needs and ideas. The platform can be used at the level of ministries, municipalities, institutes, NGOs, and citizens for open discussions on various topics. The fourth example is the online platform Lausuntopalvelu.fi. It is used for consultation and allows public authorities at both national and local levels to so-

licit proposals from citizens, to facilitate and monitor public consultations. The platform offers citizens and organizations the opportunity to submit proposals and view other proposals. It can be seen that by implementing the digitization program several benefits are obtained, such as (1) Creating an e-participation system, composed of different levels of public participation; (2) Raising awareness and educating citizens about the use of e-Participation services; (3) Ensuring legal obligations and ensuring the political will to use e-Platform tools.

In Italy, the digital platform Open Council of Europesione-Monithon online platforms was created. The program proposed by the Italian authorities is implemented at the national and regional level, providing citizens with the opportunity to track and monitor their expenditure and impact on the community. Through the OpenCouncil of Europesione-Monithon, their online platforms aim to: (1) encourage the more active involvement of citizens in the supervision of public expenditures and their efficiency; (2) provide support to building people's confidence in managing public funds.

In Poland, the concept of participatory budgeting first appeared in Sopot in 2011, which is a process by which citizens of a given city can be involved, individually or through an organization, in the allocation of public funds. The participatory budgeting program in Wroclaw was introduced in 2013 and is, according to statistics, one of the best examples in Poland. Local authorities allocate part of the funds from the city budget for financing project ideas proposed by citizens, examined, and approved by local authorities. The final drafts are selected following a voting process expressed by the citizens and are implemented in accordance with the previously developed program. The participatory budgeting process consists of several forms of active citizen involvement, including the creation and proposal of projects, participation in panel discussions, the possibility to monitor the entire procedure on the Internet, the final vote on projects, and more. For the final review, before the vote, the Wroclaw Municipal Office must hold consultations with project leaders and Office employees in at least 14 districts of the city of Wroclaw. The authorities also organize special meetings to evaluate the implemented projects.

In Latvia, there is an institutionalization of E-Participation. Manabalss.lv is an internet portal (run by the Foundation for Public Participation – a non-profit organization), which has been recognized as a success story in the field of open governance worldwide.

These examples show the many transformations that have taken place in EU countries and the fact that e-participation is evolving in different ways and with different intensities by integrating information technologies for the progressive and motivated attraction of citizens in the decision-making process in a modern European democratic society.

Research methods and data

We applied the ARDL for panel data for the EU member states for the period 2010–2018, studying the determinants of e-participation. The data was collected from Eurostat, the World Bank and the United Nations E-Government Database. Table 1 contains the variables and their significance.

Table 1

The definitions of variables

Variable	Description of the variable	Symbol of the variable	Data sources
E-participation index	The use of online services to facilitate the interaction between government and citizens	EP	https://publicadministration.un.org/
Expense % GDP	Cash payments for operating activities of the government in providing goods and services	EXPG	World Bank
ICT employment of total	The percentage of employment of ICT specialists out of total	ICT	Eurostat

Sources: Compiled by authors (- hereinafter, unless otherwise noted).

Public budgeting is an important tool and a conventional measure in public institutions because of the public resources allocation, the use of the taxpayers' money, prudent financial planning, and so on. The e-participation index is computed on a scale from 0 to 1 and evaluates the quality of public administration websites to provide online information to the citizens.

In this study, the key research questions (RQ) are the following:

RQ1: In the long run, do ICTs have a positive influence on e-participation?

RQ2: In the long run, does public spending positively influence long-term participation?

These long-term correlations have been tested using ARDL panel data models.

The research hypotheses are the following: (Ho1): EU states that have a higher e-government index have a robust economic development; (Ho2): There is a direct correlation between the ICT infrastructure, digital skills, and education of EU citizens with an impact on the e-participation index.

The autoregressive distributed regression lag model (ARDL) was created by Pesaran et al. (1996; 1999 and 2001). ARDL is superior to other cointegration techniques, such as Johansen (1988) and Engle and Granger (1987), and Johansen and Juselius in 1990. Engle and Granger's cointegration approach (1987) tests the long-run relationship between several variables (Kao, 1999). Johanson and Juselenius's (1990) cointegration approach works for variables with the same order of integration, such as the first difference. The ARDL method estimates short-run and long-run causality for variables with mixed orders of integration I(0) and I(1).

We perform four panel unit root tests to test the non-stationarity of the variables. We discover that we have a mixture of I(0) (EXPG) and I(1) (EP and ICT) variables, therefore we can apply ARDL. Then we examine the short-run and the long-run dynamics of the model.

The relationship between EP, EXPG, and ICT follows a temporal trajectory, in the long run reaching an equilibrium path.

The coefficient of the error correction term (ect) describing the long-run causality should be negative, larger than -2, and statistically significant. If these conditions are fulfilled, then the adjustment of variables to the long-run equilibrium is ensured.

Table 2 shows the Pearson correlation matrix of the three variables. The positive weak correlation between ICT and public expenses means investments in ICT modernization of the public sector. The implementation of new technology in public organizations means the transformation of governmental operations to improve organizational effectiveness and the government's relationship with the public (Kim and Kim, 2020). This explains the weak positive correlation of 0.35 between ICT and EP.

Table 2

Pearson Correlation matrix

	ICT	EXPG	EP
ICT	1	0.243023	0.353617
EXPG	0.243023	1	-0.050265
EP	0.353617	-0.050265	1

Main results, analysis and interpretation

To check the order of integration of selected variables we used four panel unit root tests: Levin, Lin and Chu (2002), Im, Pesaran and Shin (2003), and ADF-Fisher and PP-Fisher developed by Maddala and Wu (1999) and Choi (2001). The panel unit root tests statistics and the probabilities in parentheses are reported in Table 3. EXPG is stationary at level, while EP and ICT are stationary at first difference. For lag length, we use the automatic selection according to Schwarz Info Criterion.

Table 3

Panel Unit Root tests

At levels			
	EP	EXPG	ICT
Unit root (Common Unit Root Process)			
Levin, Lin & Chu	-3.97692 (0.0000)	-9.71596 (0.0000)	-0.16912 (0.4329)
Im, Pesaran & Shin	0.95453 (0.8301)	-2.88492 (0.0020)	1.28133 (0.9000)
ADF-Fisher Chi-square	6328 (0.8906)	97.0166 (0.0003)	56.9973 (0.3642)
PP-Fisher Chi-square	35.0960 (0.9785)	100.652 (0.0001)	66.8520 (0.1125)
At first difference			
Unit root (Common Unit Root Process)			
Levin, Lin & Chu	-18.47 (0.0000)	-12.7202 (0.0000)	-37.8117 (0.0000)
Im, Pesaran & Shin	-7.61311 (0.0000)	-5.73884 (0.0000)	-18.1962 (0.0000)
ADF-Fisher Chi-square	169.419 (0.0000)	137.873 (0.0000)	271.219 (0.0000)
PP-Fisher Chi-square	171.221 (0.0000)	165.343 (0.0000)	367.257 (0.0000)

We established that the considered variables have a mixed order of integration I(0) and I(1), none of the variables is I(2) and the dependent variable EP is integrated of order one. Therefore, the most adequate estimation procedure is panel ARDL. From four possible models, the one selected was ARDL (2,2,2), with the Akaike Information Criterion having the minimal value of -5.114055.

Table 4

Panel ARDL (2,2,2) estimation

Variable	Coefficient	Std. Error	t-Statistic	Prob.*
	Long Run Equation			
ICT	0.088331	1.39E-06	63503.86	0
EXPG	0.009867	6.21E-07	15896.83	0
	Short Run Equation			
COINTEQ01	-0.609998	0.191527	-3.184921	0.0021
D(EP(-1))	0.098854	0.173105	0.571062	0.5696
D(ICT)	0.1665	0.127683	1.304009	0.196
D(ICT(-1))	0.342574	0.161734	2.118128	0.0373
D(EXPG)	-0.003106	0.014582	-0.213011	0.8319
D(EXPG(-1))	-0.023723	0.013889	-1.707981	0.0916
C	0.001851	0.044275	0.041797	0.9668

The dependent variable is e-participation EP. The independent variables are government expenses and ICT employment total. Table 4 contains the estimations of the long-run elasticities, the short-run coefficients, and the speed of adjustment to the long-run equilibrium.

The coefficient of the error correction term -0.60 is negative, greater than -2, and statistically significant at the 1% level. This means that the speed of adjustment towards the long-run equilibrium is about 60% over each year. From the error correction term, one can infer joint causality of the variables, that is, all variables jointly have a long-run effect on the dependent variable EP. The long-term elasticity of EXPG relative to EP is 0.009867, positive and significant at a 1% level, confirming hypothesis 1 (Ho1). The long-term elasticity of ICT relative to EP is 0.088331, positive and significant at a 1% level, confirming hypothesis 2 (Ho2).

Regarding the short-term component (Tab. 4), the results proved that the coefficients of the first and second lags of ICT and the second lag coefficient of EXPG are significant at 10%. This implies that in the short term, e-participation is influenced by both independent variables. The positive correlation between ICT and EP is also confirmed in the short term. Also in the short term, the impact of EXPG on EP is negative. One reason for this negative short-term correlation may be the early stage of monitoring the performance of the public administration sector

in some EU countries, as explained by Mihaiu (2014). A 1% change in ICT would lead to an increase of 0.088331% in EP in the long run.

The positive dependence between EP and ICT is validated by Polat et al. (2013), in the sense that increased use of information and communication technologies, especially the internet, leads to the transformation of governments into more effective organizations. The distribution of ICT people in government structures will improve internal efficiency and citizens will benefit from better services and easier access to information, as noticed by Phang and Kankanhalli (2008). The main objective of EP is to attract practitioners in decision-making. The online available services and information will bring a high e-participation of citizens in government portals (Aljazzaf et al., 2020, Veit and Huntgeburth, 2014; Piehler et al. 2016).

The long-term coefficient of ICT (0.088331) is considerably smaller than the short-term coefficient of the first lag of ICT (0.342574), which reflects an orientation of the EU countries on the short-term acceleration of digital government structures.

A 1% change in EXPG would lead to an increase of 0.009867% in EP in the long run. The same positive correlation is obtained by Moreno-Enguix et al. (2019) who consider that a high level of public expenditure efficiency is associated with a high level of e-government and democracy.

In total, four ARDL model specifications were considered. Finally, we selected an ARDL (2,2,2) but in Figure 1 and Table 5 one can see how well some other ARDL models performed in terms of minimizing AIC. In Table 5, one can see that one could choose the best ARDL model specification taking into account one of the following information criteria: Akaike Information Criterion (AIC), Schwarz Criterion (BIC), Hannan-Quinn Criterion (HQ), or the log-likelihood value. Here we considered that the best ARDL model has the lowest AIC value. The graph in Figure 1 also shows the four models together with their AIC values.
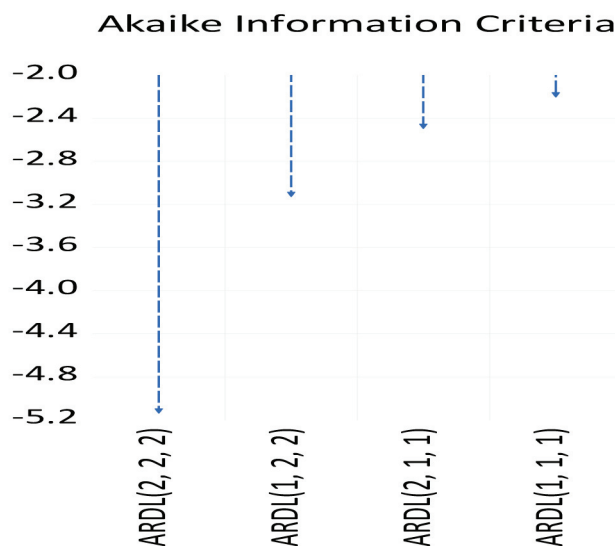
Figure 1: **Model selection criteria graph**

Table 5

Model selection criteria table

Model	LogL	AIC*	BIC	HQ	Specification
4	743.3179	-5.114055	-2.129433	-3.90826	ARDL(2, 2, 2)
2	499.023364	-3.102068	-0.539357	-2.066727	ARDL(1, 2, 2)
3	403.838229	-2.470724	-0.329923	-1.605835	ARDL(2, 1, 1)
1	345.242474	-2.178171	-0.459279	-1.483735	ARDL(1, 1, 1)

Since the correlations discovered between variables ICT and EXPG, and ICT and EP, are relatively weak (the absolute values of coefficients are less than 0.4), we included scatter plots of the relationships between variables, to more accurately highlight the dependence between the variables.

In Figure 2 one can see a graphical representation of the dependence between ICT and e-participation.
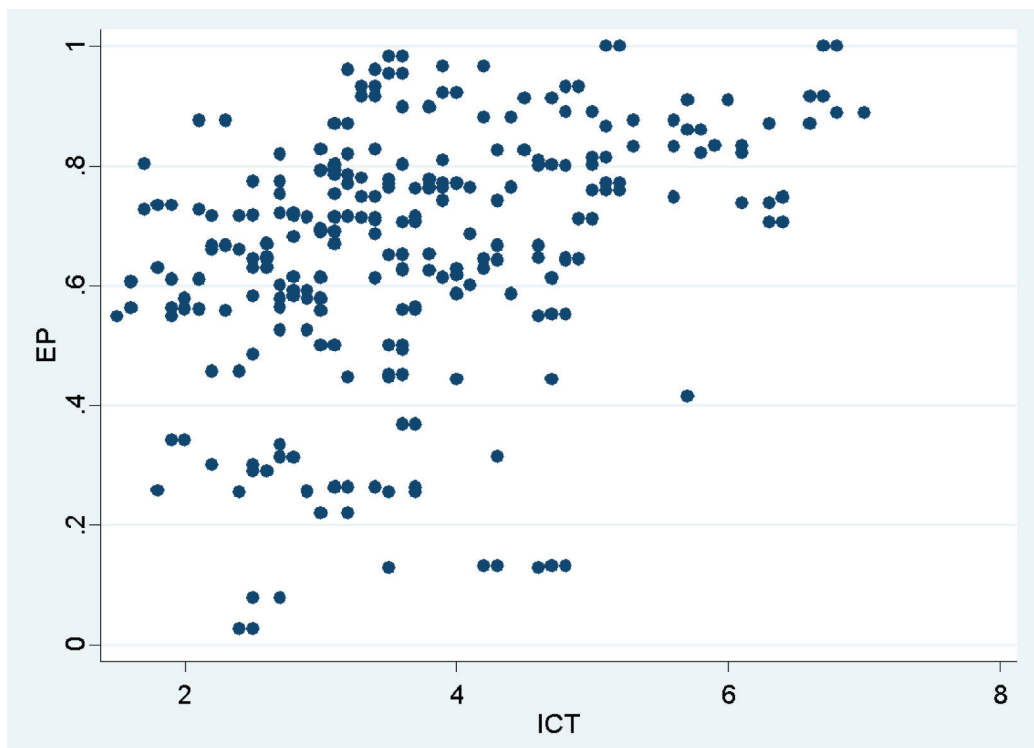
Figure 2: **The relationship between ICT and e-participation**

A two-way scatter plot can be used to show the relationship between ICT and EP for our panel of 27 members states and period 2010–2019. As we would expect, there is a positive relationship between ICT and EP, as can be seen in Figure 2. This positive correlation is also shown in the correlation matrix in Table 2, where the correlation coefficient between ICT and EP is 0.35. Figure 2 also confirms RQ1.

Conclusions

This paper presents a panel data ARDL model in which the determinants of e-participation are ICT employment of total and government expenses. The study proposed the ARDL technique to determine the long and short-run relationships between the variables. The speed of adjustment towards the long-run equilibrium is about 60% over each year. This means that 60% of the EP deviation from long-run equilibrium was adjusted over each year. From the error correction term one can infer joint causality of the variables, that is, all variables jointly have a long-run effect on the dependent variable EP. The long-term elasticity of EXPG relative to EP is 0.009867, positive and significant at a 1% level. The long-term elasticity of ICT relative to EP is 0.088331, positive and significant at a 1% level.

Regarding the short-term component (Table 4), the results proved that the coefficients of the first lags of EXPG and ICT are significant at 10%, implying that in the short term, e-participation is influenced by both independent variables.

A 1% change in ICT would lead to an increase of 0.088331% in EP in the long run. The long-term coefficient of ICT (0.088331) is considerably smaller than the short-term coefficient of ICT (0.342574), which reflects an orientation of the EU countries in the short term on the acceleration of digital government structures.

The research answered the two questions and validated the two hypotheses. These results show that on the medium and long term, the administrations of European states that invest in ICT will have a growing index of e-participation.

The limitations of this research could be the relatively short period of analysis, 2010–2018, due to the lack of data and the reduced number of variables involved. Some possible future research directions would be the application of alternative panel data models, such as difference or system GMM (Generalised Method of Moments) estimators or quantile regression models using an extended group of research variables.

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HOW OPEN IS OPEN?
A STUDY OF TWO IRISH OPEN
GOVERNMENT DATA WEBSITES

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Abstract. In discussions of Open Government Data (hereafter referred to as open data or OGD) in the academic literature, the question of what is meant by the word "open" has to date received only limited attention. The use of Open Government Data (OGD) has spread globally as governments make more of their data available via electronically accessible formats for individuals to use and share. OGD is seen as something that has the potential to play an important role in achieving transparency, and accountability, enabling new forms of civic participation, and stimulates economic growth and development. However, there is a need to examine OGD datasets to determine whether they are truly open. The purpose of this paper is to investigate OGD openness based on a number of existing or proposed open data definitions and principles. The principles proposed by the work of the Open Government Working Group will be analyzed. The methodology that has been used to collect the data includes OGD website content analysis, participant observation and semi-structured interviews using purposeful and snowball sampling techniques. The results in this paper are just part of the overall study. This research has not been funded. The research limitation is that it has been done only in the Irish context. It is an original study with primary data. The conclusion of this research mainly demonstrates that OGD in the Irish context is progressing but requires further work to be open based on the principles proposed by the Open Government Working Group works.

Abbreviations
CoCo: County Council
OKF: Open Knowledge foundation
OD: Open data
OGD: Open government data
API: Application programming interface

Introduction and background

Open government data (OGD) is explained as a philosophical concept that governments should promote transparency, accountability, and value creation by making their data and policies available (OECD, 2020). Zainal et al. (2019) indicate that the number of studies that focused on the intention to use open government data is still small even though numerous studies have been conducted to measure the level of use of other information technologies such as e-government, e-commerce, and online banking (Zainal et al. 2019.)

Warraich et al. (2019) mention that governments around the world have been transforming themselves into electronic governments due to the increase in information and communication technologies, thereby encouraging citizens to participate in government processes and to use open data sets. The use of OGD has spread globally as governments make more of their data available via electronically accessible formats for individuals to use and share. Oh (2013) states that over the past decade there has been a movement towards open data, particularly government data.

According to Sheridan and Tennison (2010), the most 'notable' OGD initiatives up to that time have been the launch of data.gov in the USA and data.gov.uk in the UK. They write those governments and local authorities worldwide have started to put their data online. Countries such as the USA, Australia, New Zealand, the Netherlands, Sweden, Spain, Austria and Denmark now publish data online for citizens to use without any restrictions.

Ubaldi (2013) claims, "*OGD has the potential to increase government efficiency, effectiveness, and innovation in service delivery and internal operations in the public sector* " (p.14). Moreover, Heusser (2012) writes that OGD has become an important issue for many people and organisations such as academics, policymakers, computer scientists, civil society organisations and start-ups and

technology corporations. In 2007, Berners-Lee urged people to claim their right to government-held data because he saw the potential of OGD. He describes it as a means to achieve greater transparency and accountability as well as better public services (as cited in Heusser, 2012). Furthermore, Davies and Bawa (2012b) state that OGD is seen as something that plays an important role in achieving transparency and accountability of states. They believe that OGD enables new forms of civic participation and stimulates economic growth and development. In their research, Davis and Bawa found over 100 OGD initiatives across the globe. The initiatives varied from community-led OGD projects, government-led developments and civil society-initiated work to the World Bank sponsored OGD programs and the World Wide Web Foundation supported programs. With all these initiatives seeking OGD promises, the question that arises is whether GD can truly be considered open based on the existing definitions and principles. OGD is a large movement across the world and more research is needed to understand the process of opening data in such a way. Below is an overview of various definitions and the principles of OGD.

Definitions of OGD

One of the problems with OGD is defining precisely what is meant by the term. There are various definitions to be found in the literature and not all of them are compatible. Most definitions describe OGD as government data that can be shared with the public, that is freely accessible, and that can be manipulated. OKF (2020) establishes principles that define "openness" in relation to data, which can be summarised as: "Open data and content can be freely used, modified, and shared by anyone for any purpose." According to Klessmann et al. (2012), OGD is defined as follows: "Open government data are those data of the public administration which are made available to third parties for their reuse. Whether the data provided can be described as open depends on various factors, such as accessibility, formats and the legal conditions under which the data may be used." (p.8)

This definition simply defines OGD as data used in public administration and mentions some key factors (accessibility, formats, and legal conditions). However, Klessmann et al.'s definition of OGD is not precise enough and it is too vague to be helpful. In contrast, Barry and Bannister (2014), define OGD as: "Open government data is the idea that data collected and stored by government organisations belong to the citizens of the country and, where possible, this data should be released to the citizens." (p.5)

This is a more conceptual definition positioning OGD as an idea rather than a practice. Taking into account the different definitions of OGD by different authors, we consider important the statement of Ubaldi (2013) that in most definitions of OGD there are two key elements, namely: government data and open data. Government data are defined as any data and information produced or commissioned by public bodies. Open data are data that can be freely used, reused and distributed by anyone, only subject to (at the most) with a requirement that users attribute the data and that they make their work available for sharing. The following section discusses the work of some organisations that have made efforts to develop OGD principles and qualities.

OGD principles and qualities

It has been claimed that the OGD movement has added significant value to the nations in many aspects such as politically, socially, and economically (Wang and Shepherd, 2020). Zhao and Fan (2018) clarify that data variables, resources, technical capacity, and organizational arrangements are the criteria that decide the open data capacity. Furthermore Wang and Shepherd (2020) discover in their research that the majority of the UK OGD is informational and unfortunately a few of these advertised as open data are actually open, which motivates this study to examine the situation of Irish OGD. Thus, it is important to understand the principles behind OGD when it comes to publishing and using OGD more effectively. With this in mind, a multidisciplinary group of advocates and transparency experts gathered in California in 2007 to understand what OGD means and to develop a basic list of principles that OGD policies must meet to be considered as such (Heusser, 2012; Ubaldi, 2013). Proponents agreed on eight OGD principles known as "the eight Sebastopol principles" (see Table 1). Heusser contends that these eight principles are the most frequently cited and complete characterisations of OGD available in the literature. He points out that government data are considered to be open when it fulfils each of the principles.

Table 1

The eight OGD principles
1. **Complete:** Data should be available. Public data are data that are not subject to valid privacy, security or privilege limitations.
2. **Primary:** Data are as collected at the source, with the highest possible level of granularity, not in aggregated or modified forms.
3. **Timely:** Data are made available as quickly as necessary to preserve the value of the data.
4. **Accessible:** Data are available to the widest range of users for the widest range of purposes.
5. **Machine processable:** Data are reasonably structured to allow automated processing.
6. **Non-discriminatory:** Data are available to anyone, with no requirement of registration.
7. **Non-proprietary:** Data are available in a format over which no entity has exclusive control.
8. **License-free:** Data are not subject to any copyright, patent, trademark or trade secret regulation. Reasonable privacy, security and privilege restrictions may be permitted

Sources: Adopted from (opengovdata, 2007; Ubaldi, 2013; Heusser, 2012).

Licensing of OGD attracts the interest of many researchers which reflects the importance of this subject in OGD context (Mockus and Palmirani, 2015; Kučera, 2017; Khayyat and Bannister, 2015; Abubakar, 2019). After all these efforts to guide the OGD initiatives, and in light of all the promises of OGD, there is a gap in research that investigates OGD openness. Most studies in the field of OGD focus on understanding the *benefits, barriers to adoption and myths of* OGD. However, so far, few studies have been focused on the openness of datasets in OGD portals (Vancauwenberghe, 2018; Akyürek et al., 2018). This study aims to fill this gap by exploring the openness of available datasets. The research question is: To what extent is the data provided by the government to the public really open? To answer this question, qualitative multiple case studies were conducted. The methodology used is explained in the following section.

Methods

This study is a qualitative research that uses a multiple case study methodology with two main cases and two supporting cases. The two main case studies are Dublin City Council and Fingal County Council. They were selected because they both have operational OGD websites (*Dublinked.ie* and *Data.Fingal.ie* respectively). South Dublin and Dún Laoghaire–Rathdown County Councils do not have OGD websites and were therefore used as supporting cases. Currently, Dublinked.ie supports all other Dublin authorities with their open data. The data collection methods and data analysis are discussed in the following sections.

Data collection

The two main data collection methods used this study are participant observation and semi-structured interviews. Each method is briefly described below.

Participant Observation

In participant observation, researchers observe phenomena of interest in the environment to gain information that cannot be obtained by other methods. In this study, ten participant observations were made through attending OGD community meetings and events that include interested communities and county council members. Through these participant observations, a number of ideas were discussed and proposed with the communities involved in OGD, leading to insights and a better understanding of how OGD is implemented and used in the Irish context. Table 2 shows the participant observation schedule.

Table 2

Participant observations

Event	Location
Open innovation	Dublin Castle – Dublin
Launching Code for Ireland	Dublin Castle – Dublin
Code for Ireland (meet-up) meeting	Facebook HQ -Dublin
Open innovation 2.0	The Convention Centre- Dublin
Code for Ireland (meet-up) meeting	Google Docks Building – Dublin
Code for Ireland (meet-up) meeting	Amazon offices, Dublin 4
BT Young Scientist and Technology Exhibition	RDS: 550 great projects, BT Young Scientist & Technology Exhibition 2015
Dublinked Innovation Network – Data Analytics Event	Dublin Institute of Technology, Grange Gorman Campus – Dublin
The UK Future Cities Catapult discussion in Dublin	Mansion House – Dublin
Smart Dublin collaborating to solve challenges	Google Foundry, Dublin

Sources: Compiled by authors (- hereinafter, unless otherwise noted).

Semi structured interviews

44 interviews were conducted and the choice of using a semi-structured interview approach was employed because it provides sufficient flexibility to approach different respondents and ask them about their views of OGD based on their experiences with OGD. The interview questions were built upon the fourth generation of activity theory aspects (Fig. 1) to cover all the important points regarding the activity of releasing the data as open in portals (Mwanza, 2002; Khayyat, 2016). Both purposeful and Snowball sampling techniques were used to recruit interviewees. Interviews were recorded and transcribed verbatim with the permission of the participants. Interviews were conducted over a five-month period (Tab. 3).
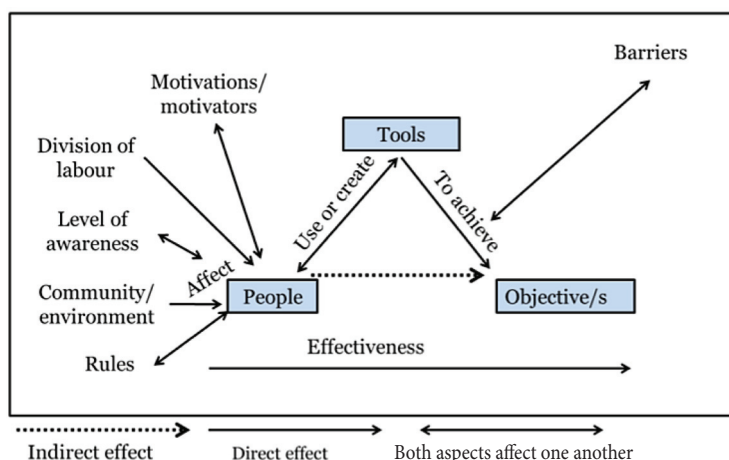
Figure1. **Fourth Generation of Activity Theory**

Source: (Khayyat, 2016).

Table 3

Interviews Schedule

Category	# Interviews	# Interviewees	Type
County Councils (CoCo) seven members have been interviewed			
Dublin city CoCo	1	1	email
Fingal CoCo	2	2	F2F and Phone
South Dublin CoCo	1	1	F2F
DLR CoCo.	2	3	F2F
Organizations – 15 members have been interviewed			
Open Knowledge Ireland	2	2	F2F
Open Street Map	2	2	F2F and Phone
Central Statistics office	2	2	F2F
Institute of Public Health	1	2	F2F
Marine Institute (Galway)	1	1	video

Category	# Interviews	# Interviewees	Type
Organizations – 15 members have been interviewed			
IBM	1	1	F2F
Digital Repository of Ireland	1	1	F2F
Department of Public Expender and Reform	1	2	email
Heritage Council	1	1	phone
St. James Hospital LAMP project)	1	1	phone
Academics / Researchers – eight members have been interviewed			
DIT	1	1	F2F
TCD	1	1	F2F
Maynooth University	3	3	F2F
UCD	1	1	F2F
Insight Centre for Data Analytics, NUI, Galway	2	2	F2F and Video
International experts – seven members have been interviewed			
Spain (Barcelona COCO)	1	2	video
Canadian non-profit organization (Casrai)	1	1	video
USA, OD Consultant	1	1	phone
UK, Future Cities Catapult	1	1	phone
Worldwide web foundation	1	1	video
Netherlands, Academics	2	2	Video
Communities – ten members have been interviewed			
Code for Ireland	1	1	phone
Parking developer	1	1	F2F
MyQ.ie developer	1	1	F2F
ParkYa developer	1	1	F2F
Apps4Gaps.IE and Cododojo	1	1	phone
Risk project manager	1	1	F2F
Interested community in open data analytics	3	3	F2F and Email
Drimnagh is good community	1	1	F2F
Total	*44*	*48*	

Table 3 illustrates the breakdown of interviewees by category and medium (face to face [F2F], phone, video and email). An additional six interviews were conducted but not transcribed because saturation level was reached and no further information could be added.

Data analysis

Two sources of material were analysed in this study; OGD website content analysis and thematic analysis of the interview transcripts.

Website content analysis. Both OGD websites (Dublinked.ie and Data.fingal.ie) were analysed by examining available datasets, dataset formats, licensing, and ease of access. Separately, the results and outputs of communities actively creating content from OGD were studied by analysing their blogs, applications, and created services. The website analysis helped to formulate the interview questions.

Thematic analysis of interview transcripts. Thematic analysis (Braun and Clarke, 2006) was used to analyse the opinions of the interviewees. It was facilitated by the use of NVivo software. Care was taken to ensure the data accuracy, so the analysis phase was carried out after sending the interview transcripts back to interviewees for data validation.

Results

One of the results of the website content analysis reveals there are technical challenges in providing OGD[1]. The Dublinked website states that there are technical challenges in providing data to the standard where the data can be used for reliability, consistency, commercial purposes and quality. To address this issue and to protect data owners from any liability in this regard, there is a disclaimer statement: "All data linked to the Open Data portal is published "as is".

The Information is licensed 'as is' and the Information Provider and/or Licensor excludes all representations, warranties, obligations and liabilities in relation to the Information to the maximum extent permitted by law. The Information Provider and/or Licensor are not liable for any errors or omissions in the Information and shall not be liable for any loss, injury or damage of any kind caused by its use.

The Information Provider does not guarantee the continued supply of the Information. This statement could make users hesitant to rely on the datasets because they cannot guarantee the reliability, consistency, commercial use, quality and sustainability. Thus, one might question the validity of its 'openness' on the basis of this disclaimer alone.

On the other hand, the results of the exploration of interviewees' experiences with OGD with regards to the openness aspect, showed that there is an opportunity for improving OGD in the Irish context. Many interviewees indicated that they believe OGD is still in its early stages. Below, each principle is explained by the interviewees' perspective and supported by quotes from the interviewees to illustrate what works and what does not work in the Irish context.

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[1] URL: http://dublinked.ie/open-data-licence-change-creative-commons-licence-recommended-for-public-sector-open-data/

OGD Principles

1. **Completeness:** Data should be available. Public data are data that is not subject to valid privacy, security, or privilege limitations.

Most community members articulate their dissatisfaction with the availability of data sets that they need. For example, one of the interviewees from the academic category commented that the available OGD on Dublinked.ie is not beneficial for him for the following reasons:

– It is not complete.
– There is no clear metadata.
– Not all data sets are open, as some of them are marked with an 'M' meaning they are only accessible to members of the Dublinked website.
– It is difficult to communicate with the people in charge of open data on *Dublinked.ie*

This interviewee covered four principles, which are complete, primary, and non-discriminatory. None of these four principles are fully applied to the data sets that users are dealing with.

Moreover, one of the interested community members complained about missing data, he said: *"I asked for the data related to the Dog Warden collecting stray dogs to be area specific to see if there is a socioeconomic element to areas that stray dogs are collected in. [he] discussed this with the [the local authorities] three years ago, but they still have not made the dog collection data area specific".*

This interviewee describes two problems. The first one is a lack of data availability. The second is that the waiting period is too long for local authorities to take action.

The other categories of interviewees did not comment on this principle.

2. **Primary:** Data are as collected at the source, with the highest possible level of granularity, not in aggregated or modified forms.

Almost all interviewees' categories of interviewees mentioned the lack of availability of metadata, which is important to be addressed in order to make the data sets clearer.

3. **Timeliness:** Data are made available as quickly as necessary to preserve the value of the data.

Most of the interviewees did not comment on the principle of timeliness. However, two community members hesitated to use the OGD because they articulate their frustration with some data sets being updated.

4. **Accessible:** Data are available to the widest range of users for the widest range of purposes.

Only the communities and organization members interested in dealing with OGD commented on the challenges they faced to access some of data sets. One interviewee revealed that there were limitations in accessing some of the data sets on *Dublinked.ie*. For example, the 'O' indicator means the data set is open, while the 'M' indicator means that the user must be a member to access this dataset (see Fig. 2). That means Dublinked.ie is not open by OKF's definition. For example, when public users click on 'M' datasets they are redirected to a page like Figure. 3 that states "Limited access, data available to members only".

Datasets for Category: Land Use & Zoning

Description	Categories	Region	Agency
2005-2011Dublin City Development Plan - Zoning	Land Use & Zoning	Dublin City	Dublin City Council
2010 - 2016 Amenities Areas	Land Use & Zoning	South Dublin	South Dublin County Council
2010 - 2016 Development Plan Amenities	Land Use & Zoning	South Dublin	South Dublin County Council
2010 - 2016 Development Plan Areas sensitive to Forestry	Land Use & Zoning	South Dublin	South Dublin County Council
2010 - 2016 Development Plan Future Transportation objectives	Land Use & Zoning	South Dublin	South Dublin County Council
2010 - 2016 Development Plan Protected Structures	Land Use & Zoning	South Dublin	South Dublin County Council
9 X sample Topographic Tiles	Land Use & Zoning	Dublin Region	Ordnance Survey Ireland

Figure 2. **Dublinked datasets example**

Source: Dublinked [http://dublinked.com/datastore/by-category/land-use-zoning.php].

Access Permissions	Limited access, data available to members only
Licence or Use Constraints	Osi T&Cs
Language	eng
Spatial Projection	Irish Grid (IG; EPSG:29902)

Figure 3. **Restricted dataset example**

Source: Dublinked [http://dublinked.com/datastore/by-category/land-use-zoning.php].

5. **Machine processable:** Data are reasonably structured to allow automated processing.

Most interviewees did not mind having the data in any format if it is available. The concern of most interest is just to have the datasets. An interviewee in the organisations category revealed that while every effort has been made to provide comprehensive information, the directory is not complete, and the accuracy of the metadata cannot always be guaranteed. She commented that datasets are in HTML or PDF format, which means that the data are not available for reuse and it is therefore difficult to extract by automated means. The interviewee insists; "*Open data must be both technically and legally open o*".

6. **Non-discriminatory:** Data are available to anyone, with no requirement of registration.

Based on only two interviewees' points of view since Dublinked datasets requires registration as shown in Figure 2 where 'O' symbol means open while 'M' Symbol means open dataset only for members, thus the principle number 4 "accessible" is not fulfilled in this case.

7. **Non-proprietary:** Data are available in a format over which no entity has exclusive control.

Based on the website content analysis, some datasets in Dublinked and Fingal open data are available in different formats to facilitate the use without exclusive control. This shows that the non-proprietary principle is valid in the cases of Dublinked and Fingal open data. See Figure 4 and Figure 5.

▼ Formats
csv (129)
xml (42)
kml (36)
pdf (19)
zip (17)
shx (17)

Figure 4. **Dublinked datasets formats**

Source: URL: https://data.dublinked.ie/dataset

ACA Boundaries Architectural Conservation Areas in Fingal	FCC	CSV	XML		KML
Airport Location of airports with contact information.	FCC	CSV	XML		KML

Figure 5. **Fingal datasets formats**

Source: URL: http://data.fingal.ie/ViewDataSets/

8. **License-free:** Data are not subject to any copyright, patent, trademark or trade secret regulation. Reasonable privacy, security and privilege restrictions may be allowed.

Most interviewees from all categories have an issue with licensing in OGD. For example, one member of the communities interested in OGD discussed the availability, updating, and licensing of OGD. Interviewees appeared to not have a grasp on the area of licensing as they expressed their fear of having trouble when

using OGD because some terms and conditions were unclear for them. He said, *"I think people that look at it though get very frustrated immediately. With the licensing they get frustrated, with the limited amount of data available they want more exciting data. A lot of the information that's on Dublinked and Fingal Open Data, I think, Fingal Open Data is probably better than Dublinked, it's a bit more up-to-date, not quite real-time, but it's more up-to-date and interesting information"*.

Here the interviewee mentioned the word 'frustrated', which reflects user dissatisfaction for many reasons, such as unclear licensing, limited amount of data, and not updating data in a timely manner. He described it as a huge risk to rely on data that may have unclear licensing: *"The licenses available on the Dublinked website because it says you can't do anything immoral or illegal with it. It's not a clear standard, what do they mean by immoral? There's a huge risk in it for me right, if I went and developed an App based on open data and I spent a year doing it; blood sweat and tears, weekends, nights and spent all the money buying the domains and hosting it and all that kind of stuff and really poured my soul into it an launched it and then Dublinked said, 'Oh, that's immoral, sorry you can't do that anymore'"*.

This interviewee seems to have lost trust in OGD availability and suffer from licensing terms and conditions ambiguity. These two aspects (availability and licensing) are important and need to be addressed to have truly open data.

It seems that licensing of OGD is still not fully understood and acts as a barrier to the use of OGD by some users who are unsure about the licensing terms and conditions. This highlights the importance to address this issue in further research.

There are also some opinions from the interviewees out of the principles area, for example, a member of *Code for Ireland* suggested consulting experts internationally would be beneficial for OGD in the Irish context to enhance its availability, which shows that data are partially or completely unavailable. In this case, the availability of the required data sets is a concern that needs to be addressed. From an international consultant's perspective , one of the international interviewees expressed his concerns about the openness of Dublinked.ie and Fingal OD. He said, *"There's tiny pockets of open data, mostly from Dominic Burns' Fingal portal right. To a limited extent, the Dublinked effort has also yielded some open data and finally, there was an effort, although I think it was very problematic in launching a national portal […] but that effort has been roundly criticised on many levels. One: poor data reuse potential. Second: irrelevant release of poor-quality data sets and then third, the platform itself has a very poor API, and then finally, there is no legal basis for any kind of licensing of this data.*

This interviewee revealed that the national portal (apart from local government websites) seems to have four problems with publishing open data. The problems are:

– Low potential for data reuse.
– Irrelevant publication of poorquality data sets.
– The platform itself has an unsatisfactory API.
– There is no legal basis for any kind of licensing this data.

He commented: *"So, it's kind of failed on all fronts. It's not a criticism against the Reform Minister or CIO, but I think, in my humble opinion, they made an honest effort to try and make data open. I think though, that relying on public servants and people in organisations paid by the national government to do this without outside validation from the international community is going to lead to continued fail-*

ure." In his statement he insists on the need to consulting international outsiders to solve the Irish OGD issues.

OGD from local government (local authorities) perspective

One of the Dublin local authorities members emphasised the importance of funding and initiatives to open data formally. He said:

"If those focused initiatives that I spoke about were in place, if there was funding available to do it, I think we would see it catching on a lot quicker. So, at the moment, it's organic development of open data."

The interviewee also believed that the slow progress concerning publishing OGD is caused by a lack of funding. This indicates that OGD needs more support to become open. It also indicates that the available datasets are not completely open. For example, the first principle (completeness) is not applied in current OGD. Therefore, despite the progress in publishing OGD, funding is needed to address issues from a perspective of local authority member.

Discussion

The results of this research reveal that OGD publishers need focused initiatives and funding. It also proves there is a reasonable level of dissatisfaction amongst users. Many data sets were analysed which do not comply with the principles of OGD, as shown in table IV and it proves what Davies and Bawa (2012a) described as partial and incomplete government data. Accordingly, there are datasets in Dublinked and Fingal OD that are not open. However, there are regular meetings between local authorities members and interested communities to develop and enhance the situation of OGD in the Irish context.

This paper shows that there are different perspectives on the OGD openness but almost all interviewees agreed that OGD needs a lot of work to be open. This also proves that there are criteria that determine the openness capacity, namely data variables, resources, technical capacity and organizational arrangement as mentioned by Zhao and Fan (2018). Dublin local authorities need human and financial resources, as publishing data is both time and money consuming. Dublin local authorities do not have full time employees to work on OGD and it is still considered as an additional task that done by interested people and not because it is part of their work. This can be considered as the main reason for the slow progress of having full open datasets that comply with the definition and principles of Open Knowledge Foundation

Users expressed their frustration with OGD due to many factors, such as unclear licensing, out-of-date data, incomplete data and difficult formats such as pdf. The licensing issue appeared as a vital issue to be clarified and addressed which confirms the research in the literature review by Mockus and Palmirani (2015), Kučera (2017), Khayyat and Bannister (2015) and Abubakar (2019). Some interviewees who are willing to build business based on OGD hesitate to use it because they cannot guarantee its sustainability, and they suggested to provide the open data in .CSV and JASON formats to be utilized more dynamically instead of static PDF format. However, OGD in the Irish context is on the way of progress and meetings and discussions of improving it is ongoing.

Conclusion

The main goal of the current study was to investigate the openness of OGD based on OGD proposed principles. The empirical research was conducted through participant observations and semi-structured interviews including five categories (Dublin local authority members, organization members, academics, international experts and communities). In conclusion, while OGD has become the focus of global attention with many promises, there are datasets that do not meet the criteria for openness based on the principles proposed by the Open Government Working Group works. However, OGD in the Irish context is on the way of progress, and meetings and discussions about its improvement are ongoing. This paper contributes to a more nuanced understanding of OGD in practice.

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EFFECTIVE LEADERSHIP BEHAVIORS FOR PUBLIC SERVANTS' POSITIVE MOOD, SATISFACTION AND ORGANIZATIONAL COMMITMENT: EVIDENCE FROM VIETNAM

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Abstract. The study aims to examine the correlations among leadership styles, employee job satisfaction, positive moods, and organizational commitment in the public sector in Vietnam. A quantitative approach was implemented using partial least square structural equation modelling (PLS-SEM). The questionnaire was distributed to 457 respondents working in public agencies in seven southern provinces of Vietnam. The findings concluded that three leadership styles (task-oriented, relation-oriented, change-oriented) directly predicted positive moods, but only task-oriented and change-oriented leadership directly affected employee job satisfaction. Further associations were also confirmed, including the positive effects of positive mood and job satisfaction on organizational commitment. Consequently, the indirect influences between the independent variables (leadership styles) were also indicated. Perceiving the significance of organizational commitment as well as job satisfaction and positive moods from the empirical results, public leaders are able to establish their own appropriate strategies and policies to improve organizational performance in the public sector. Moreover, this article would provide a basis for further analyses in public administration, as this paper is one of the very first leading academic studies in Vietnam public sector.

Introduction

The purpose of the current study is to provide a better understanding of leadership behaviours in the relationship with public servants' mood, satisfaction, and organizational commitment. Leadership itself plays a pivotal role no matter what type of organization (Wart, 2003) in fostering employee creativity, job satisfaction, personal development, and work-related behaviours such as organizational commitment. In public administration today, due to the complex demands of stakeholders, the public leader was considered as a primary vehicle in producing public value by determining the challenges and problems, developing appropriate solutions, and communicating the outcomes. The influence of leadership on organizational commitment and job satisfaction was also supported by some recent studies (G and K, 2016).

The significance of organizational commitment on organizational variables was commonly demonstrated as the impacts on organizational performance as an antecedent and as a mediator. Organizational commitment has been widely explored for a long time (Cook and Wall, 1980); however, there are few articles addressing this concept in developing countries, especially in the public sector. While most outstanding studies about the organizational commitment of public administration conducted in developed countries such as the United States and Greece (Markovits et al., 2007), there have been few studies conducted in the public sector of developing countries (Addae et al., 2008). Therefore, it is advocated to conduct organizational commitment research in developing countries to increase the generalisability and accuracy. Similarly, job satisfaction has always been an attractive concern to academic researchers. Some differences were found in the analysis of employee satisfaction between the private and public sectors in the early stages (DeSantis and Durst, 1996). Later, they demonstrated that management philosophy influenced job satisfaction, in terms of as fairness, loyalty, leadership style, training and development (Voon et al., 2011). However, there is still a need to link different leadership behaviours, job satisfaction, and organizational commitment instead of focusing on only transactional and transformational leadership in the public sector (Asencio, 2016).

Context of public administration in Vietnam

Before considering each variable, it is important to understand and interpret the structure of public administration in Vietnam. Vietnam is a one-party, unitary state with the Communist Party of Vietnam leading the whole country.

In 1986 a remarkable public sector reform (PSR) took place, transforming the entire Vietnam from a nation suffering from food shortage to the second largest exporter of rice in the world. The public and private sectors support each other in different aspects in order to contribute to the socio-economic development of a country. Fox et al. (2002) divided the role of the public sector into four main categories: mandating, facilitating, partnering, and endorsing to assist business organization performance. However, it is undeniable that the public sector in Vietnam attracts little interest from researchers. Therefore, it is desirableto conduct an analysis of leadership and organizational commitment in the public sector to obtain meaningful results for appropriate recommendations and implications for leaders in the public sector to address current problems issues and develop potential strengths.

The lack of research in the public administration is the main source of motivation to carry out this study in order to have a deeper understanding of the organizational commitment. There is also a call for scrutinizing leadership behaviours and their positive impacts on public organizations (G and K, 2016). Hence, this article investigates whether leadership styles (task-oriented, relation-oriented, change-oriented) are related to public employees' positive mood, job satisfaction and organizational commitment. The current study is proudly one of the leading studies in Vietnam addressing leadership behaviours in the public sector. The findings of this article could be the principles and premises for other scholars to develop and expand the research model to provide supportive recommendations for management levels and strengthen the operation of public agencies.

Literature review

Leadership styles

Leadership theory is a multidisciplinary field of research with many facets including traits, skills, or behaviours (Wart, 2003). Therefore, interpretation of this complex concept would shed a new light on academic research and provide pragmatic insights for practitioners. One of the neglected challenges in examining leadership theory is the changing contexts. After a decade, Wart (2013) highlighted the developments in a historical, cultural, economic and political context, which has been creating emergent pressures on leaders in public sector. In parallel with these evolutions, there was an increase in the number of public journals and articles, which indicated the vital role of leadership in public administration and the growing awareness of leadership theory. Exceptionally, transactional and transformational leadership styles have prevailed in many studies of leadership behavior to date (Werder and Holtzhausen, 2009).

The diversity of leadership styles in definitions and implications has raised the interest of scholars worldwide in both private and public industries. Hansen and Villadsen (2010) pointed out the differences between the leadership styles of public and private sector managers resulting from individual job contexts such as job complexity, role clarity, and job autonomy. Moreover, the determinants of leadership style on organizational performance are also attractive to ac-

ademic researchers. Ohemeng et al. (2018) demonstrated the significant effects of leadership styles on the relationship between leaders and team members, and employee performance. Leadership behaviours provide a role model to increase the collaboration and relationship among employees in order to gain collective goals and foster creative ideas (Men and Stacks, 2013). Despite a variety of leadership styles, Fernandez et al. (2010) defined a new concept of integrated leadership, which was the combination of five essential leadership styles including task-oriented leadership, relations–oriented leadership, change-oriented leadership, diversity-oriented leadership, and integrity–oriented leadership. This integrated leadership was concluded to be positively associated with organizational performance in public administration. Therefore, the current study will focus on three leadership styles: task-oriented leadership, relation–oriented leadership, and change-oriented leadership, which were considered integral to leadership success.

Task-oriented leadership

According to Schmid (2008), task-oriented leaders are those who emphasize planning, administration, and decision–making for organizational goals with a high degree of control and supervision but a low tolerance for rules and processes. In general, several positive effects of task-oriented leadership have been indicated in a wide range of contexts such as the impacts on group efficacy and positivism of group members in education (Tabernero et al., 2009), job satisfaction in health care (Havig et al., 2011), organizational commitment in public administration (Moldogaziev and Silvia, 2014), and employee motivation in auditing companies (Mai and Dang, 2015). Similarly, Fernandez (2008) also pointed out the positive correlation between task-oriented leadership and perceptions of performance. However, the article disputed the positive effect on job satisfaction as some experts believed that employees perceived task-oriented leaders to be directive, authoritarian, and impersonal. Furthermore, it was suggested to combine task-oriented and socio-emotional leadership to be more effective in the implementation and increase the perceptions of both leaders and subordinates (Casimir and Ngee Keith Ng, 2010). On the other hand, Zhao et al. (2016) highlighted the necessity of adopting both task-oriented and relationship-oriented leadership to increase productivity and performance. Along with the substantial impacts of task-oriented leadership, some predictors have also been studied to interpret and implement this leadership style. Engelbert and Wallgren (2016) argued about the relationship between early experience and task-oriented leadership style. Meanwhile, a personality trait such as conscientiousness was identified to be related to task-oriented leadership (De Vries, 2012) and supervisors managerial self-efficacy positively affected task-oriented leadership behaviours (Ju et al., 2019).

Relationship-oriented leadership

Relationship-oriented leadership was summarized as leaders who provide recognition, kindness, and respect for the contributions of their subordinates (Ehrhart and Klein, 2001). Relationship-oriented leaders were described with

appreciation as they create friendly and supportive environments, encourage for creativity, and respect followers' values. Owing to the distinct advantages of this leadership, relationship-oriented leadership is currently and mostly preferred by new generation employees (Ren et al., 2018).

While task-oriented leadership styles influence group efficacy and positivism, relationship-oriented leadership increases group cohesion (Tabernero et al., 2009). In addition, it was also concluded to have a significant effect on the self-oriented dimension of Leader-Member Exchange (Rüzgar, 2018). The scholar also emphasized the importance of the different effects of each type of leadership that should be understood not only by leaders but also by subordinates in order to be productive and beneficial. Henkel et al. (2019) also confirmed that both task-oriented and relationship-oriented leadership are beneficial depending on the situation and purpose, and in some cases even the combination was recommended (Zhao et al., 2016).

Changeoriented leadership

Yukl (2002) defined change-oriented leadership behaviours as innovation and flexibility to adapt to change and developing strategic decisions for changes and renovation, which is considered critical in a rapidly developing world. Numerous consequences have been discovered over the decades. The positive association between change-oriented leadership and psychological safety, team learning, and team performance was found in the healthcare industry (Ortega et al., 2013). Similarly, other effects of change-oriented leadership on company performance (Sirén et al., 2016), job involvement, work performance, job satisfaction (Mikkelsen and Olsen, 2018), and organisational commitment (Moldogaziev and Silvia, 2014) have been found in different cases and domains.

In Vietnam's public administration, leaders believe that managing change is the priority factor in leadership competence . It was confirmed in the research of Mai and Ta (2018) that besides the adaptability with task requirements, leaders need to control changes inside and outside the organization. In comparison with the private sector, while most people believe that business leaders are more change-oriented than public managers, Andersen (2010) concluded that in fact, public sector leaders are more change-oriented than business leaders. In the article the causes for this difference were also figured out including organizational characteristics, career choice, and criteria for promotion to senior positions. Similar to task-oriented leadership, change-oriented leadership has also been found to be significant in other industries in Vietnam (Mai and Dang, 2015); however, it has not been noticed seriously in public administration.

Organizational commitment

Organizational commitment has been always attractive to academic researchers due to its importance to the overall organization performance. Only few studies in the public sector investigate the effect of organizational commitment. Similar to private organizations, employee organizational commitment in public administration has been considered as a crucial factor in employee well-being and

organizational performance (Morrow, 1995). Meanwhile, Camilleri and Van Der Heijden (2007) pointed out that organizational commitment as an important link between public service motivation and individual performance. There is a variety of definitions and reviews of organizational commitment in different industries. Cook and Wall (1980) conceptualized organizational commitment as the affective reactions and attachment of individuals to the goals and values of their organizations. Later, in addition to the attitudinal and behavioural perspectives of commitment, Meyer and Allen (1991) psychologically divided employee commitment into affective, continuance and normative commitment.

With regard to public organizations, in Liou and Nyhan's (1994) analysis of two dimensions of organizational commitment (continuance and affective commitment), they emphasized the significance of affective employee commitment over continuance commitment for public employee commitment in general. The positive impacts of employee tenure and supervisory position on affective commitment were also clarified in the article. Due to its multidimensional nature, employee commitment was further divided into identification commitment, affiliation commitment, and exchange commitment in order to identify antecedents and outcomes in public organizations (Balfour and Wechsler, 1996). Another difference between the public sector and the private sector was the bureaucracy in public organizations that created the employee behaviours' restriction (Whorton and Worthley, 1981), which negatively affects organizational commitment.

In public administration Addae et al. (2008) demonstrated that the low connection between an organization's goals and public employees' goals would lead to low employee commitment to the organization. Therefore, it is essential to investigate the impacts and antecedents of organizational commitment in the public sector of developing countries. Several considerable antecedents of organizational commitment in public organizations have been discovered recently including employees' perception of the organization, job characteristics (Camilleri and Van Der Heijden, 2007), motivation for public service (Vandenabeele, 2009), autonomy, interesting work, peer support , satisfaction with human resource management (HRM), leadership style (Steijn and Leisink, 2006), interpersonal trust and system trust (Nyhan, 1999).. In addition to the popular correlation between job satisfaction and organizational commitment, leadership styles also leave determinant effects on organizational commitment.

Job satisfaction

It is quite popular to evaluate the significance of job satisfaction for human resource management. The correlation between job satisfaction and organizational commitment has always been of interest to academic researchers (Vandenabeele, 2009). There are numerous definitions of employee job satisfaction. Locke (1969) long ago defined job satisfaction as a positive emotional state of an individual coming from one's achievement appraisal. Spector (1997) described job satisfaction as a reflection of feelings about various aspects of work.

In terms of public administration, job satisfaction has also been considered as the most determinant factor in organizational success (Voon et al., 2011) and

organizational performance (Vermeeren et al., 2013). Since then, researchers have become more concerned about antecedents of job satisfaction in both private and public sectors. Some notable predictors of job satisfaction were job characteristics (Wright and Davis, 2003), public service motivation and supervisor satisfaction, organizational characteristics, HRM practices (Steijn, 2004), empowerment, participation, working conditions, reward and recognition, teamwork, training, personal development (Turkyilmaz et al., 2011). Among these antecedents, the relationship between leadership styles and job satisfaction is appealing to public researchers. A number of scholars mentioned the impacts of leadership styles including transformational and transactional leadership on job satisfaction in public administration. While Voon et al. (2011) proved the negative impact of transactional leadership on job satisfaction and the positive relationship between transformational leadership and job satisfaction, Asencio (2016) implied that both transactional and transformational leadership were positively associated with employee job satisfaction. On the other hand, leadership styles in general have a positive connection with job satisfaction.

Positive moods

Typically, mood has been identified as an emotional state that can affect thoughts and actions (Poon, 2001). In the past, mood met with little interest in research until the eighties when Watson et al. (1988) developed and evaluated the constructs of positive and negative affect and defined positive moods or positive affect as enthusiastic and active feelings. Several articles also began to find out the consequences of moods as well as antecedents of them. Regarding the determinants of moods, Poon's (2001) synthesis of scientific knowledge on moods divided antecedents of moods into external factors such as physical environment and internal factors such as personality

Regarding the effects of moods, Poon (2001) reviewed the works of prominent scholars to point out the significant effects of moods, including cognitive effects (memory, cognitive organisation, persuasion, decision making, risk-taking), behavioural effects (helping behaviour, conflict resolution, evaluative behaviour), and motivational effects (self-efficacy, goals, job satisfaction). In detail, Tsai et al. (2007) indicated the indirect prediction of employee's positive moods on task performance by interpersonal (helping behaviour) and motivational processes (self-efficacy). After that, a partial mediation of positive moods on the correlation between transformational leadership and employees' helping behaviours as well as employees' task performance was also found. To a greater extent, positive moods not only mediated the association between inclusive leadership and employees' learning from mistakes (Ye et al., 2018) but also had significant effects on performance and creativity (Liu, 2016).

Whereas most scholars focused on the importance of positive moods, George and Zhou (2007) valued both negative and positive moods as they would result in a high level of creativity and tackle concerned issues. They did not encourage negative moods; however, it was normal for employees to experience negative moods. In this case, most researchers recommended employees deal with the problems and find appropriate solutions rather than being pessimistic.

Proposed research hypotheses

The evidence presented in this section suggests that leadership styles are important for public administration. Consequently, the conceptual framework was established in order to estimate the relationship between these leadership styles and their effects on employee job satisfaction, moods and organizational commitment.

H1: The leadership styles: task-oriented leadership (H1a), relationship-oriented relationship (H1b), and change-oriented leadership (H1c) are positively associated with employee positive moods.

H2: The leadership styles: task-oriented leadership (H2a), relationship-oriented relationship (H2b), and change-oriented leadership (H2c) are positively associated with employee job satisfaction.

H3: The leadership styles: task-oriented leadership (H3a), relationship-oriented relationship (H3b), and change-oriented leadership (H3c) are positively associated with employee organizational commitment.

H4: Employee positive moods are positively related to job satisfaction.

H5: Employee positive moods are positively related to organizational commitment.

H6: Employee job satisfaction is positively related to organizational commitment.

H7: The leadership styles: task-oriented leadership (H7a), relationship-oriented leadership (H7b), and change-oriented leadership (H7c) indirectly affect employee organizational commitment through the mediation of employee positive moods.

H8: The leadership styles: task-oriented leadership (H8a), relationship-oriented leadership (H8b), and change-oriented leadership (H8c) indirectly affect employee organizational commitment through the mediation of employee job satisfaction.

H9: The leadership styles: task-oriented leadership (H9a), relationship-oriented leadership (H9b), and change-oriented leadership (H9c) indirectly affect employee job satisfaction through the mediation of employee positive moods.

Research methodology

Questionnaire design and data collection
Questionnaire design

Inspired by the previous studies (Havig et al., 2011), the model was developed to determine the effects of the three main leadership styles (task-oriented, relationship-oriented, change-oriented) on job satisfaction, positive moods and organizational commitment in public administration. To ensure the validity and reliability of the variables, all constructs were adopted from previous well-known researchers.

The independent variables or leadership styles were adopted from Yukl's (1999) research. While positive moods and job satisfaction were constructed from Watson et al. (1988) and Papavasili et al. (2019), respectively, the dependent variable, organizational commitment, was based on early articles (Cook and Wall, 1980). Other demographic variables such as position, gender, age, marital

status, working period, educational levels, and office location were used to estimate sample characteristics.

Data collection

The study aims to address public administration. Therefore, the survey was distributed to 457 experts, junior managers, and middle managers in different seven regions in southern Vietnam to obtain accurate and general results. The 5-Point Likert scale with 1=strongly disagree, 2=disagree, 3=neutral, 4=agree, 5=strongly agree was implemented to measure the degree of each variable.

Analysis

Smart PLS with partial least squares (PLS) technique was applied in this research for data analysis. Following Anderson and Gerbing (1988), a two-step approach was prioritized to analyse data for further research. The method comprised Confirmatory Factor Analysis (CFA) to verify the reliability and validity using a wide range of indicators such as Cronbach's Alpha, factor loading, composite reliability (CR), average variance extracted (AVE), and Structural Equation Modeling (SEM) to identify the causal relationship between variables and prove the research hypotheses.

Results

Demographic profiles of respondents

Descriptive statistics provided detailed information about sample background is summarized in Table 1.

Table 1

Demographic statistics

		Frequency	Valid Percent
Position	Expert	307	67.2
	Junior Manager	34	7.4
	Middle Manager	116	25.4
Gender	Male	234	51.2
	Female	223	48.8
Marital Status	Single	166	36.3
	Married	291	63.7
Age	18–25	38	8.3
	26–35	284	62.1
	36–45	106	23.2
	46–55	28	6.1
	>55	1	.2

		Frequency	Valid Percent
Seniority	<1 year	22	4.8
	2–5 years	147	32.2
	6–10 years	151	33.0
	11–15 years	78	17.1
	>15 years	59	12.9
The level of education	High school	3	.7
	Vocational	8	1.8
	College	21	4.6
	University	332	72.6
	Post university	93	20.4
Office location	An Giang Province	35	7.7
	Long An Province	47	10.3
	Vinh Long Province	23	5.0
	Tay Ninh Province	142	31.1
	Binh Duong Province	97	21.2
	Dong Nai Province	25	5.5
	HCM City	88	19.3

Sources: According to the authors' own research (- hereinafter, unless otherwise noted).

The majority of respondents were experts (67.2%) and middle managers (25.4%), while the percentage of junior managers was only 7.4%. In terms of gender, there was an equal number of males (51.2%) and females (48.8%). As for marital status, up to 63.7% were married while the remaining part was single. Moreover, 62.1% of the respondents belonged to the age group of 26–35 years old and of the respondents belonged to the age group of 35–45years old. Most of the respondents had a university degree (72.6%), or a post-university degree (20.4%) and had been employed between 2 and10 years (more than 60%). As the research was conducted in the south of Vietnam, the highest number of respondents was in Tay Ninh with 31.1%, followed by Binh Duong with 21.2% and HCM City with 19.3%. From the sample profile, it could be concluded that public officers seemed to be committed more to their organizations and their education level was quite high compared to private public officers.

Reflective measurement model

To test the reliability and validity of the constructs, composite reliability (CR) and average variance extracted (AVE) were utilized. Composite reliabil-

ity was related to internal consistency and indicator reliability, with the value acceptable greater than 0.8 for the constructs with five to eight items (Nete-meyer et al., 2003).

Meanwhile, AVE was to estimate the convergent validity with a satisfactory value of at least 0.5 (Fornell and David, 1981). According to Table 2, both reliability and validity of the constructs were confirmed with all CR greater than 0.9 and AVE greater than 0.6. Regarding outer loadings, following a common rule of thumb, standardized outer loadings should be equal to or greater than 0.708 (Hair et al., 2017).

Table 2

Reflective meassurement model

Constructs	Items	Factor loadings	CR	AVE
Task-oriented leadership (TOL)	7	0.823–0.923	0.960	0.728
Relation-oriented leadership (ROL)	6	0.763–0.863	0.921	0.752
Change-oriented leadership (COL)	7	0.758–0.905	0.949	0.636
Positive moods (PA)	6	0.797–0.924	0.948	0.714
Job satisfaction (JS)	9	0.722–0.834	0.940	0.662
Organizational commitment (ORCO)	5	0.772–0.884	0.926	0.776

Fornell-Larcker Criterion including indicator cross-loadings and interrelations among constructs was applied to examine the discriminant validity, which was defined as the extent of distinction of a construct compared to other constructs by empirical standards (Hair et al., 2017).

All latent constructs were higher than correlations between constructs. These interrelations between constructs by the square root of AVE are given in the bold diagonals in Table 3; as a result, the discriminant validity was guaranteed.

Table 3

Discriminant Validity Coefficients

	COL	PA	JS	ORCO	ROL	TOL
COL	**0.853**					
PA	0.680	**0.867**				
JS	0.766	0.653	**0.797**			
ORCO	0.628	0.558	0.757	**0.845**		
ROL	0.813	0.662	0.708	0.577	**0.813**	
TOL	0.838	0.688	0.765	0.622	0.780	**0.881**

Structural Model Results

The first step in this stage was to examine collinearity based on tolerance values less than 0.2 or VIF values greater than 5 (Hair et al., 2017). The result indicated that all VIF values were below 5, which explained that there was no collinearity existence affecting the structural model. Secondly, in order to identify the predictive accuracy, coefficient of determination (R^2 value) was measured. Following the rule of thumb, ranging from 0 to 1, the higher R^2 value, the higher levels of prediction the predictive accuracy (Hair et al., 2011). The R^2 value for positive moods, job satisfaction and organizational commitment were 0.526, 0.656, and 0.583, respectively. These numbers indicate the high accuracy of hypothesis prediction. In addition to the R^2 value, Stone and Geisser (1974) also proposed the predictive relevance Q^2 value for analysis. If the Q^2 value is above zero, the predictive relevance for a specific endogenous variable is confirmed. From the construct cross-validated redundancy table, the Q^2 value was more than 0.38 indicating high predictive relevance for further analysis.

Nonparametric bootstrapping with 1000 replicates was applied to verify the structural model with 95% confidence interval. Table 4 shows that H1, H4, and H6 were fully supported, and H2 was partially supported. Meanwhile, H3 and H5 were rejected completely. From the effect size result (f^2), public officer satisfaction had the greatest effect on organizational commitment ($f^2 = 0.332$). The other relationships all belonged to the small effects group. The impacts of TOL, ROL, and COL on PA were $f^2 = 0.058$, $f^2 = 0.034$, and $f^2 = 0.025$ respectively. Similarly, the effects of TOL, COL, PA on JS were $f^2 = 0.073$, $f^2 = 0.063$, and $f^2 = 0.033$ correspondingly.

Table 4

Path coefficients

Hypothesis	Relationship	Path coefficients	P Values	Decision
H1a	TOL → PA	0.319	0.000	Supported
H1b	ROL → PA	0.229	0.001	Supported
H1c	COL → PA	0.227	0.001	Supported
H2a	TOL → JS	0.314	0.000	Supported
H2b	ROL → JS	0.108	0.099	Rejected
H2c	COL → JS	0.308	0.000	Supported
H3a	TOL → ORCO	0.027	0.722	Rejected
H3b	ROL → ORCO	0.004	0.945	Rejected
H3c	COL → ORCO	0.059	0.378	Rejected
H4	PA → JS	0.155	0.004	Supported
H5	PA → ORCO	0.080	0.085	Rejected
H6	JS → ORCO	0.638	0.000	Supported
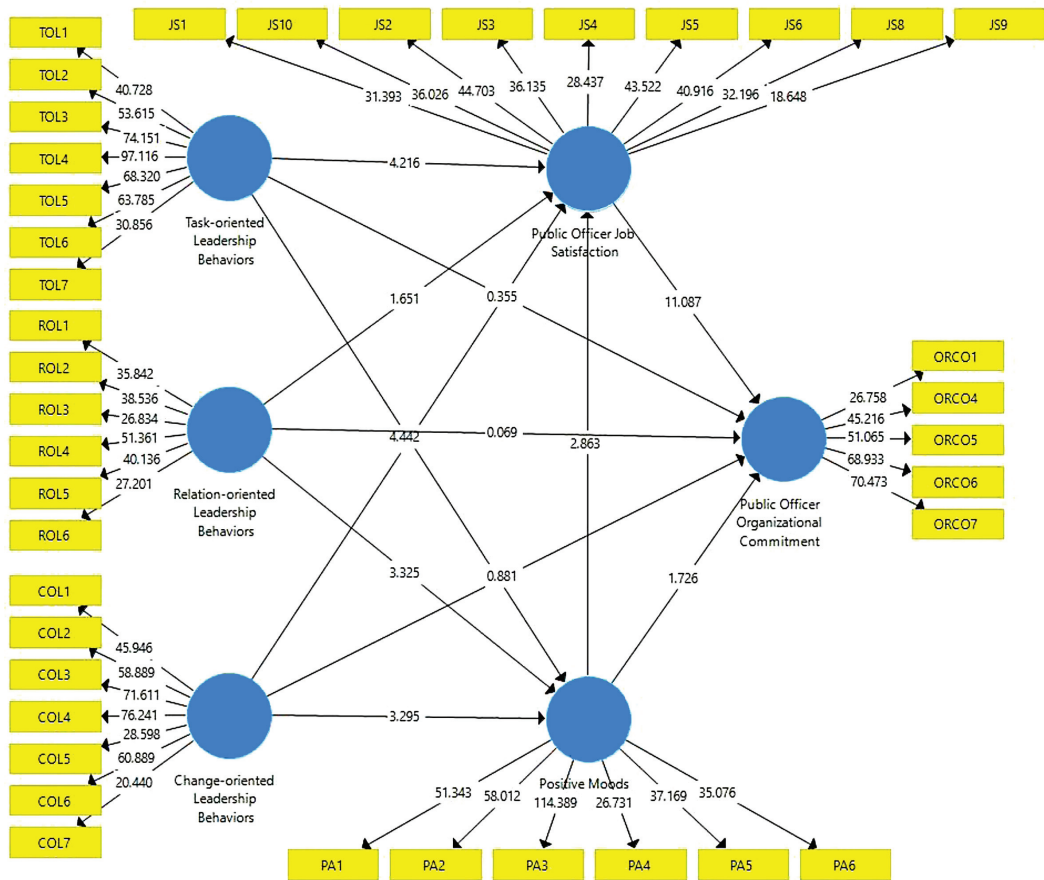
Figure 1. **PLS-SEM Results**

Discussion and implication

Concluded from the table, all three leadership styles directly influence positive moods and job satisfaction, supporting H1 and H2 partially. However, only relation-oriented leadership has no significant impact on job satisfaction. The outcomes again considerably confirm the previous articles including Tabernero et al. (2009) in identifying the positive impacts of task-oriented, relation-oriented, and change-oriented leadership on positive affect. Similarly, the significant relationships between task-oriented and change-oriented leadership on job satisfaction support the findings from Mikkelsen and Olsen (2018) and Havig et al. (2011), but the result denies the effects of relation-oriented leadership on job satisfaction. Hence, the findings are the suggestions for leaders to increase employee positive moods and job satisfaction via these leadership styles. In order to enhance employee moods, following the research model, public managers should prioritize task-oriented leadership over the other styles with the highest impact (b=0.319) while relation-oriented and change-oriented leadership were lower with b=0.229 and b=0.227 respectively.

On the other hand, there is no direct effect of these leadership styles and positive affect on organizational commitment, rejecting H3 and H5. The surprising consequences are not in line with several recent research, which demonstrated the substantial influence of these three leadership styles on organizational commitment (Moldogaziev and Silvia, 2014). This may be because the public sector is more stable and resistant to change than private organizations. Therefore, other indicators such as employee tenure, supervisory position and organizational culture were pointed out to be positively associated with organizational commitment in public administration apart from leadership styles (Liou and Nyhan, 1994). Nevertheless, the notable predictor of organizational commitment is job satisfaction with the highest path coefficient (b=0.638), accepting H6. As a result, there are indirect impacts of task-oriented and change-oriented leadership on organizational commitment through the mediation of job satisfaction, supporting H8a and H8c. A similar pattern happens with positive moods and job satisfaction with the significant connection between them (b=0.115), confirming H4, which results in the indirect influences of three leadership styles on job satisfaction through the mediation of positive moods, supporting all H9. Especially, from the PLS-SEM report, task-oriented and change-oriented leadership have also been proved to indirectly predict organizational commitment through positive moods, supporting H7a and H7c.

Considered as the strongest linkage with organizational commitment, job satisfaction has a determinant role in the model to connect the independent variables with mediating and dependent variables. To enhance the level of employee satisfaction, as drawn in the model, it is highly recommended to improve three leadership styles depending on different contexts and individuals. In terms of task-oriented leadership, as leaders who follow this type of leadership tend to focus on details and work completion (Henkel et al., 2019), it is advisable for public leaders to apply this type to junior employees to give them specific guides to increase the adaptability. On the other hand, it is possible to implement task-oriented leadership to senior staff with consideration in some appropriate situations; otherwise, it might be regarded as a managerial and authoritarian style rather than a leadership style and lead to unexpected negative consequences (Fernandez, 2008).

Regarding relation-oriented leadership, it was believed to be more preferred than task-oriented leadership. In sport, more than half of managers used relation-oriented leadership while only less than a fifth chose task-oriented leadership (Azmsha et al., 2012). Despite the popularity of this leadership style, it should be under control in implementation. Based on the mentioned above definition (Ehrhart and Klein, 2001), relation-oriented leaders are suggested to perform like subordinates' friends to sympathize and understand their obstacles to help them overcome as well as to recognize and develop their strengths. Flexibility and rewards are also highly recommended in relation-oriented leadership to create motivation and encouragement for employees. Yet, the misuse of relation-oriented leadership might cause leaders to lose their position power. Therefore, the combination of task-oriented leadership and relation-oriented leadership had remained a source of controversy for several years until Hersey et al. (1979) created a model

called Situational Leadership Theory indicating the leadership styles application depending on the situations and the people at the moment.

Concerning change-oriented leadership from the table, the direct and indirect effects of change-oriented leadership on positive affect, job satisfaction and organizational commitment were remarkably concluded. Thus, managers should notice this type of leadership if they want to progress other factors. It is advisable for leaders who want to generate change-oriented leadership to propose innovative and flexible strategies in each particular suitable context. Another suggestion for leaders is to encourage and inspire their followers to raise their creativity by facilitating the open discussion about the strengths and weaknesses of the current and previous situations to well prepare for future change (Ortega et al., 2013).

The findings of the current study have broadened the results of Havig et al. (2011) in clarifying the direct and indirect relationship of three leadership styles with not only job satisfaction but also with organizational commitment and positive moods in the public sector. Since then, management levels could determine the essential factors to produce better organizational productivity.

Conclusion

To sum up, the study validated the direct positive effect of three leadership styles on positive moods, task-oriented leadership and change-oriented leadership on job satisfaction. Moreover, the direct relationship of positive moods and job satisfaction on organizational commitment resulted in the indirect influence of three leadership styles on job satisfaction through the mediation of positive moods as well as the task-oriented and change-oriented leadership on organizational commitment through the mediation of job satisfaction and positive moods. Perceiving the substantial findings, managers in the public sector are able to prioritize and apply the right leadership styles in each circumstance to increase employee job satisfaction, positive moods and organizational commitment.

The current research is one of the very first articles highlighting the leadership theory in public administration in Vietnam. Thanks to the valid results and the variety in sample data, futurer scholars could develop the model and broaden the scope for further scrutiny to improve the public sector performance in Vietnam. Nevertheless, there are some unavoidable limitations in the study. Firstly, the generalisation strength was restricted as the survey was distributed only to the south of Vietnam. Next, other significant leadership behaviours such as result-oriented and cognitive leadership should be identified further regarding their effects in public organizations besides task-oriented, relation-oriented and change-oriented leadership. Last but not least, the cross-sectional study using SmartPLS was appropriate with the sample size; however, it was unable to guarantee the timing effect on the variables. Hence, future studies should increase the generalisation by conducting in several provinces and cities throughout Vietnam. Moreover, it is advisable for future scholars to apply longitudinal studies to observe and follow the employee's behaviours to determine the patterns over a period of time, which is considered to be more effective than a cross-sectional study.

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WHEN RADICALISATION MEETS BUREAUCRACY: FLUID RADICALISATION AND ITS CONSEQUENCES ON POLICY ALTERNATIVES IN INDONESIAN DE-RADICALISATION POLICIES

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Abstract. The increasing attention to counter-terrorism practices through counter-terrorism and de-radicalisation policies has not been matched by in-depth and comprehensive studies on terrorism and radicalisation. As a result, there is a misconception of both, leading to discriminatory counter-terrorism and de-radicalisation policies, which allow certain groups and the state to commit violence and take freedom from groups stigmatised as radical. This study seeks to examine terrorism and radicalism by exploring the interpretation of the government as an institution, which has the authority to interpret terrorism and radicalism, resulting in de-radicalization and counter-terrorism policies. A dataset consisted of news items about government activities on terrorism and radicalisation from three ministries/non-ministerial institutions was used for corpus linguistics (CL) and critical discourse analysis (CDA) assisted by AntConc application. We found that the three agencies developed interpretations of radicalisaton as part of their

main duties and functions. Radicalisation has become a very flexible concept, adapting to bureaucratic spaces, not to be solved but to obtain budget spaces. Finally, the government responded to the entry of radicalism as a public issue by fragmenting the whole concept of radicalisation and splitting it into various agencies, where it is suitable to be resolved, rather than unifying it comprehensively in the National Counter-Terrorism Agency's mission.

Background

Terrorism is an objective reality and can be interpreted subjectively (Karaffa, 2012, 2015). As an objective reality, academics and practitioners agree that terrorism is a crime against humanity and is also called an extraordinary crime because it threatens civilisation and the sovereignty of every country in the world (Malkki and Sallamaa, 2018). It is part of an organised international crime which poses a threat to security, peace and ultimately affects the welfare of society as a whole (Atkinson, 2019; Feyyaz, 2019).

Although terrorism can be considered a relatively rare event and one of the minor causes of human suffering and death in the world (Heath and Waymer, 2014), it disrupts a norm upheld by societies around the world and by all religions (Malkki and Sallamaa, 2018). On the other hand, terrorism also seeks publicity to influence a larger audience than the direct victims (Crenshaw, 2014; Lauderdale and Oliverio, 2018). Therefore, the significance of terrorism is felt to be greater than how it should be treated and this also stimulates the government to act immediately.

The presence of the state in this situation is manifested in the counter-terrorism strategy, which is a combination of soft and hard policies. The hard policy consists of Law (UU) No. 15/2003 on Counterterrorism and Law No. 9/2013 on the Prevention and Eradication of Terrorism Financing Crimes, and Law 5/2018 on Amendments to Law 15/2003 (Shalihin, 2017). Meanwhile, the launch of the Blueprint for Deradicalization and the Center for Deradicalization for Terrorist Prisoners at the National Counterterrorism Agency are forms of soft policies.

On the other hand, terrorism as a term which can be interpreted subjectively invites academics to discuss what is referred to in the mass media as "radical Islam" (Neumann, Arendt and Baugut, 2018), which is currently considered a cause of acts of terror (Chertoff, 2008; Umar, 2010). Terrorism, in many ways,

is always associated with groups which are labelled as radical (Mubarok and Hamid, 2018). This also has an impact on narrowing the meaning of terrorism, which is often identified with radicalism which results in accusations of terror being directed at those who are considered radical (Hülsse and Spencer, 2008). Moreover, radicalism is often seen as the root of terrorism, so preventing terrorism begins with eradicating radicalism.

This labelling creates stereotypes about radical Islamic movements, which in the end, creates discrimination against groups with strong Islamic identities that are suspected of being terrorist, radical, and/or fundamental groups (Umar, 2010). This empowers certain groups of people, or the state, to commit acts of discrimination and violence against radical groups (Karaffa, 2012). It is as if terrorism eradicating is permissible to deprive citizens of freedom of expression. This is a consequence of the narrow understanding of terrorism and radicalism creating a misunderstanding that leads to a misinterpretation of the problem failing to formulate counterterrorism and de-radicalization policies.

Empirically, government and community discrimination against groups labelled as radical is reflected in the findings of Imparsial, an NGO, which works to monitor and investigate human rights violations in Indonesia. As cited by CNN Indonesia (2019), Imparsial found 31 cases of violations of freedom of religion or belief. Moreover, of the total cases, there were 12 cases of violations of rituals, recitations, lectures, or the implementation of religious beliefs.

In a broader context, the study of terrorism has recently been viewed as a social construction rather than a physical fact (Heath and Waymer, 2014). In this case, the main idea is that terrorism is based on discourse. Onuf (2009) states that "we all make terrorism what (we say) it is". This does not mean that such a constructivist perspective denies terrorism as a fact. Although some people are taking concrete actions to combat terrorism, these attempts have been fragmented, implying that government institutions lack coordinated and comprehensive approaches to resolving this issue. Academics consider this as a matter of interpretation (Malkki and Sallamaa, 2018). In this discourse, it is defined as a group of people as terrorists, their actions as terrorism, the roots of which are radicalism and efforts to overcome these things as counter-terrorism and de-radicalization (Hülsse and Spencer, 2008b; Spencer, 2012).

This interpretation creates space for the politicisation of counterterrorism and de-radicalisation policies (Githens-Mazer, 2012; Kolås, 2010). This will have a direct impact on the approach to policymaking as a result of the problem definition process, which forms the conceptual basis for policymaking (Lee, 2009). Radicalism-de-radicalisation and terrorism-counterterrorism are cause-and-effect problems in discourse analysis which are the result of controversial issues associated with political phenomena. This interpretation will contribute to the construction of reality in some way, mostly by setting common sense boundaries, such as those that correspond to the primary functions of each government entity (Hülsse and Spencer, 2008). In this process, the most important thing is not why certain results are obtained, but how the subject, object, and the results of interpretation are socially constructed in such a way that certain practices are possible (Lee, 2009; Ömer Taşpınar, 2009).

These facts lead to an argument to be proven in this study, which is radicalism, terrorism and efforts to prevent them such as counter-terrorism and de-radicalization, are part of social construction. They are part of the subjective reality of social problems that can be measured and manifested by the government to legally prohibit, criminalise, and address the individual behaviour that causes the condition, thereby making it a public problem in the government's priorities .

Discussing radicalism and terrorism as a public problem, as well as de-radicalization and counter-terrorism as solutions to these two problems, is important because it influences the political actions of the institutions that have jurisdiction (Lee, 2009; Spencer, 2012). Moreover, cases of terrorism are becoming increasingly complicated because this terminology allows for the definition of alternative problems and framings, which is part of the vague nature of the terrorism phenomenon itself (Nickerson, 2019; Powell, 2011; Wicaksana, 2019).

This is also a consequence of the lack of consensus among academics on what constitutes terrorism. Several academics attempted to define terrorism (Ganor, 2002; Garrison, 2004; Hodgson and Tadros, 2013; Young, 2006), identify who the real targets of terrorism are (Mccartan et al., 2008), and who the actors behind terrorism are (Bourne, 2018; Gill et al., 2018; Hausken and Gupta, 2016; Jarvis and Legrand, 2018; Sentas, 2010). The findings are very diverse, ambiguous, selective, and politicised, so that it paves the way for the social construction of terrorism that shapes our understanding and response to it, including how the government understands and responds to terrorism .

Academically, this study stands midway between two main schools of research on terrorism (and radicalism). The first one debates the definition of terrorism (Hoffman, 1986; Young, 2006). The other one discusses concrete efforts to prevent terrorism and radicalism. Researchers argue that how the government defines terrorism affects how it acts (Lum, Kennedy and Sherley, 2006; Boer, Hillebrand and Nölke, 2007; Williamson, 2019). Instead of following the two schools, this research tries to combine them by examining the narratives of terrorism and radicalism, and how these narratives become the conceptual foundation of counterterrorism and radicalisation policies.

Based on these academic and practical needs, this study discusses the interpretation of the government as an institution which has the authority to narrate terrorism and radicalism, as well as de-radicalisation and counter-terrorism as social constructs. Moreover, this study explores the government's definition of terrorism and radicalism, which is a process that takes place in the developing discourse on terrorism. It is a process of associating terrorism with a specific term, that enables a policy response to terrorism through particular actions. We argue that government policies, which lead to discrimination and violence are rooted in mistakes in defining terrorism and radicalisation as a whole.

Technically, this research investigates the government's ideology in cases of terrorism and radicalism, which are listed in the government activities on counterterrorism and de-radicalisation embedded in the news on govern-

ment websites and press releases. The website of an organization, in this case, the government's one, is a reflection of the government's ideology because it contains information about the government's activities. The use of news on an organization's website to read the ideology of an organization has been validated by several previous studies by Hsinchun (2007), Qin, Zhou, Reid, Lai, and Chen (2007), Zhou, Qin, Lai, Reid, and Chen (2006), Zhou, Reid, Qin, Chen, and Lai, (2005). The data sourced from the government website were analyzed using the corpus-assisted discourse analysis method to obtain a more complete picture of the social construction of counterradicalism and de-radicalisation policies in Indonesia.

Social Construction

The concept of "social construction" is first introduced by Berger and Luckmann (1966). It states that the social world is not something given and does not stand alone without thoughts and ideas. Social construction helps understand why definitions of social issues are politicised. This leads a person to consciously accept a biased approach to what is right and wrong in their context (Innes and Levi, 2017). Initially, the concept of social construction was widely used by sociologists to define various kinds of social problems. Recently, scientists in the fields of political science, communication and international relations have also begun to explore this concept.

In the social constructionist perspective, social problems are no longer considered as objective conditions that afflict society, in this case, social problems are analysed as a process (Vera, 2016; Zerubavel, 2016). The question is how and why a person, or a group of people understands a condition which is considered a social problem. In this case, sometimes, a social problem is not a real threat manifested by individuals or groups. Nevertheless, social problems are often built through the interpretation of events, the use of claims consisting of language and symbols, and the work of claimants to attract public attention and shake public opinion to support certain interests (Hogan, 1997).

The basis of this process is that the claimant uses the dominant language and symbols circulating in the culture to build social problems. Moreover, the problems which are defined as social problems in the real world are the product of ideological power struggles (Searle, 1995; Sica, 2016). The process of defining the problem is very important to discuss, mainly to refer to actors involved in the process of defining the problem as claimants who are supported by interests or values or a combination of both (Hogan, 1997). In addition, (Hogan, 1997) revealed that in the search for a social problem, the construction emphasises the role of interests, resources and legitimacy.

Policy as a social construction

Political issues are often so complex that they open up space for alternative interpretations (Lancaster, 2014). The way an issue is defined (Wagner and Morris, 2018) as a policy problem will affect government action where al-

ternative policy solutions is sought (Nicholson-Crotty and Nicholson-Crotty, 2004). It is important to understand why the government is interested in responding to an issue while ignoring other issues, and why a problem is defined differently. Therefore, it is helpful to know where political power lies in a political system.

Policies as social constructs are developed to understand why public policy does not achieve its goal of solving public problems (Pierce et al., 2014). It focuses on socially constructed values applied to the target population and the knowledge and impact those values have on society in general. It also helps explain why under certain circumstances some groups benefit more than others and how policies can strengthen or change them (Lancaster, 2014; Pierce et al., 2014).

This conceptual thinking is based on past work, on the social construction of knowledge in terms of positive or negative connotations and on policy design (Walker, 1981). In this sense, socially constructed knowledge is linked to a particular type of policy design and these policy designs institutionalise and reinforce socially constructed knowledge.

By pointing out the main elements which have been repeated so far – political motivation, communicative violence and civilian targets – it seems that over-simplification may be needed to prevent confusion. What this research seeks is a direct response to the question of who gets what, when, and how. Central to this concept is the statement that to answer these classic questions, we must also understand why some groups benefit and others are burdened (Spencer, 2012).

Research methods

This study used a mixed-method approach by employing a corpus-assisted discourse study (CADS). CADS is a research method, which combines various CL tools and CDA methodologies to reveal language patterns in large data sets, or corpora, and to guide data interpretation (Baker, 2006; Flowerdew, 2012). First, this research utilized CADS to find certain grammatical patterns, particularly in relation to the methods used by the government in constructing terrorism and radicalisation and counterterrorism and de-radicalisation policies. This involved various forms of linguistic text with the aim and reason to describe the interaction between the writer/speaker and reader/listener as evidenced in the linguistic traces, namely the texts, left by these interactions. Then, CDA was used to expose the ideology, which informed and underlined a text, in this case, the ideology hidden behind terrorism and radicalization and counterterrorism and de-radicalization policies.

To test how the government constructs radicalism, nouns, adjectives, verbs and adverbs which accompany them and their implications for the design of government policies and programs, we conducted a corpus linguistic analysis of news produced by the government and contributed to overcoming radicalism in Indonesia in 2019, for a period of one fiscal year. To expand the search process and obtain the widest possible results, in the news we were looking for

content or titles contained the words terrorism, radicalism and radicalisation. Table 1 describes the data collection process:

Table 1

Data source

No	Ministries/Non-Ministry Institutions	The task to Prevent Terrorism	Website Address	2019 News
1.	The National Counter-Terrorism Agency	Coordinator of all Ministries and Non-Ministerial Institutions to implement counter-terrorism programs	https://www.bnpt.go.id	13
2.	Ministry of Communication and Information Technology	The ministry's task is to block sites recommended by the BNPT for indications of radical terrorism	https://kominfo.go.id	44
3.	Ministry of Religious Affairs	To prevent the spread of radicalism and terrorism in society	https://kemenag.go.id	125
4.	Ministry of Education and Culture	To prevent the spread of radicalism and terrorism in schools	https://www.kemdikbud.go.id	8
5.	Ministry of Research and Technology/National Research and Innovation Agency of Republic of Indonesia	To prevent the spread of terrorism in universities	http://www.dikti.go.id	6

Source: Compiled by the authors (- hereafter, unless otherwise noted).

Of the five ministries and non-ministerial institutions responsible for implementing the mandate of de-radicalisation and counter-terrorism policies in Indonesia, three of them which are the National Counterterrorism Agency, the Ministry of Communications and Information Technology, and the Ministry of Religious Affairs were part of this study. However, two of them, which are the Ministry of Education and Culture, and the Ministry of Research, Technology and Higher Education, were not included due to the limited amount of news. The aim of the linguistic corpus analysis using the AntConc application was to map the lexical, grammatical, and pragmatic meanings of terrorism and radicalism and their implications for various kinds of counterterrorism and de-radicalisation policies and programs in Indonesia.

CADS utilizes the quantitative tools offered by CL and expands the methodological paradigm by integrating techniques commonly associated with critical discourse analysis techniques to understand the discourse in as many contexts as possible. In many cases, the phenomena under investigation are contextualised by considering and relating them to their social, political, or historical context (Partington, 2015). Moreover, CADS also prioritises a comparative approach. Comparisons in the CADS method can take many forms, for example, researchers can compare a discourse with various sources such as newspapers and politi-

cal speeches. By comparing the two sources, researchers can analyse a discourse produced in different circumstances. Another example is a comparison between times to detect changes and shifts in time. Another type of comparison is diachronic, which involves studying certain types of the discourse at different points in time (Taylor, 2013).

The presence of the state in preventing radicalism: why is it important?

The questions addressed in this section focuses on the role of government in preventing radicalism and how and why it needs to be present. First, it is important to emphasise that the state must be present differently in preventing radicalism and violence that arises from these activities. In terms of preventing radicalism, which is the purpose of this research, this is a critical focus. This is because the different rules and regulations governing the prevention of radicalism are ambiguous. For violence triggered by radicalism, the existing policies are adequate, for example, Law No 15 of 2003.

One of the important programs as stated in the BNPT blueprint is de-radicalisation. De-radicalisation is defined as an activity to reduce or restore religious radicalism in normal situations which are not radical. Not only BNPT, but also governments at different levels incorporate the issues of radicalism as public problems and make them priority programs and policies. The problem, before we talk further about de-radicalization, is that the government does not yet have a clear definition of what de-radicalisation is, even though it has become an important function of the BNPT. Therefore, the meaning of radicalism is very diverse, as both governmental and non-governmental agencies feel entitled to define it. Practically, the mistake of defining will be fatal because the policies and programs that are designed also fail to understand reality.

Moreover, religious and educational institutions also feel responsible for taking part in the prevention of radicalism. However, it must be emphasized that they are present and play a role voluntarily depending on their interests. Educational and religious institutions act to tackle radicalism by, for example, providing tolerant Islamic ideas. Civil society also condemns various forms of violence with religious motives but on the other hand, their attitudes and perspectives vary widely. Driven by the ambiguity of the meaning of radicalism which has developed, this study seeks to identify the construction of the word radicalism according to the government and to examine its implications for de-radicalisation policies.

Radicalism in various laws and regulations

This section is to identify constructs, which are developing and related to radicalisation. To do this, we searched for various kinds of laws and regulations, available on the official government website such as regulations.go.id and jdih.go.id. We found three regulations in which the words radicalism and radicalisation appear, such as Presidential Regulation No 12 of 2012 concerning Amendments

to Presidential Regulation No 46 of 2010 concerning the National Counterterrorism Agency, Law No 5 of 2018 concerning Amendments to Law No 15 of 2003 concerning Stipulation of Government Regulations in place of Law No 1 of 2002 concerning Eradication of Criminal Acts of Terrorism Into Law, and Government Regulation No 77 of 2019 concerning Prevention of Criminal Acts of Terrorism and Protection of Investigators, Public Prosecutors, Judges, and Correctional Officers. Appendix 1 provides an overview of how radicalisation is mentioned and constructed in various kinds of laws and regulations in Indonesia. Generally, we did not find a specific definition of radicalism, only the various kinds of efforts to prevent and overcome it. This is dangerous for the resulting policies because without an in-depth construction and development of this understanding, the government could be biased in conducting various kinds of activities. What is more dangerous, the construction is deliberately developed to take away the freedom of certain groups.

The construction of radicalism and its implications for the design of government policies, programs, and activities

Ministry of Communications and Information Technology

This analysis began by entering 43 articles on the Kominfo website whose titles or contents included the word radicalism. What we wanted to obtain from the analysis of these articles were words/word patterns that describe how the government constructs radicalism and the implications of this construction for policy and program design. Kominfo is an interesting subject because of its duty and role in preventing radicalism on the internet. Second, Kominfo also plays a role in disseminating certain information to prevent the development of radicalism. Technically, Kominfo blocks accounts on social media/sites that contain radical content. Table 1 presents our findings regarding the news about radicalism on the official website of Kominfo.

Based on the keyword analysis, we categorised the words that were significant in number into five major themes. The five themes include government agencies, media, contributions, actions, and degree of radicalism. The construction of radicalism is about how Kominfo defines radicalism. To do this, we searched for verbs, adjectives, nouns and adverbs associated with radicalism. Our findings show that the notion of radicalism is divided into three groups. The first group is related to the main duties and functions of the Ministry of Communication and Information, which lead to the use of content and radicalism websites. The second group is based on the understanding that radicalism is the seed of terrorism, so words, like "seeds" and "embryo", appear. Finally, radicalism is considered as something dangerous, so the words *idea, danger, issue, exposure, activity* and *threat* appear.

We also found terms of various government agencies in our keyword searches. This brings us to the second category, which is government agencies. These government agencies can be interpreted as agents collaborating with Kominfo to combat radicalism. These agents include the Ministry of Religious Affairs, BNPT,

the People's Representative Council of Indonesia, Indonesian National Police, and the Ministry of Politics, Law and Security and the Ministry of Home Affairs. Furthermore, various forms of social media are the focus of attention of Kominfo in conducting its duties. Internet, Twitter, Facebook, websites, Instagram, Telegram, Portal, and YouTube are places where Kominfo works to block accounts that spread information about radicalism.

The role of Kominfo to block radical content and websites as well as disseminating information for counterradicalism. We found four major activities including blocking, content complaints, socialisation and complaints from state civil servants. Civil servant (ASN) complaints and content complaints are two work programs which require collaboration and the active role of the community and ASN to report various kinds of suspicious activities related to radicalism. In the Actions category, we collected different types of verbs which describe how the Kominfo performs its duties regarding radicalism. The verbs we found included *ward off, spread, prevent, ensure strengthens, cope with, awaken* and *nurture*. The last one is about the degree of radicalism; it is to find out the difference in the use of words which reflect radicalism and whether it is intervened differently.

Table 2

Keywords on the Kominfo Website

Category	Keywords
The meaning of radicalism	Content, idea, seeds, pioneer, dangerous, issue, exposure, sites, activities, threat
Government agencies	Kominfo (Ministry of Communication and Information Technology), BNPT (National Counter-Terrorism Agency), Indonesian National Police, Coordinating Ministry for Political, Legal and Security Affairs, The People's Representative Council of Indonesia, Ministry of Religious Affairs, Ministry of Home Affairs
Media	Internet, Twitter, Facebook, websites, Instagram, social media, Telegram, news portal, YouTube
Contributions	Blocking, content complaints, socialization, state civil apparatus' complaints
Actions	Explain, deliver, ward off, support, create, promote, disseminate, develop, prevent, combat, ensure, strengthen, embed, tackle, make aware, foster
The degree of radicalism	Terrorism, radicalism, extremism, intolerance, radical, terrorist

In Table 3 we have identified certain phrases for the same purpose. The phrases that we found were grouped into four categories such as Crimes which are considered equal, Typical problems, Types of radicalism, and Actions. Crimes deemed equal are related to specific crimes that Kominfo identifies as intervened in the same way. These crimes are usually indicated with the word "and". Some of the crimes that are considered equal include intolerance, extremism, separatism, gambling, pornography and SARA (*Suku* = ethnic group, *Agama* = religion, *Ras* = racial, *Antargolongan* = between groups). Kominfo labels websites and social media which have such content, then blocks them.

The next category is the Typical problems Kominfo tries to solve relate to radicalism. One of these problems, is radicalism that attacks the civil state apparatus, students, and early childhood education. Apart from these problems, there is also radicalism in the digital era, the radicalism on the internet, cyberspace and social media. Moreover, we also identified the types of radicalism from the perspective of Kominfo. Several types of radicalism which appear in Kominfo news include radicalism that promotes terrorism, radicalism in social media, radicalism that develops very rapidly, radicalism in cyberspace, and internet threat radicalism. Finally, a series of actions conducted by Kominfo which are part of the detailed information about Kominfo's actions in tackling radicalism. Kominfo's actions include providing infrastructure, collaborating with Commission I DPR RI, blocking radical content, collaborating with the BNPT, national dialogue, cyber patrols, filtering negative sites and content, and appealing to netizens.

Table 3

Concordance on the Kominfo Website

Category	Concordance
Crimes which are deemed equal	Radicalism and intolerance, radicalism and extremism, radicalism and terrorism, radicalism and separatism, pornography, gambling, SARA (*Suku* = ethnic group, *Agama* = religion, *Ras* = racial, *Antargolongan* = between groups)
Typical problems	State civil apparatus' radicalism, radicalism, and intolerance among the State Civil Apparatus. The seeds of radicalism and terrorism in Indonesia, the nation's future generation is exposed to radicalism and terrorism, the spread of radicalism and terrorism, Internet content containing radicalism and terrorism, increasing radicalism and terrorism, radicalism since the early childhood education level, students' radicalism, radicalism in cyberspace, radicalism in the digital age, internet threat radicalism, radicalism, and terrorism contents
Radicalism types	Radicalism which promotes terrorism, radicalism in social media, radicalism which grows rapidly, radicalism in cyberspace, internet threat radicalism
Actions	Provide infrastructures, in collaboration with Commission I of the People's Representative Council of Indonesia, blocking the content of radicalism, cooperation with National Counterterrorism Agency, national dialogue, cyber patrol, filter negative sites and contents, appeal to netizens

Ministry of Religious Affairs

We analyzed 125 news stories from the Ministry of Religious Affairs to obtain the meaning of the term *radicalism* according to this ministry and how it affects the design of programs and policies to counter radicalism. We divided the various word lists we found into eight categories. The eight categories are the subject of policy, action, degree, moderation, Archipelago Islam, radicalism, and various kinds of crimes which are considered equal. The policy subject is the target group of the various radicalisation policies and programs. Policy subjects we found include students, people, society, students, civil servants, and youth. Institutional target groups include State Islamic University, State Islamic Institute, Islamic schools, schools, campuses, and universities. Another subject is the curriculum and Islamic religious education.

To describe de-radicalisation activities, we identified a series of actions conducted by the Ministry of Religion. It can be a verb or a noun denoting a specific activity. The verbs we found include moderate, implement, present, disseminate, prepare, manage, and appreciate. Some of the efforts that have been made or recommended to reduce radicalism are preaching, studies, literacy, and competitions. The Ministry of Religious Affairs also specifically uses terms related to radicalism such as radicalism, terrorism, intolerance, extremism, and caliphate.

Efforts to moderate are conducted by using terms such as harmony, nationality, Pancasila, *Bhinneka* (diversity), archipelago, togetherness, and nationalism. These are a set of attributes of the Indonesian which are used to increase the value of nationalism and return Indonesian society to the values of Pancasila. The use of the term *Archipelago Islam* or as the chosen way of Islam is moderate ways that follow the culture, local wisdom, and customs of the Indonesian people.

Moreover, the category of radicalism refers to a set of verbs, adjectives, nouns, and adverbs to describe and construct radicalism. Radicalism is viewed as a virus, a danger, and it is assumed that it can still be prevented. Meanwhile, radicalism also takes the form of actions in such words as *exposure, actions, movements, conflicts, messages, and groups*. The latter are certain crimes which are equated with radicalism, such as intolerance, liberalism, extremism, racism and terrorism. As stated in the Ministry of Communication and Information Technology, the use of the word "and" is the reason why we label it an act which is deemed similar.

Table 4

Keywords on the Ministry of Religious Affairs

Category	Keywords
Policy subjects	Madrasa, state Islamic university, state institute of Islamic religion, students, people, society, Islamic school, state civil apparatus, school, campus, Islamic school students, curriculum, Islamic religious education, university, youth
Actions	Moderate, preach, study, literacy, contest, implement, present, disseminate, prepare, manage, appreciate
Degree	Radicalism, terrorism, intolerance, extremism, caliphate
Moderate	Harmony, nationality, Pancasila, diversity, archipelago, togetherness, nationalism
Archipelago Islam	Culture, local wisdom, customs
Radicalism	A threat, virus, idea, measure, action, issue, exposure, comprehension, phenomenon, group, danger, movement, conflict, message
Crimes which are deemed equal	Intolerance, liberalism, extremism, racism, terrorism

Table 4 contains various kinds of phrases we found. Talking about the construction of radicalism and its policy implications, we identified four important categories such as policy variations, messages of tolerance, problems, and Indonesia. The policy variation includes a series of activities, programs, and policies to com-

bat radicalism. We found phrases which fall into this category such as *developing religious education, increase the number of the instructor, organizing competitions, strengthening the literacy movement, strengthen the character and understanding, shape student personality, developing religious messages, interfaith dialog*ue, *scientific approach, religious harmony index, and countermeasures for civil servant radicalism.*

Next, in this section, we present a message of tolerance which states how the Ministry of Religion constructs religion, specifically Islam. This category includes the following phrases *religion teaching goodness, the religion which holds the nation together, the religion of grace for the universe, country and religion are twins, affirms the inclusiveness of religions, enlightening religion of the people, religion is the foundation, religion promotes moderation mainstreaming, religion as the bearer of mercy, religion is moderate.*

Table 5

Concordance on the Website of the Minister of Religious Affairs

Category	Concordance
Variety of policies	Develop religious education, improving instructors, holding competitions, strengthen the literacy movement, strengthen character and understanding, shaping student personality, develop religious glory, interfaith dialogue, scientific approach, religious harmony index, countermeasures for civil servant's radicalism
Message of tolerance	Religion teaches kindness, religion holds the nation together, religion is a blessing for the universe, the state and religion are twins, affirming the inclusiveness of the religions, religion is enlightening people, religion is the foundation, religion promotes the mainstreaming of moderation, religion as the bearer of mercy, religion is moderate
Problems	Lack of religious experts, religious radicalism and cybercrime, understand the religion in bits and pieces, knowledgeable religious leaders, a religion which teaches hatred, radical and intolerant religion, increasingly massive radicalism, the threat of religious harmony
Indonesia	Indonesia is a pluralistic nation, Indonesia is a natural law, Indonesia is the national state, Indonesia is based on Pancasila, Indonesian Islam as an open religion, Indonesia as a nation-state, Indonesia as a destination for Islamic studies, Indonesia was born as a nation-state. A religious and plural Indonesia, Indonesia is pious, moderate, intelligent and superior

The Ministry of Religion also specifically described the various problems of the Indonesian people related to radicalism. These problems are the lack of religious experts, religious radicalism and cybercrime, fragmentary understanding of religion , knowledgeable religious leaders, a religion that teaches hatred, radical and intolerant religion, increasingly massive radicalism, the threat to religious harmony. Moreover, the concordance which is included in conveying messages of tolerance is how the Ministry of Religion describes Indonesia. We found such phrases as *Indonesia is a pluralistic nation, Indonesia is a natural law, Indonesia is the national state, Indonesia is based on Pancasila, Indonesian Islam as an open religion, Indonesia as a nation-state, Indonesia as a destination for Islamic studies, Indonesia was born as a nation-state, a religious and plural Indonesia, Indonesia is pious, moderate, intelligent and superior, and we included them in this category.*

National Counter-terrorism Agency

Regarding terrorism as an important issue, the government established the National Counterterrorism Agency (BNPT) through Presidential Regulation No 46 of 2020. The three main tasks of the BNPT are to formulate counterterrorism policies, strategies and national programs, to coordinate government agencies involved in the implementation and execution of counterterrorism policies, and implement counterterrorism policies by forming task forces consisting of elements from related government agencies following their respective duties, functions and authorities. The counterterrorism domain includes prevention, protection, deradicalization, repression, and of national preparedness.

Specifically, we took 13 articles from the BNPT whose titles or contents contained the word radicalism. The purpose is still the same, to find out how the construction of radicalism developed and its implications for the design of policies, programs, and activities. We analysed the articles and we came up with six categories we thought were important to present. These categories are radicalism, government agencies, degrees, values, policy issues, and actions taken. In the category of radicalism, six words are frequently used *danger, content, understanding, exposure and value.*

Table 6

Keywords on the National Counter-terrorism Agency Website

Category	Keywords
Radicalism	Danger, content, idea, exposure, value
Government agencies	Ministries, the National Counter-terrorism Agency, the Corruption Eradication Commission, the Indonesian National Armed Force, the People's Representative Council of Indonesia, the National Resilience Institute
Degree	Intolerance, radical, terrorism, radicalism, radical
Value	Nationality, peace, nationalism, wisdom, Pancasila
Policy subjects	College students, society, campus, generation, Islamic school, universities, internet, polytechnic
Actions	Deliver, provide, dialogue, education, develop, synergy, provision, tackle, improve, against, combat, mitigation, counselling, socialization, lecture, Memo of Understanding

In the category of government agents, collaborating with government agencies to counter radicalism are the following ministries: The Indonesian National Armed Force, the People's Representative Council of Indonesia and the National Resilience Institute. This illustrates that the military approach is the way BNPT has chosen to combat radicalism. We found the degree of radicalism which is indicated by such words as *intolerance, radicalism, terrorism, radicalism, and radical.* The values to be re-instilled in the Indonesian nation are related *to fighting radicalism, namely nationality, peace, nationalism, wisdom, and Pancasila.*

The target groups of the policies, programs and activities organized by BNPT are students, communities, campuses, generations, Islamic schools, universities, the internet, and polytechnics. We found these words in the various reports pro-

duced by BNPT. The last one is action in the form of *delivering, providing, dialogue, education, building, synergy, provision, overcoming, increasing, fighting, mitigation, counselling, socialization, lectures, and the MoU used to prevent radicalism.*

<div align="right">*Table 7*</div>

Concordance on the National Counterterrorism Agency Website

Category	Concordance
Radicalism	Radicalism on campus; radicalism in the archipelago; negative radicalism; radicalism as a threat to national unity; radicalism which continues to grow; long-rooted radicalism; radicalism threatens resilience; intolerant Indonesian society
Intervention	Empowerment of students; social empowerment; MoUs with universities; dialogue mechanism; national insight; nationalism values; de-radicalization program; counter-radicalism program

Next, we present different types of phrases to show how BNPT constructs radicalism. Some of the phrases which fall into this category are *radicalism on campus, radicalism in the archipelago, negative radicalism, radicalism as a threat to national unity, radicalism which continues to grow, long-rooted radicalism, radicalism threatens resilience and intolerant Indonesian society*. We also identify phrases included in BNPT's actions in tackling radicalism such as student empowerment, social empowerment, MoUs with universities, dialogue mechanism, national insight, nationalism values, de-radicalisation program, and counter-radicalism program.

Discussion

This section provides several explanations of the construction of radicalism developed and developed by the government. As previously stated, the definition of radicalism in both academic discourse and policy in various works of literature is generally defined to show that this phenomenon is broad and has different meanings for different people, different places and different times. Therefore, this study aims to examine how radicalism is constructed by the government through a series of analyzes of various kinds of news obtained from the official government website.

Our findings show that the terms radicalism, radicalism and radicalisation are constructed as a form of action which approaches extremism and terrorism by focusing on the process in which individuals commit acts of violence based on ideological differences. From the various terms and definitions of radicalism developed in the literature such as radicalisation, fundamentalism, violence and terrorism, and religious extremism (Arifianto, 2019; Bafadhal et al., 2020), we found that all of these terms are used overlappingly by the government. We found that radicalism is often equated with the word "*terrorism*"; "*Intolerance*", "*extremism*", *and "caliphate*". This has fatal consequences for policies and various kinds of interventions carried out by the government because a failure to define an issue is a failure to design a policy (Parsons, 2001).

In literature, there are two main definitions of radicalism: as a political phenomenon that is an expression of legitimate thinking and as a phenomenon

related to terrorism (Suyanto, Sirry and Sugihartati, 2019). Our findings suggest that the constructs of radicalism by the government follow the second definition of radicalism which leads to terrorism. This can be seen in the discovery of such words as *radicalism on campus, radicalism in the archipelago, negative radicalism, radicalism as a threat to national unity, radicalism which continues to grow, long-rooted radicalism, radicalism threatens resilience, and intolerant Indonesian society.*

When radicalism meets bureaucracy, it becomes a very fluid entity whether it is the problems developed or the policy options offered. In the Ministry of Religious Affairs, it is defined as threats, viruses, ideas, actions and conflicts. However, at the Ministry of Communication and Information Technology, it becomes content, messages, websites, social media, and so on. This shows that when radicalism meets bureaucracy, ministries and non-ministerial institutions try to define it according to the main tasks and functions assigned to them, so that the problems of radicalism are constructed following their authority to obtain a budget for the implementation of programs and policies.

Depending on how the problem is defined , the alternative policies and programs offered also vary, so that the antithesis of the problem is the answer (Coletti, 2015). We found examples in the Ministry of Religious Affairs; they offer actions such as moderation, studies, literacy and competitions. Besides, the concept of Archipelago Islam is offered here, based on culture, local wisdom and customs. This shows the assumption that radicalism does not originate from Indonesia because it is directed against Indonesian culture.

The Ministry of Communication and Information Technology, handles blocking, content complaints, socialisation, and civil servant complaints. This shows that this ministry is actually in charge of conducting this function. This kind of understanding comes from the fact that they define radicalism as part of content and websites. In BNPT, the policy provided is varied if we look deeper, which shows the combination of the other two ministries. In this case, we found the words *dialogue, education, counselling, socialization, lectures, and MoU*. This research confirms that as an object which is interpreted subjectively, each actor feels entitled to define what radicalism is based on the interests of the organisation (Sedgwick, 2010; Wahid Foundation, 2014; Aiello, Puigvert and Schubert, 2018). Rigidity and strict procedures in budgeting and program planning in Indonesia also contribute to the fact that radicalism has very diverse definitions.

In terms of target groups or policy objectives, we discovered that they are generated in response to the preceding problem definitions. The terms "Internet," "Twitter," "Facebook," "website," "site," "Instagram", "social media", "Telegram", "Portal", and "YouTube" emerged as a result of the Ministry of Communication and Informatics' definition of radicalism as it relates to social media and websites. Meanwhile, the Ministry of Religious Affairs is going to target groups such as madrasa, state Islamic university, state institute of Islamic religion, students, people, society, Islamic school, state civil apparatus, school, campus, Islamic school students, curriculum, Islamic religious education, university, and youth. This is because the Ministry of Religious Affairs defines radicalism as the result of a lack of religious experts, a fragmented understanding of religion, insufficient knowl-

edge among religious leaders, religions that teach hatred, radical and intolerant religions, growing radicalism, and threats to religious harmony.

Finally, the fluidity of radicalism constructed by the government is due to the government's response to the inclusion of radicalism as a public issue by fragmenting the entire concept of radicalism and splitting it into different ministries where it is appropriate to be resolved, not to be comprehensively unified as the task of BNPT. One definition or many definitions, both practices have their respective weaknesses and therefore some countries choose to single-define and use research to capture the dynamics of the case as a basis for implementing policies (Sedgwick, 2010; Sawalha, 2017; Mubarok and Hamid, 2018). Based on the research findings, we recommend to generate a single, unified definition of radicalism. The complete definition is translated into each ministry under their respective primary missionsand functions.

Conclusions

This research investigated government ideology in cases of terrorism and radicalism which are listed in government activities regarding counter-terrorism and de-radicalization in the news published on government websites. We investigated five ministries and non-ministerial institutions which are directly aimed to combat the spread of radicalism. Of the five government agencies, only 3 met the requirements for data analysis which were the Ministry of Communication and Information Technology, the Ministry of Religious Affairs and The National Counter-Terrorism Agency (BNPT). Before analysing the news published on the government website, we first analysed various kinds of laws and regulations, and none of the regulations mentioned the definition of radicalism. This led us to examine how radicalism is constructed and its impact on the design of policies, programs, and activities.

We found that the three agencies developed radicalism following their main tasks and functions. Radicalism has become a very flexible concept, adapting to bureaucratic space, not to be resolved but to maintain budgetary margins. The colours of the policies and programmes created vary greatly according to the main mission of the ministry which oversees them. Moreover, the colours of the policies produced by the BNPT are still too mixed, influenced by the colours of the Ministry of Communication and Information, the Ministry of Education to the Ministry of Religion, and added with the colours of the military. Finally, the government responded to the entry of radicalism into the public issue by fragmenting the whole concept of radicalism and dividing it among different ministries where it can be resolved, rather than unifying it comprehensively in the BNPT's mission.

This finding has practical implications for the function and role of the BNPT as the agency mandated to coordinate the prevention and countermeasures against terrorism, including radicalism. The failure to fully define radicalism causes the ministries that are the subject of this study to have their own version of the definition of radicalism. This is dangerous because mistakes in defining the problem have implications for the policies and programs offered. The space that is too wide to construct radicalism must be immediately limited without denying that it is a dynamic and continuously developing concept.

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CORRUPTION AND SUPREME AUDIT INSTITUTIONS IN THE YEMENI PUBLIC SECTOR: AN EMPIRICAL INVESTIGATION

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Abstract: This study investigates the roles and contributions of Supreme Audit Institutions (SAIs) in anti-corruption in Yemen, focusing on providing new empirical insights into their practical challenges. The study relies on data collected by the Central Organization for Control and Auditing (COCA), reports, and questionnaires. In total, 100 self-administered questionnaires were distributed and 83 were collected and analysed at a rate of 83%. The results show that SAIs contribute significantly to detecting corruption, but they do not prevent corruption due to weak political stability and lack of application of laws. Moreover, SAIs face many obstacles, such as favoritism, weak internal audit systems, political instability, lack of independence and transparency in the financing process. In addition, the funds allocated to the apparatuses are not enough, which can hinder all the supplies, including modern tools of internal control. This study provides recommendations to improve the performance of SAIs, which, in turn, will

reduce opportunities for corruption in the public sector. Moreover, to the best of the authors' knowledge, this is the first empirical study that evaluates the role of SAIs in combating corruption by using reports from the COCA as the institution responsible for detecting corruption and corroborating information received from respondents, as well as transparency of international reports.

Introduction

Corruption is a destructive phenomenon in Yemen and many institutions concerned with Yemeni affairs have reported that corruption is the major problem that destroyed Yemen. It is the leading cause of detrimental issues such as high external debt, political instability, and poverty. It has been said that some Arab and foreign countries also control and hegemonize Yemen and its wealth either directly or through the internal proxies that follow each country. The phenomenon of administrative and financial corruption is a vast global phenomenon that is deeply rooted and takes on far-reaching dimensions, in which various factors overlap, and it is not easy to distinguish between them as the degree of its spread varies from one country to another.

Transparency International defines corruption as a misuse of the authority available to individuals to enrich themselves rather than to pursue public interests. Administrative corruption is what the public sector employees seek to achieve as a personal interest instead of public interest in a way that violates all the values and systems that these employees pledged to respect and implement through the rules and regulations (Al-zahrani, 2020). Campbell (2016) referred to corruption as the use of public authority for moral or material personal gain. It is also a violation of social and economic rights, and it is also the transformation of public property into private property and thus depriving others of their rights (Ogbu, 2008). Corruption contributes to reducing foreign and domestic investment due to its high cost of business and fear that the project will not succeed due to the corrupt environment (Ahmadi and Homauni, 2011), and results in wrong choices that encourage competition for bribery and prevent the development of a healthy environment for societies, in addition to distorting economic and social development (Langseth, Stapenhurst and Pope, 1997).

Furthermore, corruption prevents qualified and competent people from entering the service. It alsoleads to ignoring the implementation of laws and regulations (Vyas-Doorgapersad, 2007), and improperly delegated power for personal

benefit or for the benefit of parties who depend on it. It is practiced by public sector employees, whether they are politicians or public officials, to earn illegal money. Corruption can be divided into two categories according to the parties involved: first, corruption committed by public officials in decision-making positions, and often involves major contracts; second, corruption committed by low-played public officials to cover their daily expenses (Stapenhurst and Langseth, 1997). Delia Ferreira Rubio, Chair of Transparency International in 2018, said that corruption grows in countries where democratic institutions are not strong. Therefore, non-democratic politicians can take advantage of the institutions to their benefit. In low-income countries where the economy is in transition, institutions need more assistance from SAIs to stem corruption (Kayrak, 2008). The problem of corruption is the biggest challenge facing Yemen, and corruption appears in the public institutions of the state in various forms such as bribery, kickbacks, favoritism (Thabit, 2019).

There is deep corruption in the Yemeni economic sectors, especially in the oil and gas sector. In addition, there is another type of corruption, which is the presence of individuals in the authority who impose themselves on investment companies as protection or as a link between investment companies and decision-makers in the state (Mohsen, 2010). This issue raises the question about the role of SAIs in combating and curbing corruption in Yemen.

According to Dye and Stapenhurst (1998), SAIs are seen as independent guardians of public funds and interests, which contribute significantly to improve and strengthen the financial departments, and applying the system of accountability and transparency to all parties. The results of a study by Kayrak (2008) suggested that SAIs enhance sound financial management, transparency and accountability, and the ability to detect illegal practices. This is in line with many studies that have found that monitoring and auditing activities have a significant role in the development of organisations and economies (i.e., Hazaea et al., 2020). According to Tara et al. (2016), SAIs play an important role in detecting deviations and violations in public funds so that they can make appropriate decisions to address these problems. SAIs can positively contribute to the fight against corruption in public institutions by cooperating and working with other parties such as citizens, and civil society institutions, which is a vital factor and support for these institutions in applying the issue to all parties (McDevitt, 2020). Much of the literature suggested that SAIs contribute to the fight against corruption in the public sector. Despite these contributions, the institutions face many obstacles and challenges in their work to fight corruption which could harm public funds. These include factors related to audit quality, political and economic stability, and the Yemeni government system. It is very disturbing that Transparency International ranks Yemen 177th out of 180 countries in 2018 and 2019 (see Figure 1). This motivates us to conduct a study that provides answers to the following questions:

Q1. Why is Yemen consistently at the bottom of the corruption index?

Q2. What is the state of SAIS and their role in combating corruption in Yemeni public institutions?

This study will also explain the obstacles that limit SAIS in fulfilling its tasks and provide some recommendations to solve the problem.

Yemen corruption index

The literature highlights that corruption in government units leads to wasted resources, economic growth, and quality of life. It also leads to reduced credibility of the state apparatus. One of the concepts raised that corruption is often related to the social, political and economic environment, such as poverty, social injustice, a political distinction, and state traditions and laws. Yemen scored 15 out of 100 in 2019 Corruption Perceptions Index as reported by Transparency International.

This means that corruption is widespread in public and government institutions. Figure 1 describes Yemen's score on the perceived level of corruption in the public sector on a scale of 0 (highly corrupt) to 100 (very clean). It clearly shows that the level of the corruption in the Yemeni public sector is relatively high, and there is a gradual increase in the corruption index, especially in 2016 and 2018.
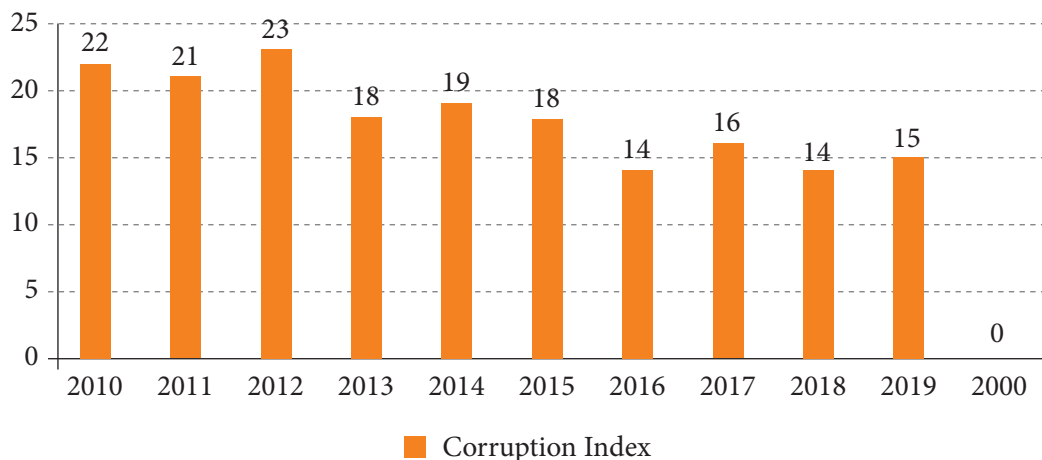
Figure 1. **Yemen corruption index, 2010–2019**

Source: http://www.transparency.org

Theories and corruption

Principal-agent theory

This theory assumes that corruption can occur if the employees and those in authority enjoy discretionary power over public services in addition to the lack of accountability (Brusca, Manes Rossi and Aversano, 2018). Thus, this theory emphasises the need for each party to be subjected to accountability by another party so that the last party is subjected to the accountability by the public. This may indicate why Yemen remains one of the most corrupt countries due to lack of the accountability and nepotism, as well as the failure to apply punishment (Hazaea and Jinyu, 2021). In addition, this theory believes that the availability of sufficient information to the agent (manager) can enable them to know the aspects of corruption significantly, in return, the availability of ample information to managers may reduce their trust in the authorities.

Organizational culture theory

Corruption is linked to several factors, including customs, traditions, and cultural factors of the state. From here, several theories have been linked to this interdependence, such as the theory of organisational culture. De Graft(2007) argued that collective cultures or cultures associated with a specific country or society can be one of the pathways that cause and lead to the adoption of pro-corruption behavior, in addition to that, the organisational structure and culture are linked to a large number of corruption cases.

According to this theory, the actions of individuals and officials are guided by certain dynamics that arise acquired from the surrounding reality related to culture and customs. We believe that cultural and tribal interdependence in Yemen was one of the reasons for the spread of corruption because some employees were lenient with the corruption of others. This is because the culture based on not curbing the work of others, as well as the tribal interdependence that exists between employees in the sector alone. It should be noted that some theories have been clarified in relation to the issue of corruption in the following sections.

Review of literate and development of hypothesis

Conceptual framework

Public resources that are not under the control of a single personal owner can be fertile ground for corruption through tax administrations, large procurements, debt management, customs designed privatization of government owned enterprises, and the implementation of large public projects. There are many institutions that work to fight corruption and it is considered one of the most important part of their work, such as the World Bank, International Transparency, The Organization for Economic Cooperation and Development (OECD) and the G20. In Yemen, two organizations work to fight corruption: first, the Central Organization for Control and Auditing (COCA), which was established in 1992.

According to the president of COCA, there are two main goals of COCA, as cited by Al- Iryani, A (1992): (i) to review public funds and assets owned by the public sector or institutions in which the public sector holds shares to ensure that they are used in accordance with laws and regulations; and (ii) to achieve a comprehensive and helpful review of the administrative units in the public sector that provide services and products to ensure that laws and regulations are followed and to determine the reasons for the existence of deviations, deficiencies, or capabilities that have not been exploited. Second, The Supreme National Authority for Combating Corruption (SNACC) that was established in 2006. It is an executive authority whose function is to apply the law against anyone who commits acts of corruption in public institutions. It is closely linked directly to the highest supervisory authority of the state.

Our study examines the role of SAIs in Yemen in combating corruption by verifying three factors, the extent of the importance of applying the transparency and accountability, the importance of materials and moral components of SAIs

towards corruptions and the impact of the economic, political, and social situation on the performance of SAIs towards corruption. Transparency and accountability are one of the most important tools in combating corruption. According to Reichborn-Kjennerud et al. (2015), taking the necessary measures to reinforce and implement accountability and successive evaluation of internal control structures is one of the basic factors for the success of SAIs in combating corruption. Transparency and accountability contribute significantly to reducing corruption and enhancing integrity. Moreover, the political independence, organizational, and financial resources of SAIs contribute positively to reducing corruption (Kohler and Dimancesco, 2020).

According to legitimacy theory, governments can gain legitimacy through the application of transparency (Dowling and Pfeffer, 1975). Trust in governments increases when they are given incentives to implement their policies, which gives them legitimacy. Agency theory also addresses this issue (Gandía and Archidona, 2008). The principal agent theory indicated that corruption in public institutions can arise through employees when SAIs and government politicians are unable to implement accountability. Therefore, one of the most important points in combating corruption is that employees are monitored by SAIs, and in return, government controlling agencies are monitored by the citizens.

According to Borge (1999), the main tasks of SAI representatives are to deter corruption through the application of transparency and accountability, which contributes to building a management system capable of performing its functions. Some may consider that SAIs as part of the governmental system, which may contradict with the independent status of the government. SAIs is the one that determines the procedures and means of control and investigation for all institutions working in the country. Therefore, it must be outside any governmental or community pressure. Also, Van Zyl et al. (2009) highlighted that SAIs face four challenges (communication challenges, political challenges, technical challenges and institutional challenges). The results indicated that the political challenge can have a major impact on the failure to perform SAIs representative work in protecting public funds.

The democratic theory indicates that corruption is a clear violation of the standards for practicing democracy, which causes the violation of citizens. From this perspective, it is seen as the most important tool that protects public funds from illegal practices of politicians (Kostadinova, 2012). General equilibrium theory and deterrence theory indicate that one of the causes of corruption is structural or individual changes that interact to produce either negative or positive results. Individual considerations include greed, favoritism, and which is offset by the application of order and trial in a way that contributes to fighting corruption. Collective participation and a system based on justice can contribute significantly to reducing corruption.

Therefore, we argue that the application of transparency, accountability, independence of members, and the non-interference of the executive authorities in the work of SAIs, in addition to the political and economic stability of the country, are all the factors that contribute, in one way or another to the fight against corruption and the protection of public property.
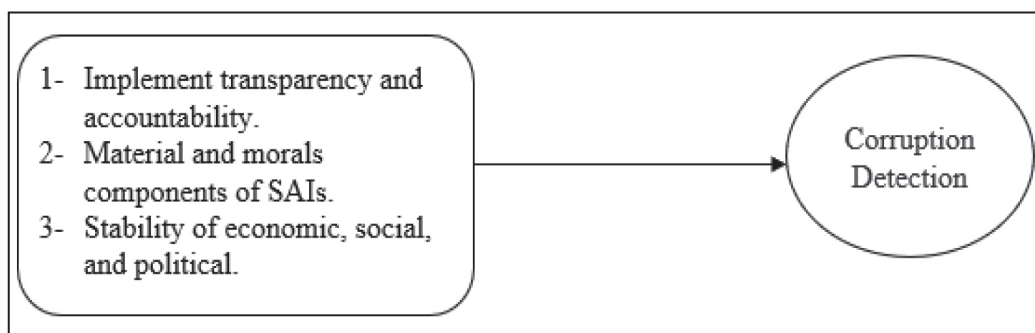
Figure 2. **The study's conceptual framework**

Islamic perspective and corruption

Yemen follows the Islamic religion, and thus corruption has been prohibited according to the Islamic religion. It can be said that there are two types of factors that are followed to fight corruption. The first type is followed from the teachings of the Islamic religion (a spiritual aspect), and it can be called the internal aspect. The second aspect, or the external aspect, is the application of the law. The first aspect relies on the fact that the perpetrators of corruption are punished in this world and in the hereafter. Therefore we can say that the perpetrators of corruption are held accountable to God. At the same time, the perpetrators of corruption are held accountable and the law is applied against them. It can be said that there is a type of worker or employee who refrains from committing corruption for fear of violating the rules of Islamic law and for fear of the application of the penalties mentioned in the principles of Islamic law. Therefore, there are two motives for fighting corruption in Islam: behind the fight against corruption the application of the Islamic principle, and the incentive represented by the application of human laws.

Development of hypotheses

Implement transparency and accountability: SAIs are the most important means of preventing corruption by applying accountability, transparency, and good governance in the public financial system (Kayrak, 2008). SAIs are national-level watchdog agencies responsible for the auditing government expenditures and revenues (Otalor and Eiya, 2013). SAIs play an important role in achieving accountability in the public institutions of the state, and its activities are monitoring financial statements, evaluating the continuity and submitting the necessary proposals and recommendations to higher authorities (Cordery and Hay, 2019). According to Kohler and Dimancesco (2020), transparency and accountability contribute significantly to reducing corruption. Many governmental sectors have a significant role in the fight against corruption, such as the media, which are focused on raising society's awareness of the effects of corruption on individuals and society, public courts, and higher regulatory bodies (Langseth, Stapenhurst and Pope, 1997).

The most crucial role of SAIs is to combat corruption through the following: (i) strengthening financial departments by all means that contribute to combating corruption, (ii) providing various mechanisms and means of internal control in a public institution, (iii) monitoring financial reports and detecting the discrepancies, (iv) activating the issue system so that the information is obtained accurately, and (v) SAIs must encourage the staff and provide them with all facilities (Otalor and Eiya, 2013). Salih and Almajdob (2019) concluded that SAIs practice great efforts to reduce corruption and their role in supporting audit methods, accountability, and transparency. SAIs have a significant and positive impact on reducing corruption so that they can discover deviations and irregularities that occur during the collection and spending of financial resources and make appropriate decisions to fix these problems (Tara et al., 2016). SAIs in Bangladesh play an essential role in detecting corruption by monitoring revenue and expenditure transactions in government units (Sakib, 2020). SAIs use audit reports to achieve transparency and accountability. Moreover, it has a role in raising awareness among society regarding the effects of corruption on the individuals and the community in a manner that ensures the preservation of public funds (Draman, 2020). In Yemen, SAIs represented by the COCA play an essential and vital role in detecting corruption by auditing all revenues and expenditures in government units and reporting violations to higher authorities (Al-Iryani, 1992). Considering that transparency and accountability are one of the most important factors that help in curbing corruption. Officials and those in charge of the authorities should seek for a mechanism to strengthen and disclose accounting, which will contribute to the improvement of public administrations and strengthen the control processes in the fight against corruption.

Based on this discussion, the following hypothesis is formulated.

H1: There is a significant relationship between transparency and accountability of SAIs and detecting corruption.

Materials and morals components of SAIs: If the SAIs are independent, the members will better perform their duties in fighting corruption (Gherai, Tara and Matica, 2016). Independence is one of the most essential factors SAIs should have to be able to fulfil their role effectively in protecting public property (Peci and Rudloff Pulgar, 2019). Transparency refers to the availability of essential and valuable information which leads to the reduction of corruption, as it plays a vital role in monitoring the authorities responsible for disposing of public funds (Paschke et al., 2018). The results of the study by Brusca, Manes Rossi, and Aversano (2018) found that transparency and accountability of SAIs have a significant and positive impact on combating corruption in public institutions. According to Kohler and Dimancesco (2020), transparency and accountability contribute significantly to reducing corruption and enhancing integrity; SAIs' political independence, organizational, and financial resources contribute positively to reducing corruption. The role of SAIs in fighting corruption is closely related to the independence, ethics, and transparency of their members (Plesa, 2017). The results of the study by Janenova and Knox (2020) showed that the moral values associated with the level of training and education contribute significantly and clearly to the fight against corruption.

SAIs play an essential role in combating corruption by using some preventive policies such as applying and promoting accountability through financial reports issued during a period that is usually a fiscal year, in addition to evaluating internal control sectors (Reichborn-Kjennerud et al., 2015). Enhancing accountability and financial integrity through the systematic audit process is one of the most essential functions that SAIs should perform (Akhidime, 2012). Financial and organizational independence, and the existence of strict laws, help SAIs in combating corruption. Moreover, enhancing accountability, openness, good governance, and evaluating the financial departments in various public institutions are among the jobs that SAIs must perform in order to contribute significantly to reducing corruption (Kayrak, 2008). In Yemen, SAIs play an important role in detecting corruption by identifying the sources of corruption, applying modern audit systems, and submitting regular reports (Hazaea and Jinyu, 2021). A study by Alhammadi (2018) recommended that to combat corruption in Yemeni public institutions, the state should establish an integrated e-government service. Based on this discussion, the following hypothesis is formulated.

H2: There is a significant positive relationship between the material and moral components of SAIs and the detection of corruption.

Stability of economic, social and political: SAIs face obstacles , including the political influence of members of the ruling authority, which negatively affects their role in combating corruption (Draman, 2020). According to Lassou, Hopper, and Ntim (2020) SAIs are inefficient in combating corruption in several African countries because of officials corruption in these countries, which has led to a severe government sector corruption. The lack of independence of SAIs from political systems and the executive is one of the factors that negatively affect their performance in combating corruption (Egbeyong, 2018). Political disputes between the executive and patronage are among the obstacles facing SAIs (Moene and Søreide, 2016). According to Klitgaard (1998), three factors contribute to the spread of corruption in public institutions, including discretionary power, monopoly power, and lack of accountability. Klitgaard makes a model to explain the dynamics of corruption: Corruption = Discretionary Power + Monopoly Power – Accountability. Iranian audit institutions face many problems that weaken their role in the fight against corruption, such as organisational conflicts, unclear laws , and an inappropriate interpretation of laws (Hghighi et al., 2019).

Among the most critical challenges facing the SAIs in Nigeria include the lack of modern control methods, increased staffing, weakness of legislative laws, and the lack of independence of the audit institutions (Ogbaisi and Asenuga, 2018). The weak political volition of the executive power and the lack of independence of institutions are the most critical obstacles for audit institutions in combating corruption in Nigeria (Odia, 2014). The lack of independence of institutions, including audit institutions, weak political volition of the executive authority to combat corruption, the lack of attention to members of the supreme audit committees, and building their capabilities are the most critical challenges facing SAIs (Akhidime, 2012). One of the most critical challenges that affect the work of SAIs is political instability, so that leads to their inability to effectively perform their

anti-corruption duties (Khan and Chowdhury, 2007). Mikhlafi (2013) reported that SAIs in Yemen face several obstacles, the most important of which is patronage, the lack of implementation of laws, and essential instability. Consequently, the following hypothesis is formulated.

H3: There is a significant positive correlation between economic, social, and political stability and eradication of corruption.

Research methodology

Research design and sample size

We used the inductive approach to collect data through an opinion survey of a sample of workers in the COCA, and some workers in the National Authority for Combating Corruption in Yemen. In addition, we use the reports issued by the COCA, and extracts from the International Transparency Organization report to confirm and interpret data obtained through the questionnaire.

The research community consists of auditors, department managers, supervisory officials, and people responsible for preparing the annual reports. The questionnaire contained 26 questions (8 questions investigate the first hypothesis, 10 questions investigate the second hypothesis, and 8 questions investigate the third hypothesis (see. appendix 1)). For data collection, a questionnaire was designed and manually distributed to SAIs in Yemen COCA in the cities of Ibb and Taiz governorates branches in December 2019. It was also distributed to SNACC staff in public administration. 100 questionnaires were distributed to the SAIs staff and 83 were retrieved and included in the analysis. The original regression model is as follows.

$$CO = \beta_0 + \beta_1\ TASA + \beta_2\ MMSA + \beta_3\ SESP + \varepsilon$$

Where:
CO = Corruptions
TASA = Transparency and accountability applied by SAIs
MMSA = Materials and morals components of SAIs
SESP = Stability of economic, social, and political

Independent variables

This study used three independent variables, with the first variable (TASA) representing the extent of the impact of the application of the principle of transparency and the accountability by SAIs on the fight against corruption. This variable is measured using a five-point Likert scale where (5) indicates that the paragraph is fully available (strongly agreed). And (1) indicating that the paragraph is completely unavailable (strongly disagreed). It is expected that there is a positive effect if the scale is greater than the number (3). So, the application of the principle of transparency and accountability can contribute to the fight against corruption. Morals and the stability of the political and economic situation (MMSA, SESP) were used as independent variables, using the same measures as variable number one.

Data analysis and results discussions

Statistical Package of Social Sciences (SPSS) was used to analyse the data collected via questionnaires. We used the five-point Likert scale for the study which ranges from 1 (strongly disagree) to 5 (strongly agree). The data obtained from the questionnaire are compared with the data that we obtained from the reports of the COCA, whether by proof or denial, 3 is the general mean of the study. If the calculated mean for the hypothesis is greater than the general mean of the study, it indicates that the hypothesis is proven. On the other side, if the calculated mean for the hypothesis is less than the general mean, it indicates that the hypothesis is rejected. The following formula gives a general average of the study:

$$\mu = (1 + 2 + 3 + 4 + 5) = 15/5 = 3$$

Descriptive statistics

Table 2 illustrates the descriptive analysis for all variables used in this study. The average of CO is 3.35; however, the lowest value and the highest value ranged between 1.00 and 5.00, respectively, indicating an excellent role of higher audit institutions in combating corruption. On the other side, the table shows that the mean value of each variable (TASA, MMSA) is the same, as it reached 3.65, and this indicates that the SAIs implements transparency and accountability to protect public funds. Material and moral components (mean and factors), also benefit SAIs which have a significant and similar effect in supporting their performance. The minimum and maximum value of the variable TASA is (1.86–4.57), and the minimum and maximum values of MMSA is (2.25–4.88). As for SESP, the mean value has reached 3.59, which confirms that SAIs encounter obstacles and difficulties that limit the performance of their tasks.

Table 1

Descriptive statistics

Items	N	Min.	Max.	Mean	Std. Deviation	Skewness		Kurtosis	
CO	83	1.00	5.00	3.3524	.72629	-.511	.264	.865	.523
TASA	83	1.86	4.57	3.6540	.49393	-.758	.264	1.375	.523
MMSA	83	2.25	4.88	3.6506	.53632	-.182	.264	.276	.523
SESP	83	2.50	4.50	3.5949	.41942	-.234	.264	-.080	.523
Valid N	83								

Note: N number of valid questionnaires.

Sources: Completed by the authors (- hereinafter unless otherwise is indicated).

It is clear from Table 1 that the mean score of the first hypothesis reached 3.65, which is higher than the hypothetical mean score of questionnaire 3; this indicates that the SAIs contribute significantly to the detection of corruption

in the Yemeni public institutions if they implement transparency and account-ability. According to the report issued by the COCA for the year 2018–2019 re-garding the health office in Taiz Governorate, several cases of corruption were uncovered. For example, (i) when receiving cash donations from the State of Qa-tar a number of 15 bonds were used in the amount of 450,762,74 Yemeni riyals found that these revenues were not recorded in the health office account as an income or an expense, which violates the law No. 8 in the year of 1990, and em-phasizes the need to prove these contributions within the revenue, (ii) the total amount of medicines and medical supplies in November and December of 2018, 164,805,18 amounted to a Yemeni riyal. It was found that the specialists did not adhere for the law of tenders and government auctions on retail purchases and setting medical specifications in advance, and (iii) the total amount of fuel purchases amounted to 922,000 riyals. It was found that the inventory account was not averaged, supplied and stored to ensure the validity of the purchase and use, which is considered a violation of the law and regulations governing these operations.

In the governorate of Ibb, the COCA mentioned in reports issued from 2011 to 2013 cases in which corruption was discovered, some of which we cite here: (i) an amount of 11 million Yemeni riyals was spent without legal justification on some former employees in the governorate's general office, (ii) an amount of 26 million Yemeni riyals was disbursed from the finance office in exchange for most of the purchases made without adhering to the legal on purchase and supply, and (iii) an amount of 8 million riyals was spent for the purchase of spare parts for the equipment, and it was found that nothing was discovered to prove that the purchases receipt or to supply the spare part to inventory. Through the foregoing, it is clear to us that SAIs in Yemen play a great role in uncovering corruption, which contributes to preserving public property. This is in line with a study by Mikhlafi (2013), which reported that SAIs represented by the COCA contribute to discovering corruption in Yemen public institutions. Thabit (2019) also reported that SAIs play an essential role in combating corruption in Yemeni public institutions. At the same time, they need to enhance their capabilities to perform their duties as required.

The mean value of the second hypothesis reached 3.65 with a standard di-vision 0.536, which indicate that SAIs in Yemen have authority (material and moral components) according to the law issued in 1992, which states that SAIs have first, organisational independence.

It indicates that the audit institutions are independent institutions whose purpose is to preserve public funds and resources and to achieve accountability of how to administer and use these funds by the authorities in charge. Second, SAIs have financial independence and accountability: SAIs enjoy complete free-dom to account for the use and collection of public funds without submitting to any other authority in a way that guarantees their preservation. Under the law, audit institutions have the right to use the appropriate methods in the audit pro-cess and the appropriate timing, within the framework of functional independ-ence. Therefore, the SAIs are free to publish the results as they think necessary in the public interest.

From the above, we can see that one of the essential elements for the success of SAIs in combating corruption is their enjoyment of organisational and financial independence and achieving accountability under the law. SAIs that enjoy financial, operational, and regulatory autonomy and derive their authority from statutes and constitutions contribute to preventing corruption by promoting accountability and transparency (Kayrak, 2008).

The mean of the 3rd hypothesis reached 3.59 with a standard division of 0.419, which means that SAIs face obstacles and difficulties that work to limit their effective performance. According to Transparency International (2019), one of the most critical obstacles facing the SAIs in Yemen is a political conflict that leads to widespread corruption. According to Mikhlafi (2013), some of the most critical obstacles for SAIs in Yemen are the lack of adequate financial resources to substantially perform their duties, severe shortage of human requirements or supplies, and the failure to apply the law against perpetrators of corruption by the executive authorities, which negatively affects their work. Among the most important factors that contribute to the spread of corruption in public institutions are favoritism and the lack of implementation of the law (Hazaea and Jinyu, 2021).

According to the report issued by the COCA for the year 2017–2018, the most significant obstacles to the work of SAIs are the following: the weakness of the financing process and the funds allocated to the apparatus to provide all the supplies, including the use of modern control tools of control, the unimplemented leniency for the perpetrators of corruption, which encouraged the commission of corruption, political instability, which led to the perpetuation of corruption by some members of the executive branch who depend on them to implement the law against the perpetrators of corruption, and to the low level of salaries of SAIs employees, which made some of them to accept bribes from some institutions to pass on corruption.

Correlation matrix analysis

Table 2 shows the correlation matrix used in this study to identify the degree of correlation between the variables. Based on the results presented in the table below, there is no value greater than 5. This indicates that the correlation between the variables completely does not exist in addition to the multiplicity of lines it is not present in this data. Judge et al. (1988), stated that if the value of the variables is less than 10, the data does not suffer from multi-collinearity. To clarify the relationship between the variables and define the role of SAIs as a measure to demonstrate the extent of their importance in the fight against corruption.

The result shows that TASA contributes significantly to supporting audit institutions when countering corruption and has a significant positive relationship with CO. Similarly, MMSA has the same effect at the level at 0.05 and 0.01 levels and has a significant positive relationship with CO. Similarly, our results show that SESP has positive correlations that are not strong but significant with TASA. This means, the factors that the audit institutions have, are positively correlated and lead to reducing the obstacles faced by SAIs.

Table 2

Correlation matrix

Item	Correlation	CO	TASA	MMSA	SESP
CO	Correlation	1			
	Sig. (2-tailed)				
TASA	Correlation	.637**	1		
	Sig. (2-tailed)	.000			
MMSA	Correlation	.558**	.564**	1	
	Sig. (2-tailed)	.000	.000		
SESP	Correlation	.151**	.038	.267**	1
	Sig. (2-tailed)	.173	.735	.015	

Notes: Number of valid questionnaires (83).

**Correlation is significant at the 0.01 level (2-tailed).

*Correlation is significant at the 0.05 level (1-tailed).

Regression analysis

Table 4 shows that the adjusted r-square model is 0.462, indicating that this model (through its variables; TASA, MMSA, and SESP) can aggregately determine CO by 46.20%. Moreover, this model has an F-value of 24.51 which confirms that this model is significant at α = 0.05. Therefore, linking these two results suggests that this model is a solid and robust model for analysis.

Table 3

Model Summary

Adjusted R Square	Change Statistics			
	R Square Change	F Change	Sig. F Change	Durbin-Watson
.462	.482	24.512	.000	1.998

Table 5 shows the results of the regression model. The significance of each variable is obtained at 0.05. Table 5 shows the results of three completed relationships. ANOVA result shows that Model No. 1 can predict the independent variable using all dependent variables, given that the significance has been reached, which means that the model has a predictive value. For hypothesis No. (1), it assumes a positive relationship.

Therefore, there is a positive relationship between TASA and higher audit institutions fighting corruption, with an equal 0,00 value (p >0.05). So we can accept hypothesis No. 1, which states that implementation of transparency and accountability will achieve their goals in combating corruption as required. Hypothesis No.2 states that there is a significant positive relationship between the availability of factors (material and moral) and constituents and

corruption, as MMSA reached a value of 0.001 (p>0.05) (hypothesis supported). The more rectifiers and factors supporting SAIs, the better they can perform their job and fight corruption and protect public funds. Hypothesis number 3 indicates a negative relationship between corruption and the constraints they face, as SESP reached a value of 0.150 (p>0.05). Therefore, this hypothesis cannot be accepted. This means operational, organisational, or legal obstacles, hinder the work of institutions.

Table 4

Regression of CO on the role of supreme audit institutions

Model	Unstandardized Coefficients		Standardized Coefficients	t-statistic	Sig.	Collinearity Statistics	
	B	Std. Error	Beta			Tolerance	VIF
Constant)	-.057	.631	-.090	.928			
TASA	.688	.144	4.796	.000	.468	.688	1.453
MMSA	.453	.136	3.345	.001	.335	.654	1.529
SESP	-.212	.145	-1.455	.150	-.122	.929	1.077

Note: * Represent the significance at the 5% level.

Regarding TASA, the positive and significant finding of the extent to which SAIs enjoy the transparency and accountability appears to be the backbone of the success of the work of these institutions in combating corruption, which contributes to preserving public property and using allocated funds to achieve public interests rather than personal interests. The results are consistent with the findings of Brusca et al. (2018), who reported that when SAIs have greater transparency and accountability, they are more likely to exert a significant and positive impact on fighting corruption in a way that ensures the preservation of public property.

Regarding MMSA, there is a positive and significant association between SAIs and the extent to which they enjoy essential factors such as independence in all its forms (financial, operational, and administrative), as well as the extent to which they have modern control tools and auditors with sufficient experience in finance and accounting and their contribution to fighting corruption. Gherai et al. (2016) found evidence to support these results that if audit institutions are fully independent, they contribute significantly to fighting corruption and protecting public property. Consistently, Alhammadi (2018) emphasized that having modern control tools significantly helps SAIs in fighting corruption.

The empirical results of SESP showed a negative and significant impact related to the obstacles faced by SAIs when performing their anti-corruption tasks. These obstacles may be related to the extent to which these institutions enjoy the transparency, accountability, and financial and accounting experiences that members of SAIs possess and may be associated with the relationship of au-

dit institutions to the executive powers in terms of non-application of laws to the perpetrators of corruption, and cronyism. Draman (2020) suggested that the political influence of members of the executive authority on SAIs has a negative impact on the work of these institutions in the fight against corruption. Moene and Søreide (2016) also find that political and executive differences, political instability, and favoritism are among the most important factors that negatively affect the work of SAIs against corruption.

Conclusions

The corruption Perception Index of Transparency International showed that corruption is endemic in the Yemeni public institutions, and Yemen was ranked as 177th among 180 the most corrupt countries, indicating that corruption in the Yemeni public institutions is a serious issue. Therefore, this study contributes to the literature by using unique data to provide more reliable insight into the role of SAIs in fighting against corruption. Based on the reports of the Central Organization for Control and Auditing, which were confirmed by the results of the questionnaire, SAIs significantly detect corruption. Nevertheless, they cannot prevent it because of the executive branch is unwilling to fight it and because there is no prosecution.

Also, our results indicate that SAIs derive their authority under the laws issued that give them complete independence and assert their responsibility in applying accountability by using audit reports to achieve their goals in protecting public property. This is consistent with the theory of legitimacy, which states that governments obtain their legitimacy through the application of transparency and accountability. In addition, SAIs face the following obstacles: political instability, the lack of enforcement of laws against perpetrators of corruption, nepotism, weak control systems, and the lack of funds allocated to higher audit institutions to perform their duties as required. According to Transparency International, political instability and wars in Yemen are the most significant reasons for widespread corruption. The results of the study are consistent with the findings of the literature that transparency, accountability, and employees' enjoyment of moral values associated with education, are factors that contribute to the fight against corruption, in addition to the stability of the political and economic situation.

Based on the study result, there are several recommendations that need to be considered in future. *First*, branch executives should contribute to the fight against corruption by applying the laws to the perpetrators of corruption of reports submitted by SAIs. *Second*, the higher audit institutions should be provided with sufficient funds to finance the supervisory operations effectively and efficiently. *Third*, increase the minimum wages for employees working at SAIs as it guarantees an enhancement of the employees' performance. *Fourth*, due to political instability, the higher executive authorities must work to overcome the difficulties that face the audit institutions by activating the role of SAIs that are not doing their duties like the Supreme National Authority for Combating corruption. Finally, SAIs must distinguish between different types of corruption

in such a way that they can develop strategies and mechanisms to adequately address these problems.

The results of this study are limited to reports and information obtained from the Head Office of the Central Organization for Control and Auditing regarding the branch in the cities of Ibb and Taiz governorates only. Nevertheless, we affirm that the results of this study can be generalized to the overall situation of Yemen, given that the sample was obtained from the most populated and economically important areas. On the other hand, due to the data protection regulations of the supreme authority for fighting corruption related to the executive branch, it was not possible for us to obtain the reports on Yemen in their entirety.

However, the results of this study can be used by the supervisory authority to evaluate and develop the role of SAIs in addition to the possibility of their use by the parties contributing to the development of the theoretical side to eliminate corruption. For future studies, it is recommended to expand the sample size to all governorates and make the utmost efforts to obtain comprehensive reports from the executive authorities on the thorough assessment of the role of SAIs in the Yemeni public sector.

Theoretical implications

This study includes many theoretical implications. The executive branch can use the results to evaluate and develop the role of SAIs and identify the obstacles that these institutions encounter. Moreover, the findings can be used by parties that contribute to the development of the theoretical implications for anti-corruption SAIs monitor state funds as part of their responsibility towards the state and society. We have found that the audit institution contributes effectively to detecting corruption but cannot prevent it. The main goal of this paper is to define the role of SAIs in combating corruption. Our results have also shown that they contribute effectively to disclosing corruption in order to protect public funds.

Managerial implications

This study is useful for government bodies (the executive authority), policy makers, academics, the public, and SAIs staff. This study strengthens policies related to eliminating corruption by expanding the powers and responsibilities of SAIs in Yemen. The supreme executive authorities can use the results of this study to supervise the functions performed and evaluated by the audit institutions. Moreover, this study provides some recommendations to improve the performance of SAIs, which will reduce opportunities for corruption in the public sector.

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APPENDIX

Questionnaire

1   Section (A) Demographic information

Instruction: Tick as appropriate
1.   Age: 18–24 ( ), 25–30 ( ), 31–44 ( ), 45 and above ( )
2.   Gender. Male ( ), Female ( )
3.   What group of employees do you work for? Auditor ( ) (b) Director ( ) (c) Accountant ( ) (d) Others( )
4.   How many years have you done in this position? below 2 ( ) (b) below 5 ( ) (c) Below 8 ( ) (d) others ( )
5.   Scientific qualification: Bachelor ( ), (b) Master ( ), (c) other ( ).

2   Section (B) SA-A-UN-D-SD

Note: SA/strongly agreed, A/agreed, SD/strongly disagreed, D/disagreed UN/un-desired, 54321.

		SA	A	UN	D	SD
H1						
1	The SAIs follows a specific strategy to reduce the incidence of corruption and fraud in the public institutions of the state					
2	The SAIs periodically monitors and supervises all institutions at various stages					
3	The SAIs check that all operations are documented and restricted as required under the pre-planned regulations					
4	SAIs applies the accountability for all employees without any favoritism					
5	The SAIs checks the compliance and implementation of the internal control department with the policies, procedures, and controls specified for the work					
6	The SAIs publishes information about corrupt people in the media and does not obfuscate the crimes of the corrupt					
7	The SAIs delivers reports fully to the higher authorities without any obstacles or pressures					
	Cases of corruption in-state public institutions have been detected					

		SA	A	UN	D	SD
H2						
1	The SAIs is putting in place measures against the perpetrators of corruption crimes and not tolerate the imposition of sanctions on the perpetrators					
2	Violators are referred urgently to the judiciary					
3	The law is applied to people who manipulate public money in any public sector					
4	There are enough qualified cadres scientifically and practically to carry out the tasks of monitoring the fullest					
5	Staff have sufficient financial allocations and there are no difficulties in financing the oversight process					
6	The SAIs holds workshops and training courses to develop the skills of employees to keep up with the recent review					
7	The employees of the SAIs have sufficient knowledge of the nature and context of the internal control environment of the controlled body					
8	The SAIs has an integrated system of guidelines, regulations, and methods for practicing regulatory work					
9	The SAIs has sound and up-to-date records and document preservation systems that are easy to use at any time easily					
10	In its oversight methodology, the SAIs adopt modern techniques such as risk-based review, based on systems and analytical review methods					
H3						
1	The political situation negatively affects the role of the SAIs in protecting the public resources of the state					
2	The employees and auditors in the SAIs face the problem of not accessing the data under the pretext that it is highly confidential					
3	SAIs relies during the application of work to a set of laws in force to implement as required					
4	The failure of the relevant authorities to cooperate with the SAIs in achieving public accountability with the parties involved in corruption affects the work of the agency					
5	The relationship between the director of the public institution and some employees affects the work of the SAIs					
6	The SAIs can issue reports that are appropriate to its work, regardless of any circumstances					
7	The auditors do not have all the necessary requirements to ensure their independence against interference and pressures from within or from outside the bodies subject to supervision					
8	The SAIs takes special measures to mitigate the political and economic risks and other considerations that threaten the quality of the work					

INTERNAL AUDIT FUNCTION AND PUBLIC SERVICE QUALITY: EVIDENCE FROM INDONESIAN LOCAL GOVERNMENTS

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Abstract. This study investigates the role of local government internal audit function maturity and expertise in supervising local government public service quality. We use secondary data from all local governments in Indonesia for the 2016–2019 fiscal year that generates panel data with 1934 observations, analyzed with panel data regression. Local governments in Indonesia have a good average quality of public services. In most tests, we evidence the positive effect of local government internal audit function maturity and expertise on public service quality. Internal audit function maturity is the strongest contributor, while expertise supports the audit process to achieve higher public service quality. Our study provides implications for local government supervision that should be maximized through internal audit function to achieve good quality public services, by developing proper internal auditor programs of the Financial and Development Supervisory Agency (BPKP). The local government should also have a proper budget allocation for public service. The adoption of information technology should also be optimized in public service implementation and supervision. Finally, our study brings significant novelty to public service and internal audit literature in Indonesia by providing one of the first comprehensive studies covering all Indonesian local governments.

Introduction

Many countries around the world have implemented decentralization, aiming at maximizing the potential of local governments following the concept of New Public Management (NPM) and New Public Service (NPS) (McLeod and Harun, 2014). In practice, most public services are delegated to local governments to deliver the best possible service to the public as a whole. This phenomenon is also typical to Indonesia that has experienced a set of fundamental changes in local governance since the 1998 reformation (Danar, Kusumasari and Muluk, 2020) with increasing democracy, reforming state financial management, and even implementing decentralization through regional autonomy (Furqan, Wardhani, Martani, and Setyaningrum, 2020). It is expected to create an accountable local government (Rakhman, 2019) and maximize public welfare. However, up until now, the quality of public service is still a significant issue (Furqan et al., 2020).

Public service in Indonesia still often invites public dissatisfaction, especially in local government (Dewi, 2020). Recent statistics from the Ombudsman of the Republic of Indonesia in 2020 show 11,087 complaints about public services organized by the government in 2019. The number of complaints is higher than in 2018, when there were 10,985 complaints. The main problem is that local governments become the highest subject contributing to low quality public services accounting for 41.03% of all cases. Furthermore, the compliance of local governments with the minimum standards of public services has not shown good statistics. According to the survey conducted by the Ombudsman of the Republic of Indonesia in 2019, there were 26.51% of district/city governments with low compliance, 40.47% with moderate compliance, and only 33.02% with high compliance scores. This can be seen as a severe issue, especially considering that regional autonomy has been implemented for almost two decades.

In addition to public service quality implementation issues in Indonesia, there is also a significant need for further research in literature. In fact, there is still a limited number of studies examining public service quality in the Indonesian context. Previous studies in the literature also have significant limitations that potentially reduce the generalizability of their findings (Furqan et al., 2020; Hadian, 2017; Hadiyati, 2014). The majority of previous studies are still limited in research data and observations (Hadiyati, 2014). Consequently, the results cannot be generalized because the specific characteristics of local governments may differ from one another. The issue of subjectivity still occurs due to the use of survey methods

in data collection (Hadian, 2017). Further, another study also contains endogeneity of the research model (Furqan et al., 2020), so the results may be less reliable. The issues above justify that further studies are necessary to comprehensively examine the quality of public services in Indonesia, especially its determinants.

Prior studies in the literature in many countries have developed the framework for improving the quality of public service by optimizing the role of local government supervision mechanisms. Scholars and experts worldwide have emphasized the role of local government internal auditing. One of the models developed is the maturity model based on the COSO framework. This framework is also adopted in Indonesia[1]. Besides, scholars and experts also underline the importance of internal audit expertise. It is essential to have proper control over public governance and public service programs implementation to improve public services. The practice of public service delivery is also never apart from government programs, the use of financial resources, and specific procedures (Rahman and Fachri, 2016). Therefore, supervision becomes even more crucial to ensure the governance process (Muhtar, Sutaryo and Sriyanto, 2018). This study comprehensively examines the role of local government internal audit function as a determinant of public service quality in all Indonesian local governments. Thus, the study aims to answer the following research questions:

RQ1. What is the impact of internal audit function maturity on the quality of public services provided by local government quality?

RQ2. How does internal audit function expertise affect the quality of public services provided by local government?

Apart from the stated research questions, the characteristics of the local government are also considered as controlling factors that include financial, administrative, and demographic characteristics of local government. This research contributes to filling the gap the literature on public service by providing a comprehensive study that reveals the role of internal audit function in delivering good public service, both in terms of research observations and determining factors. This study also provides recommendations for the Indonesian local government in order to create local governments with high quality public services by optimizing the role of internal audit function. The remainder of the paper is structured as follows: literature review and hypotheses development; research method; results and discussion; and conclusion.

Literature review and hypotheses development

Agency relationship in Indonesian local government

As introduced by Jensen and Meckling (1976), agency theory explains the agency relationship between two parties (principal and agent) in a contract that leads to agency conflict. Lane (2005) and Araujo and Tejedo-Romero (2016) reveal that the concept of agency theory is also applicable in the government

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[1] BPKP Head Regulation Number 4 of 2016 concerning Guidelines for Appraisal and Maturity Improvement Strategy of the Government Internal Control System; Institute of Internal Auditor: Internal Audit Process Maturity (2013).

context, with the population as the principal and the government as the agent. The application of this concept is given that the main characteristic of agency relationships is in the contractual transfer of authority and responsibility from the people to the executive. Halim and Abdullah (2006) explain that agency theory can be applied to the context of Indonesian local government. Within the agency relationship between the public and local government, internal audit function in local government plays a role as a supervision mechanism in order to ensure that local government properly practices good governance and thus is able to fulfill its obligations to the public, one of which is delivering good public services.

Public service delivery in Indonesia

The outcome of the agency contract is the agent's performance and accountability (Mäntysaari, 2010). In the local government context, one of the tangible manifestations directly perceived by the public is public service (Petrakaki, Hayes and Introna, 2009). In Indonesia, there are several measurements of public service implementation by local governments, one of which is the Local Government Minimum Service Standards (SPM) assessment. The assessment is officially conducted by the Ministry of Internal Affairs every year. The assessment is performed by a special committee whose members are from the Ministry of Internal Affairs, the Ministry of Empowerment of State Apparatus and Bureaucratic Reformation, the Ministry of Finance, the Ministry of the National Development Planning Agency, the Financial and Development Supervisory Agency, the National Civil Service Agency, the National Statistics Bureau, Cabinet Secretary and the Government Administration Agency, assisted by public administration experts. The evaluation of public service quality is conducted at the local government level that covers all local governments in Indonesia. It illustrates the achievement of local government public service delivery by evaluating the extent to which a local government has delivered public services to its people.

The assessment of service standards is classified into two aspects, primary public services and secondary public services. Primary public services include education, health, environment, public work and spatial planning, public housing, youth and sports, cooperation and small and medium enterprises, population and civil registration, human resources, food security, women's empowerment and child protection, population control and family planning, transportation, land affairs, public order and people safety, support function, community and village development, social services, culture, statistics, archival, and library. Secondary public services include marine and fisheries, agriculture, tourism, industry, trade, and transmigration. In practice, the committee conducts assessment of these categories based on the annual local government administration report. Each category is given a score ranging from 0 (low) to 4 (very high). The score is multiplied by the weight of the respective category. The final score will be ranging from 0 (low) to 4 (very high). This mechanism can be used to monitor and continuously improve, the performance of local governments in providing public service

Several studies have been conducted to answer questions about the quality of public services in Indonesia. Aritonang (2017) reveals that the adoption of e-government has not provided a significant contribution to increasing the quality of pub-

lic services, but the analysis lacks empirical findings. Hadian (2017) studies the effect of organizational culture and organizational commitment on public service quality, but the examination is limited only to one local government. Furqan et al. (2020) study the effect of external audit on public service quality and find that the follow-up on audit recommendations has positive effects on improving public service quality. Lewis (2019) also examines the effect of local government expenditure and legislative monitoring on public service quality. However, there are very limited studies investigating the role of the internal audit function in determining public service quality in the literature. Thus, investigating the role of local government internal audit function on public service quality becomes very interesting.

The internal audit function in Indonesian local government

Internal audit function has been paid special attention by the Indonesian government in financial management. Government Regulation Number 60 of 2008[2] regulates that the internal audit function in local government is performed by the local government inspectorate. In this context, the Financial and Development Supervisory Agency (BPKP) becomes the authorized institution responsible for monitoring local government inspectorate's performance and developing the competencies of internal auditors in Indonesia to achieve good governance. There are several focus areas in developing the competencies of internal auditors, one of which is maturity[3] and expertise[4].

The maturity level of local government internal audit function in Indonesia is developed based on the Institute of Internal Auditor (IIA) guidelines that adopts the COSO framework[5]. It illustrates how well the internal audit function has been established based on several aspects consisting of the control environment, risk assessment, control activities, information and communication, and monitoring (COSO, 2013). Internal audit function with higher maturity should have adequate policies, methodologies and procedures, human resources, information systems, and communication and reporting procedures (IIA, 2013). The assessment of the maturity level of the local government internal audit is based on the above aspects and is conducted annually by the Financial and Development Supervisory Agency (BPKP), and the result is classified into six levels: Level 0 (Absent); Level 1 (Initiated); Level 2 (Developing); Level 4 (Defined); Level 4 (Managed and Measured); and Level 5 (Optimum).

Indonesia also places a great emphasis on internal auditor expertise. Local government internal auditor expertise is classified into two levels, namely qualified auditors and expert auditors. The presence of expert internal auditors in local government is necessary to perform audit duties and provide recommendations for governance improvement. A qualified internal auditor can be promoted to the expert internal auditor when the specific criteria are met, consisting of education,

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[2] Government Regulation Number 60 of 2008 concerning Government Internal Control System.
[3] BPKP Head Regulation Number 4 of 2016 concerning Guidelines for Appraisal and Maturity Improvement Strategy of the Government Internal Control System.
[4] BPKP Head Regulation Number 15 of 2014 concerning the Amendments to BPKP Head Regulation Number PER-1274/K/JF/2010 concerning the Education, Training and International Auditor Certifications.
[5] Institute of Internal Auditor: Internal Audit Process Maturity (2013).

certification, and working experience. Therefore, the Financial and Development Supervisory Agency (BPKP) continuously provides local government internal auditors with adequate education, training and international auditor certifications to improve their expertise.

Internal audit function maturity and public service quality

Based on agency theory, an adequate supervision mechanism is essential to ensure that local government executives as principals, implement government programs appropriately according to the public interest to deliver high-quality public services (Lane, 2005). Thus, in order to provide proper governance supervision, internal audit maturity is essential in the local government context to reduce agency problems, specifically to ensure that the local government performs its role well in delivering public services. Van Looy et al. (2011) state that the general concept of maturity aims to systematically improve the organizational process to further align the organization to achieve its performance goal over time, that is in line with the concept of New Public Management (NPM). In practice, internal audit functions with higher levels of maturity can provide more structured and consistent monitoring of local government activities (Bechara and Kapoor, 2012; D'Onza, Selim, Melville and Allegrini, 2015). Further, the supervision is also conducted more effectively and efficiently thanks to better information technology implementation (Lenz, Sarens, and D'Silva, 2014). In addition, a higher level of maturity enables a comprehensive internal audit (DeSimone, D'Onza and Sarens, 2019) so that local government programs are well-managed in terms of the distribution of financial resources and the achievement of program objectives. Under these conditions, the local government will be able to implement its programs for the benefit of the population. Therefore, local governments will be able to achieve higher quality of public services. Therefore, we hypothesize that:

H$_1$. Internal audit function maturity positively affects public service quality.

Internal audit function expertise and public service quality

Auditor expertise is a crucial attribute for internal audit function to improve the quality of its supervision, to prevent potential misconduct, and reduce agency problems. The expertise of the internal audit function is evidenced to play an essential role in bringing positive value to organizational management performance and further create proper governance in a government institution thanks to its ability to provide recommendations (Enofe, Mgbame, Osa-Erhabor and Ehirobo, 2013). Several studies demonstrate the positive implications of internal audit expertise. It plays a significant role in achieving the goals of New Public Management (NPM) and New Public Service (NPS) by improving governance. Baltaci and Yilmaz (2006) argue that internal audit also helps supervise the service delivery effectiveness. Thus, government programs in delivering public services will be implemented following the established procedures and existing regulations. In addition, Moreno-Enguix, Gras-Gil, and Henández-Fernández (2019) find that a local government with an adequate internal audit function has better performance in terms of accountability and transparency. Aikins (2011) also finds that an effective internal audit as part of the internal control system has a positive impact on the financial performance of a gov-

ernment institution. Meanwhile, Suharyanto et al. (2018) provide evidence of the positive impact of internal auditors on local government performance in Indonesia. Finally, we formulate the following hypothesis.

H_2. Internal audit function expertise positively affects public service quality.

Research method

Population, samples, and research data

The population of our study is all local governments in Indonesia in the 2016–2019 fiscal period, while the samples are determined by the purposive sampling method. We use secondary data obtained from the authorized institution that consists of: (a) the results of the evaluation of local government public service delivery from the Ministry of Internal Affairs; (b) the result of the assessment of the maturity level of local government internal audit function and total expert auditor from the Financial and Development Supervisory Agency (BPKP); (c) local government financial data from the Supreme Audit Board; (d) local government characteristics from local government website; and (d) population and human development index (HDI) obtained from the Indonesia Statistics Bureau.

Variable measurement

We investigate the quality of local government public service delivery, classified into (a) aggregate public service, (b) primary public service, and (c) secondary public service that are dependent variables. The independent variables are the maturity and expertise of local government internal audit function. We also use control variables, namely local government financial characteristics, demographic characteristics, and administrative characteristics. The details of the variables, along with the measurements and sources, are presented in Table 1.

Table 1

Research Variables

Variable	Symbol	Measurement	Data source	References
Dependent				
Aggregate public service quality	$AGGREGATE_{it}$	Local government aggregate public service quality score by Ministry of Internal Affairs	Ministry of Internal Affairs	Furqan et al. (2020)
Primary public service quality	$PRIMARY_{it}$	Local government primary public service quality score by Ministry of Internal Affairs	Ministry of Internal Affairs	Furqan et al. (2020)
Secondary public service quality	$SECONDARY_{it}$	Local government secondary public service quality score by Ministry of Internal Affairs	Ministry of Internal Affairs	Furqan et al. (2020)

Variable	Symbol	Measurement	Data source	References
Independent				
Local government internal auditor maturity	IAFMAT$_{it}$	The score of local government internal audit maturity assessment	Financial and Development Supervisory Agency (BPKP)	Sutaryo and Sinaga (2018), Yasin et al. (2019)
Local government internal auditor expertise	IAFEXPERT$_{it}$	Percentage of expert auditor in local government internal audit function	Financial and Development Supervisory Agency (BPKP)	Emmanuel and Usman (2015), Syahdina (2017)
Control				
Local government assets	ASSET$_{it}$	Logarithm (Log) value of local government total asset	Local government financial statement	Harumiati and Payamta (2014), Sutaryo and Sinaga (2018)
Local government revenue	REVENUE$_{it}$	Logarithm (Log) value of local government total revenue	Local government financial statement	Harumiati and Payamta, (2014), Utama et al. (2019)
Local government expenditure	EXPEND$_{it}$	Logarithm (Log) value of local government total expenditure	Local government financial statement	Harumiati and Payamta (2014), Sutaryo and Sinaga (2018), Utama et al. (2019)
Local government complexity	LGCOMP$_{it}$	Total number of local government's working units	Local government financial statement	Adiputra, Utama and Rossieta (2018), Maulana and Bestari (2015)
Local government type	LGTYPE$_{it}$	Dummy variable: 1 for city local governments; 0 district local governments	Ministry of Internal Affairs	Arifin, Trinugroho, Prabowo, Sutaryo and Muhtar (2015), Rakhman, (2019)
Local government population	LGPOP$_{it}$	Natural logarithm (Ln) value of local government populations	Indonesia Statistics Bureau	Guillamón, Ríos, Gesuele, and Metallo (2016), Sutaryo, Rossa, Aryani, Rahmawati, and Muhtar (2018)
Local government human development	LGHDI$_{it}$	Local government Human development index (HDI)	Indonesia Statistics Bureau	Martani and Pramudya (2017), Saputra, Ardila, Siddi and Sutopo (2018)

Source: Compiled by authors (- hereinafter, unless otherwise noted).

Data Analysis

The initial data analysis step starts with descriptive statistics and correlation analysis to obtain a general description of the research data and the correlation of variables. The main analysis for hypotheses testing is performed with panel data regression analysis. The following are the equations of our regression model:

Equation 1:

$$AGGREGATE_{it} = \alpha + \beta_1 IAFMAT_{it-1} + \beta_2 IAFEXPERT_{it} + \beta_3 ASSET_{it} + \beta_4 REVENUE_{it} + \beta_5 EXPEND_{it} + \beta_6 LGCOM_{it} + \beta_7 LGTYPE_{it} + \beta_8 LGPOP_{it} + \beta_9 LGHDI_{it} + \varepsilon i$$

Equation 2:

$$PRIMARY_{it} = \alpha + \beta_1 IAFMAT_{it-1} + \beta_2 IAFEXPERT_{it} + \beta_3 ASSET_{it} + \beta_4 REVENUE_{it} + \beta_5 EXPEND_{it} + \beta_6 LGCOM_{it} + \beta_7 LGTYPE_{it} + \beta_8 LGPOP_{it} + \beta_9 LGHDI_{it} + \varepsilon i$$

Equation 3:

$$SECONDARY_{it} = \alpha + \beta_1 IAFMAT_{it-1} + \beta_2 IAFEXPERT_{it} + \beta_3 ASSET_{it} + \beta_4 REVENUE_{it} + \beta_5 EXPEND_{it} + \beta_6 LGCOM_{it} + \beta_7 LGTYPE_{it} + \beta_8 LGPOP_{it} + \beta_9 LGHDI_{it} + \varepsilon i$$

Information:

$AGGREGATE_{it}$	: Local government aggregate public service quality
$PRIMARY_{it}$	: Local government primary public service quality
$SECONDARY_{it}$	: Local government secondary public service quality
$IAFMAT_{it}$	: Local government internal audit function maturity
$IAFEXPERT_{it}$	: Local government internal audit function expertise
$ASSET_{it}$	: Local government asset
$REVENUE_{it}$	: Local government revenue
$EXPEND_{it}$	: Local government expenditure
$LGCOM_{it}$	: Local government complexity
$LGTYPE_{it}$	: Local government type
$LGPOP_{it}$	: Local government population
$LGHDI_{it}$	: Local government human development
α	: Constant
$\beta_1 - \beta_9$	: Regression coefficient
εi	: Standard error

Results and discussion

Descriptive statistics and correlation

We conducted a descriptive analysis to describe better our research variables. The results are presented in Table 2. We found that the aggregate public service quality score in Indonesian local governments is at 2.716. This finding

means that local governments in Indonesia, in aggregate, are able to reach high quality of public services. The maximum value is at 4 and the minimum value at 0.207, while the standard deviation is 0.5. As for the primary public service quality, the average value is at 2.79, while secondary public service quality is averaging at 2.39. Thus, the achievement of local governments in Indonesia is also at the high level, for both primary and secondary public services.

Table 2

Descriptive statistics

Panel A: Continuous variables					
Variable	**Obs**	**Mean**	**Std.Dev.**	**Min**	**Max**
$AGGREGATE_{it}$	1891	2.716	0.5	0.207	4
$PRIMARY_{it}$	1934	2.79	0.528	0	3.941
$SECONDARY_{it}$	1899	2.39	0.56	0	3.842
$IAFMAT_{it}$	2032	2.207	0.7	0.153	3.991
$IAFEXPERT_{it}$	2032	0.722	0.171	0	1
$ASSET_{it}$	2032	12.381	0.268	11.483	13.631
$REVENUE_{it}$	2032	12.114	0.22	10.633	12.912
$EXPEND_{it}$	2032	12.059	0.215	11.116	12.912
$LGCOMP_{it}$	2032	51.498	21.312	22	209
$LGPOP_{it}$	2032	12.619	0.998	9.523	15.266
$LGHDI_{it}$	2032	66.374	7.435	21.12	86.11
Panel B: Dummy variables					
Variable	**Obs**	**Dummy 0**		**Dummy 1**	
		Frequency	**Percentage**	**Frequency**	**Percentage**
$LGTYPE_{it}$	2032	1660	81.7%	372	18.3%

Further analysis was conducted to investigate the trend of local governments' performance in providing good quality of public services over the years. The result is presented in Figure 1. We discovered that the quality of public services of Indonesian local governments in 2017–2019 is at the high level. Interestingly, the performance in 2016 was higher than in 2017 and 2018 for $AGGREGATE_{it}$ and $PRIMARY_{it,}$ as there was a considerable decrease from 2016 to 2017. Meanwhile, the average of $SECONDARY_{it}$ increased from 2016 to 2017 with a noticeable improvement. In 2018, the achievement did not significantly change from the 2017. Fortunately, the quality of public services improved significantly in 2019 for both $AGGREGATE_{it}$, $PRIMARY_{it}$, and $SECONDARY_{it}$.
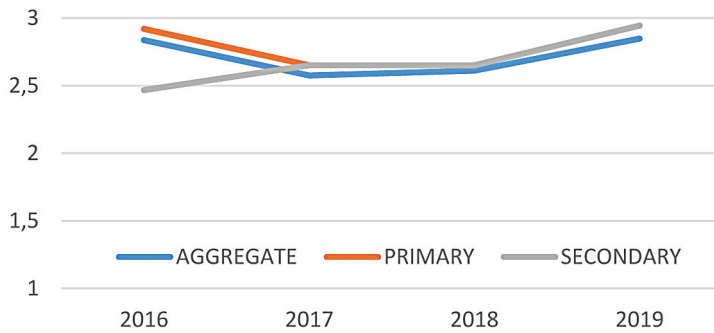
Figure 1. **Quality of public services in Indonesian local governments, 2016–2019**

Source: Processed data, Ministry of Internal Affairs of the Republic of Indonesia.

The data on the quality of public services in this research is officially obtained from the Ministry of Internal Affairs. A joint committee conducted the assessment based on the verified accomplishment stated by the local government in the local government report. Therefore, objectivity is guaranteed. In addition, the measurement has also been used in previous studies, such as Furqan et al. (2020). Nevertheless, the assessment of public service quality is only conducted at the local government level. Thus, there is not yet an assessment of public service quality at the national level that can be used to compare. Alternatively, we used international data from TheGlobalEconomy.com public service index to compare the public service quality in the South East Asian region. We found that the Indonesian public service index published by TheGlobalEconomy.com is at a medium level throughout the research period. Performance also improved slightly from 6.1 to 5.3 over 2016–2019. In South-East Asia, Indonesia ranks only 6th in public service over 2016–2019, behind Singapore, Brunei, Malaysia, Thailand, and Vietnam.
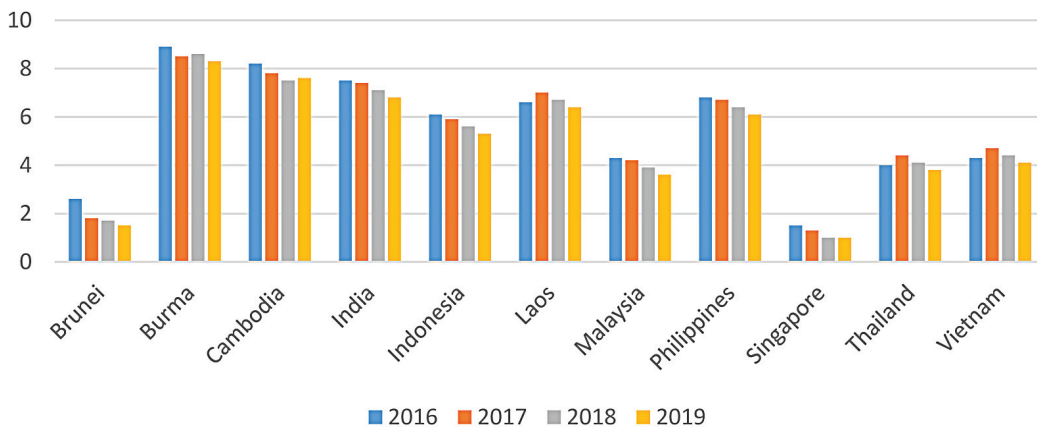
Figure 2. **Comparison of public service index in South East Asian Countries, 2016–2019**

Notes: 0 = high; 10 = low.

Source: Processed data, *TheGolbalEconomy.com.*

As for the independent variables, local government internal audit function maturity ($IAFMAT_{it}$) averages at 2.207, indicating that the average maturity is at level 2 (developing). The highest value for internal audit function maturity is 3.991, which nearly reaches level 4 (managed and measured), while the lowest value is 0.153. The average value for the internal audit function expertise ($IAFEXPERT_{it}$) is 0.722, which means that the average composition of the internal audit function in Indonesian local governments is 72.2% of expert auditors and 27.8% of qualified auditors. The highest value is 1, while the lowest is 0.

Local government asset ($ASSET_{it}$) is averaging at 12.381 with an actual value of 2,404,362,800,007 rupiahs. The mean value of local government revenue ($REVENUE_{it}$) is 12.114 with an actual value of 1,300,169,578,033 rupiahs, while local government expenditure ($EXPEND_{it}$) is 12.059 with an actual value of 1,145,512,941,446 rupiahs. Local government complexity ($LGCOMP_{it}$) is averaging 51 working units. The most complex local government has 209 working units, while the least complex has only 22 working units. The observations of our study, in terms of type ($LGTYPE_{it}$), consist of 1660 (81.7%) district local government observations, and the rest is 372 (18.3%) city local government observations. As for the local government population ($LGPOP_{it}$), the average is 12.619, with an actual value of 302,247. Finally, the average human development index ($LGHDI_{it}$) is 66.374, with a maximum value of 86.11 and a minimum value of 21.12. We also verified the correlation between our research variables, presented in Table 3.

Panel data regression analysis

The hypotheses testing is performed with the panel data regression analysis. The results show that the random effect is the best estimation for all research models. Our findings demonstrate that the $IAFMAT_{it}$ positively affects the quality of local government public services in the aggregate, primary, and secondary public services. Thus, the results confirm the hypotheses. $IAFEXPERT_{it}$ shows an insignificant effect on aggregate and primary quality of public services. The result only appears to be significant when it comes to secondary public service quality. The result of the panel data regression analysis is presented in Table 4.

We further conducted a subsample analysis to figure out whether the same findings would apply in a different type of local government. The research observations based on the type of local government are classified into district and city local governments. The results are presented in Table 5.

The regression results when examining district local governments show relatively similar findings. $IAFMAT_{it}$ shows consistent findings with a significant positive effect both in the aggregate, primary, and secondary quality of public services. $IAFEXPERT_{it}$, shows a positive effect on aggregate and secondary quality of public services but it is insignificant for primary public services. As for the examination in city local governments, we only find a positive impact of $IAFMAT_{it}$ on aggregate and primary quality of public services. Meanwhile, $IAFEXPERT_{it}$ shows no significant effect on all dimensions of public services.

Table 3

Correlation matrix

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
(1) AGGREGATEit	1.000											
(2) PRIMARYit	0.347*** 0.000	1.000										
(3) SECONDARYit	0.243*** 0.000	0.369*** 0.000	1.000									
(4) IAFMATit	0.264*** 0.000	0.266*** 0.000	0.163*** 0.000	1.000								
(5) IAFEXPERTit	0.116*** 0.000	0.113*** 0.000	0.092*** 0.000	0.130*** 0.000	1.000							
(6) ASSETit	0.193*** 0.000	0.186*** 0.000	0.176*** 0.000	0.207*** 0.000	0.151*** 0.000	1.000						
(7) REVENUEit	0.211*** 0.000	0.204*** 0.000	0.196*** 0.000	0.199*** 0.000	0.179*** 0.000	0.373*** 0.000	1.000					
(8) EXPENDit	0.247*** 0.000	0.240*** 0.000	0.222*** 0.000	0.214*** 0.000	0.205*** 0.000	0.816*** 0000	0.435*** 0.000	1.000				
(9) LGCOMPit	0.067*** 0.004	0.053** 0.020	0.054** 0.015	0.075*** 0.000	0.030 0.287	0.143*** 0.000	0.213*** 0.000	0.212*** 0.000	1.000			
(10) LGTYPEit	0.124*** 0.000	0.141*** 0.000	0.026 0.301	0.167*** 0.000	0.115*** 0.000	0.149*** 0.000	-0.087** 0.015	0.007*** 0.000	-0.118*** 0.000	1.000		
(11) LGPOPit	0.326*** 0.000	0.313*** 0.000	0.299*** 0.000	0.211*** 0.000	0.155*** 0.000	0.388*** 0.000	0.395*** 0.000	0.314*** 0.000	0.256*** 0.000	-0.016 0.516	1.000	
(12) LGHDIit	0.423*** 0.000	0.428*** 0.000	0.269*** 0.000	0.271*** 0.000	0.083*** 0.000	0.316*** 0.000	0.195*** 0.000	0.271*** 0.000	0.025 0.189	0.352*** 0.000	0.329 0.000	1.000

Notes: *** significant at 0.01 level; ** significant at 0.05 level; * significant at 0.1 level.

Table 4

Panel data regression result

Dependent:	AGGREGATE$_{it}$	PRIMARY$_{it}$	SECONDARY$_{it}$
IAFMAT$_{it}$	0.0820***	0.0832***	0.0585***
	(0.0167)	(0.0176)	(0.0196)
IAFEXPERT$_{it}$	0.102	0.0733	0.151*
	(0.0671)	(0.0706)	(0.0788)
ASSET$_{it}$	-0.125	-0.176*	0.108
	(0.0865)	(0.0912)	(0.0965)
REVENUE$_{it}$	-0.148	-0.123	-0.361**
	(0.140)	(0.148)	(0.173)
EXPEND$_{it}$	0.188	0.245	-0.00178
	(0.166)	(0.174)	(0.202)
LGCOMP$_{it}$	0.000222	-0.000008	-0.000626
	(0.000564)	(0.000593)	(0.000650)
LGTYPE$_{it}$	-0.141***	-0.117**	-0.210***
	(0.0452)	(0.0478)	(0.0470)
LGPOP$_{it}$	0.0968***	0.0884***	0.162***
	(0.0241)	(0.0253)	(0.0266)
LGHDI$_{it}$	0.0266***	0.0277***	0.0183***
	(0.00244)	(0.00259)	(0.00255)
Constant	0.550	0.331	2.008*
	(1.044)	(1.090)	(1.162)
Observations	1,891	1,934	1,899
R-squared	0.248	0.238	0.141
Chi-square	327.248	306.826	223.155
Prob > chi2	0.000	0.000	0.000

Notes: *** significant at 0.01 level; ** significant at 0.05 level, * significant at 0.1 level.

Table 5

Results of subsample analysis

Dependent:	AGGREGATE$_{it}$	PRIMARY$_{it}$	SECONDARY$_{it}$
Panel A. District local governments			
IAFMAT$_{it}$	0.0758***	0.0794***	0.0624***
	(0.0194)	(0.0200)	(0.0224)

Dependent:	AGGREGATE$_{it}$	PRIMARY$_{it}$	SECONDARY$_{it}$
Panel A. District local governments			
IAFEXPERT$_{it}$	0.127*	0.0981	0.185**
	(0.0733)	(0.0761)	(0.0850)
ASSET$_{it}$	-0.212*	-0.258**	-0.00628
	(0.111)	(0.116)	(0.122)
REVENUE$_{it}$	-0.186	-0.157	-0.389**
	(0.148)	(0.154)	(0.181)
EXPEND$_{it}$	0.288	0.307	0.149
	(0.193)	(0.200)	(0.230)
LGCOMP$_{it}$	0.000146	0.000159	-0.000662
	(0.000634)	(0.000658)	(0.000733)
LGPOP$_{it}$	0.102***	0.0963***	0.156***
	(0.0270)	(0.0281)	(0.0294)
LGHDI$_{it}$	0.0283***	0.0291***	0.0206***
	(0.00266)	(0.00279)	(0.00273)
Constant	0.700	0.800	1.852
	(1.240)	(1.282)	(1.346)
Observations	1,535	1,567	1,542
R-squared	0.261	0.249	0.161
Chi-square	276.501	258.203	209.101
Prob > chi2	0.000	0.000	0.000
Panel B: City local government			
IAFMAT$_{it}$	0.0949***	0.106***	0.0512
	(0.0307)	(0.0335)	(0.0381)
IAFEXPERT$_{it}$	0.199	0.218	0.0860
	(0.170)	(0.184)	(0.212)
ASSET$_{it}$	0.149	0.126	0.480***
	(0.135)	(0.148)	(0.164)
REVENUE$_{it}$	0.594	0.564	0.220
	(0.475)	(0.492)	(0.605)
EXPEND$_{it}$	-0.264	-0.118	-0.569
	(0.388)	(0.410)	(0.503)
LGCOMP$_{it}$	0.000014	0.000266	0.000347
	(0.00107)	(0.00122)	(0.00129)

Dependent:	AGGREGATE$_{it}$	PRIMARY$_{it}$	SECONDARY$_{it}$
Panel B: City local government			
LGPOP$_{it}$	-0.0458	-0.0783	0.0646
	(0.0569)	(0.0614)	(0.0696)
LGHDI$_{it}$	0.00441	0.00502	-0.0102
	(0.00631)	(0.00719)	(0.00741)
Constant	-3.150	-3.828*	0.401
	(2.056)	(2.165)	(2.534)
Observations	356	366	356
R-squared	0.153	0.148	0.099
Chi-square	45.224	39.153	33.214
Prob > chi2	0.000	0.000	0.000

Notes: *** significant at 0.01 level; ** significant at 0.05 level, * significant at 0.1 level.
Source: Compiled by the authors.

Discussion on empirical findings

Overall, we find that IAFMAT$_{it}$ positively affects the quality of public services provided by local government. A higher level of maturity of the internal audit function allows local governments to more fully monitor the implementation of local government programs. In line with Abdolmohammadi, D'Onza, and Sarens (2016), IAFMAT$_{it}$ plays a great role in improving audit quality. A higher IAFMAT$_{it}$ provides an internal audit function with better audit procedures (DeSimone et al., 2019). Internal audit function with a higher IAFMAT$_{it}$ is also more likely to be equipped with a more advanced audit system thanks to having better information technology adoption (Smidt, Ahmi, Steenkamp, van der Nest, and Lubbe, 2019). Internal audit function can also maximize e-government by the local government to ensure that public accountability is also fulfilled (Aritonang, 2017). Therefore, the audit process will be more consistent, precise, and comprehensive (Sarens, Allegrini, D'Onza, and Melville, 2011). With better audit quality, the local government is able to meet the specified quality of public services.

We demonstrated that the effect IAFEXPERT$_{it}$ appears to be significant in the secondary quality of public services. Considering the significant effect of IAFMAT$_{it}$ in all tests, the role of IAFEXPERT$_{it}$ should be optimized for improving the supervision of local government public service delivery. By having expert auditors with a higher level of competency, the supervision of local government programs implementation in delivering public services will be more detailed (Huefner, 2010). In addition, higher IAFEXPERT$_{it}$ indicated a significant contribution in improving local government performance (Ma'ayan and Carmeli, 2016), information transparency (Pamungkas, 2018), and local government's commitment to the public (Lewis, 2019). Therefore, higher

$IAFEXPERT_{it}$ increases the supervision of public service delivery to a greater level and reaches secondary public services delivery. From these results it can be concluded that $IAFMAT_{it}$ and $IAFEXPERT_{it}$ variables should be continuously improved to enhance the supervision of public service delivery. Public service should be reformed, re-invented, and modernized repeatedly over time (Aritonang, 2017).

Our empirical results regarding the variables of the internal audit function imply that internal audit function supervision is essential in decentralization in Indonesia in managing the agency problem that exist in the relationship between the public and local government executives. Indeed, the role of local government in delivering high-quality public services must be continuously monitored as a part of public accountability. In this context, the internal audit function supports local government in achieving the goals of New Public Management (NPM) and New Public Service (NPS). This can be achieved through continuous supervision to improve the effectiveness, efficiency, and compliance at the local government level.

Regarding our control variables, we overall found no strong effect of the financial characteristics of local governments, both $ASSET_{it}$, $REVENUE_{it}$, and $EXPEND_{it}$ on the quality of public services. Local governments in Indonesia have not fully benefited from the potential of their assets and thus, the assets have not been optimized for public service quality. As for the revenue, many local governments in Indonesia are still dependent on the transfers from central government, so the effect is not significant. The insignificant effect of local government expenditure indicates that the capital expenditure budget that focuses on public service needs to be increased and wellimplemented (Lewis, 2019). These findings emphasize that the role of the internal audit function needs to be improved continuously to make sure that the financial management and budget implementation are conducted properly. It is important to realize desirable outcomes, one of which is by achieving higher public service quality.

Our findings also demonstrate the insignificant effect of $LGCOMP_{it}$. The $LGCOMP_{it}$ depends on the size, population, financial, culture, and other local factors that may apply differently in different regions. We discover that $LGPOP_{it}$ and $LGHDI_{it}$ provide a positive effect on public service quality. Local governments with larger populations tend to be more developed than those with lower populations (Dalimunthe, Fadli, and Muda, 2015). The public service quality can be expected to be higher. Higher $LGHDI_{it}$ also indicates that local government has better achievement in education, health, and economy so that it results in higher public service quality achievement (Setyaningrum, Wardhani, and Syakhroza, 2017). Therefore, the quality of public services in local governments with a larger population and better human development can be expected to be higher.

Robustness check

We conducted a robustness test to check the consistency of our findings. We employed a variable proxy change of our dependent variables to perform the robustness check. The public service quality measurement is changed into

dummy variable: 1 for local governments of which the quality of public services level is higher than average; and 0 for local governments of which public service quality level is below average. We evidence consistent results for the IAFMAT effect on all public service quality measures. The effect of IAFEXPERT shows a consistent coefficient but a different significance. The results are presented in Table 6.

Table 6

Robustness test using logistic regression

VARIABLES	AGGREGATE_D	PRIMARY_D	SECONDARY_D
IAFMAT	0.417***	0.405***	0.228***
	(0.0757)	(0.0742)	(0.0730)
IAFEXPERT	0.840***	0.717**	0.363
	(0.301)	(0.296)	(0.290)
ASSET	-0.152	-0.0826	0.219
	(0.357)	(0.350)	(0.347)
REVENUE	-0.589	-0.559	-0.678
	(0.670)	(0.668)	(0.698)
EXPEND	1.423*	0.746	0.776
	(0.795)	(0.782)	(0.794)
LGCOMP	-0.00186	-0.000701	-0.00317
	(0.00246)	(0.00244)	(0.00235)
LGTYPE	-0.170	-0.0764	-0.505***
	(0.171)	(0.169)	(0.162)
LGPOP	0.0669***	0.0698***	0.0327***
	(0.0104)	(0.0104)	(0.00916)
LGHDI	0.211**	0.230**	0.391***
	(0.0982)	(0.0972)	(0.0963)
Constant	-16.64***	-10.03**	-11.36***
	(4.383)	(4.254)	(4.269)
Observations	1,891	1,934	1,899
R-squared	0.097	0.088	0.073
Chi-square	254.784	236.532	221.312
Prob > chi2	0.000	0.000	0.000

Notes: *** significant at 0.01 level; ** significant at 0.05 level, * significant at 0.1 level.

The robustness check is also conducted for the subsample analysis, as presented in Table 7. The result is consistent in IAFMAT for the analysis in district local governments while the result varies a little in the city local government analysis with insignificant effect on the quality of secondary public services. The result of robustness analysis of the IAFEXPERT variable in district local government shows a consistent effect on the overall quality of public services with different effect significance on the primary and secondary quality of public services. Moreover, IAFEXPERT shows an insignificant effect on all measures of public service quality in the city local government analysis.

Table 7

Robustness test in subsample analysis

VARIABLES	AGGREGATE_D	PRIMARY_D	SECONDARY_D
Panel A: District local governments			
IAFMAT	0.400***	0.382***	0.292***
	(0.0850)	(0.0830)	(0.0827)
IAFEXPERT	1.007***	0.780**	0.480
	(0.320)	(0.313)	(0.309)
ASSET	-0.896**	-0.636	-0.374
	(0.440)	(0.428)	(0.432)
REVENUE	-0.729	-0.662	-0.855
	(0.706)	(0.703)	(0.744)
EXPEND	2.102**	1.267	1.708*
	(0.896)	(0.875)	(0.894)
LGCOMP	-0.00155	-0.00136	-0.00380
	(0.00274)	(0.00269)	(0.00267)
LGPOP	0.0731***	0.0730***	0.0405***
	(0.0113)	(0.0111)	(0.00992)
LGHDI	0.191*	0.239**	0.318***
	(0.107)	(0.106)	(0.104)
Constant	-14.19***	-8.501*	-12.89***
	(4.871)	(4.747)	(4.814)
Observations	1,535	1,567	1,542
R-squared	0.092	0.079	0.067
Chi-square	194.656	172.121	143.784
Prob > chi2	0.000	0.000	0.000

VARIABLES	AGGREGATE_D	PRIMARY_D	SECONDARY_D
Panel B: City local governments			
IAFMAT	0.542***	0.488***	0.0192
	(0.176)	(0.172)	(0.165)
IAFEXPERT	-0.827	0.241	-0.712
	(1.044)	(0.995)	(0.953)
ASSET	1.620**	1.428*	1.663**
	(0.790)	(0.746)	(0.728)
REVENUE	3.452	2.111	2.320
	(2.841)	(2.817)	(2.869)
EXPEND	-1.900	-1.596	-3.365
	(2.420)	(2.513)	(2.538)
LGCOMP	-0.00755	-0.000936	-0.00132
	(0.00573)	(0.00624)	(0.00525)
LGPOP	0.0196	0.0402	-0.0309
	(0.0322)	(0.0321)	(0.0300)
LGHDI	-0.208	-0.256	0.409
	(0.309)	(0.299)	(0.298)
Constant	-37.49***	-24.38**	-10.32
	(12.60)	(11.37)	(11.15)
Observations	356	367	357
R-squared	0.119	0.086	0.072
Chi-square	55.644	39.860	35.793
Prob > chi2	0.000	0.000	0.000

Notes: *** significant at 0.01 level; ** significant at 0.05 level, * significant at 0.1 level.

Conclusion

This study examines the role of the maturity and expertise of the internal audit function in supervising the quality of local government public services. We discovered that the quality of Indonesian local government public services was at the high level in 2016–2019 with no significant improvement during the observation period. Our result generally showed that internal audit function maturity substantially contributed to improving the quality of public services in Indonesian local governments. Further, the expertise of local government internal auditors significantly supported the internal auditing process to raise the

quality of public services to a higher level. Our findings bring several implications for public service delivery by local government in Indonesia. Firstly, local government should maximize the role of internal audit function supervision to bring a significant improvement on public service quality. Thus, the Financial and Development Supervisory Agency (BPKP) should continuously develop the maturity and expertise of internal audit function in local governments with various programs for a better internal audit process. The introduction of technology can lead to significant improvements through better implementation of e-government. The local government should also provide a proper budget for public service delivery to show the commitment to bringing good public service to the people. Finally, local government should improve New Public Management (NPM) and New Public Service (NPS) goals through more effective and efficient bureaucracy and good quality of public services.

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EFFECTIVE LOCAL GOVERNANCE: LARGE OR SMALL UNITS (THE ARMENIAN CASE)

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Abstract. The purpose of this research was to identify the impact of the size of local government units on the local public services, whether small or large local government units are preferable for the implementation of effective local governance. A whole complex of financial and socio-economic indicators from 465 amalgamated communities in Armenia, as well as the newly formed 52 clusters, were collected and analyzed, by creating a database and polynomial regression models to quantitatively measure the impact of the size of local government units on the provision of public services. The analysis has quantitatively proven that for certain public services it would be more favorable to have larger local government units, however, the small and medium-size consolidated clusters do not provide a significant increase in the provision of public services. Thus, for having substantial outcomes from consolidation the new local government units have to be much larger than they were before. Moreover, effective local governance requires both large and small local government units with its own powers and responsibilities. Disclosure of such relationships can be useful not only for ensuring better reforms in territorial administration and local governance but also for contributing to the theory and practice of public administration and local government.

Keywords: local governance, public administration, consolidation, enlargement, polynomial regression.

Introduction

Historically almost all social units with any kind of public administration have sought to control larger territories, resources, and population, but in recent decades a movement against the size of administrative units has emerged in the scholarly literature. "We must eliminate communities the size of Chicago", said Leopold Kohr, one of the pioneers of this movement, when discussing the problem of Chicago's high crime rate (Kohr, 1978, p. 35). In his famous "Small is Beautiful", although not directly referring to local self-government, Schumacher states that people who organise themselves into small units will take better care of their land or other natural resources than anonymous corporations or megalomaniacal governments (Schumacher, 1973, p. 22). But even the most enthusiastic followers of "small is beautiful" do not insist of the universality of their concept. "You do not make non-viable people viable by putting large numbers of them into one huge community, and you do not make viable people non-viable by splitting a large municipalities into a number of smaller, more intimate, more coherent and more manageable groups" (Schumacher, 1973, p. 50). Thus, it is necessary to explore all the advantages and disadvantages of consolidation (and fragmentation) of communities and to take into account the characteristics when solving the scale problem. The experience with administrative reforms in different countries also shows that defining an optimal size of communities is a serious challenge and many factors should be taken into account The consolidation process must be based on a study of the characteristics and needs of each settlement or neighborhood, and only after such an in-depth study it could be concluded whether or not consolidation will add value to the settlement

Certainly, there are several arguments in favor of consolidation of local government units, and these arguments seem to be logically well-grounded. In his study on the size of local governments in Central and Eastern Europe, Pawel Swianiewicz has pointed out the following advantages of consolidation:
– There are economies of scale in many local services. The marginal cost of providing services is lower when the total amount of services provided is larger; Small local governments incur costs associated with spillover effects. Many large cities and their suburbs, which have separate local governments, provide a good example of such a phenomenon. Citizens living in suburbs pay their taxes locally, but they still benefit from many services delivered in the center of the city. The spillover effect can never be eliminated, but it can be reduced if local government system is territorially consolidated;
– Large local governments can provide more functions, which may lead to more public interest and participation in local politics;

– Territorial consolidation provides more space for interest groups representing a pluralistic society. In big communities, it is easier to avoid nepotism or other forms of political clienteles. It helps citizens influence local politics between the election periods. One potential danger is related to the presence of dominant pressure groups. Such a danger is smaller in large territorial units;

– In large local governments, there is a greater opportunity for a strong civil society. There is a greater chance that a dense network of voluntary organizations will develop;

– Large local governments enable the promotion of local economic development. This is the case because a larger scale enables complex, coherent planning and also makes it easier to finance expensive infrastructure investment projects, crucial for promoting economic development (Swianiewicz, 2002, pp. 8–10).

At the same time, several important factors argue for the existence of small communities:

– Contact between council members and citizens is much closer and politicians are more accountable to their local communities;

– In small units, citizens can "vote with their feet", i.e. choose their preferred ratio of local taxes vs. to publicly provided services;

– Small local communities are more homogeneous, and it is easier to implement policies that meet the preferences of a large proportion of citizenry;

– There are more incentives for citizen participation in small communities as an individual's voice carries more weight (although effective citizen participation is also possible in large local government units, depending on several factors (Hayrapetyan, 2019));

– Small local governments are less bureaucratic;

– The economies of scale argument is irrelevant since it is possible to separate responsibility for service from actual delivery. Many services can be outsourced to the private sector and, in such a situation, economy of scale depends on the size of the private company;

– Fragmentation supports competition among local governments in attracting capital to those places where it will be more productive;

– Fragmentation supports experimentation and innovation (Swianiewicz, 2002, pp. 10–11).

Many estimates have been made to measure the optimal size of local government based on cost efficiency (Pevcin, 2014, pp. 4–7), ease of entrepreneurship (Harasym et al., 2017, pp. 15–25) and other factors, and some authors have obtained important outcomes, but overall it is extremely difficult to determine the optimal size and number of municipalities, because estimation procedures affect the results (Pevcin, 2014, p. 8).

It is worth mentioning that in addition to Central and Eastern European countries, which encountered a challenge of building entirely renovated systems of local self-government, the issue of the optimal size of local government units is widely discussed in the academic societies of countries with relatively new cultural and social diversity, such as Canada or Australia, and it is important

that the methodology of assessing the size of local government in much under focus. The main criteria discussed for evaluation are economic efficiency or financial performance, effective delivery of preferred local services effective local democracy and social capital, and the ability to cooperate with state governments (Abelson, 2016, p. 44).

Evaluating optimal size is complicated not only because of the multiple criteria to be assessed but also because of the variety of services provided by local governments. If considering only one service, the application of several well-known approaches, such as data envelopment analysis to estimate scale efficiency, would be appropriate. "However, when dealing with decision-making units, such as local councils, which provide more than one service or produce more than one output, it becomes more difficult to evaluate the optimal scale for each service" (Marques et al., 2015, p. 2). To overcome this, Marques et al. estimated partial efficiencies and cost shares of each service in their study (Marques et al., 2015, pp. 7–14).

It becomes obvious, that both large and small communities have their advantages, and no government would be willing to sacrifice these attributes. For small rural communities in particular, both internal and external administrations are needed (Warner, 2012, pp. 29–30).

To save all the benefits of consolidation and avoid its drawbacks, a multi-tiered system has recently been frequently discussed as an alternative to singular size optimization efforts. Having studied a multi-tiered system of Australia, Abelson concludes, that the functions typically allocated to lower tier local governments are relatively insignificant in financial terms, but not in terms of quality-of-life impacts.

For this reason, lower-level councils require primarily strategic, but not financial capacity. The larger councils of upper tier, on the other hand, usually do not bring financial savings, but might have more capacity for providing vision on territorial development (Abelson, 2016, pp. 14–15). "Multi-level cooperation tends to be more effective when there is firm political leadership at the municipal level.

In the case of infrastructure project approval and federal ownership, this is particularly notable" (Young, 2013, p. 6). Robert Young concludes the observation of Canadian multilevel system of governance with the idea, that there are many factors that make some municipal governments more successful than others – size, electoral significance, resources, and so on – but it is clear that those with a comprehensive focus are more likely to try to succeed in the arenas of multilevel governance (Young, 2013, p. 15). In other words, just having both small and large units at different tiers of local government is not enough for benefiting from their advantages. A well-developed system of communication and cooperation between tiers can be vital for the efficiency of the entire local government.

Based on the previous experience with local government in Armenia and the preliminary results of the literature review it was hypothesized that:
– *For certain public services large units are preferable, as they would provide considerable economies of scale and thus more effective local governance.*

– *For certain public services small units are preferable, because large units would not provide significant economies of scale but would tend to alienate local government from the population for those services which require fast reflection and more participation.*
– *More than one level is needed for effective delivery of public services at the local level*

Methodology

A whole set of financial and socio-economic indicators from 465 amalgamated communities, as well as the newly formed 52 clusters were collected and analyzed, by creating a new database. The indicators were as follows:
– Relative share of taxes and fees in total budget revenues,
– Relative shares of government grants in total budget revenues,
– Relative shares of capital expenditures in total budget expenditures,
– Relative shares of general administrative expenditures in total budget expenditures,
– Relative shares of expenditures in various functional areas in total budget expenditures,
– The number of positions in municipalities, municipal non-profit organizations and budget institutions.

These indicators were selected in accordance with the corresponding budget sections of the municipalities reflecting revenues and expenditures before and after the consolidation. The last indicator was included to reveal whether the consolidation has led to the desired optimization effect of (the explicit goal stated by the government to support the process).

The database, in turn, was used to evaluate the effectiveness of local governance before and after the enlargement process through the analysis of the financial and economic indicators. In addition, the database was used to build polynomial non-linear regression models to reveal the impact of local government unit size on public service delivery.

The process of large-scale municipal consolidation in Armenia started in 2011, when the government adopted a new concept paper on "Formation of Inter-municipal Unions and Enlargement of Communities" (the single-tier local government units in Armenia are called municipalities).

On February 14, 2016, local government elections were held in three regions, as a result of which the local authorities of the first three enlarged clusters were formed. These clusters included 22 former municipalities. Afterwards, the process of municipal consolidation continued, as a result of which 15 new municipalities were established through the unification of 118 communities.

On June 9, 2017, the National Assembly laid the foundation for the start of the third phase of enlargement. With this, 325 communities from a number of regions were united, as a result of which 34 new enlarged communities were formed. Thus, at the end of the third and currently the last phase, a total of 465 communities were amalgamated in Armenia, forming 52 new municipalities or clusters (Tab. 1).

Table 1

The three stages of municipal consolidation in Armenia

Province	Newly established municipality	Number of former municipalities	Number of settlements
First stage (pilot program)			
Lori	Tumanyan	7	8
Syunik	Tatev	8	8
Tavush	Dilijan	7	9
Total: first stage	*3*	*22*	*25*
Second stage			
Ararat	Urtsadzor	3	3
Shirak	Amasia	9	10
	Ashotsk	11	11
	Arpi	9	15
	Sarapat	15	15
Syunik	Goris	10	13
	Meghri	13	15
	Gorayk	4	4
	Tegh	7	7
Vayots Dzor	Jermuk	4	5
	Vayk	5	6
	Zaritap	9	12
Tavush	Ayrum	8	8
	Noyemberyan	9	9
	Koghb	2	2
Total: second stage	*15*	*118*	*135*
Third stage			
Aragatsotn	Aparan	21	21
	Alagyaz	11	11
	Aragatsavan	4	4
	Tsaghkahovit	10	10
Gegharkunik	Tchambarak	11	13
	Vardenis	4	4
	Geghamasar	18	19
	Shoghakat	6	6

Province	Newly established municipality	Number of former municipalities	Number of settlements
Lori	Alaverdi	6	7
	Akhtala	5	9
	Stepanavan	3	4
	Tashir	9	12
	Gyulagarak	7	7
	Lori Berd	9	9
	Metsvan	4	4
	Shnogh	3	3
	Sarchapet	7	8
	Odzun	8	9
Kotayk	Byureghavan	3	3
	Yeghvard	6	6
	Charentsavan	6	6
	Aknunk	8	8
	Meghradzor	5	7
	Jrvezh	3	3
Shirak	Ani	17	19
	Akhuryan	8	8
	Marmashen	15	16
Syunik	Kapan	32	38
	Sisian	29	32
	Kajaran	6	21
Vayots Dzor	Areni	9	11
	Gladzor	3	3
	Yeghegis	12	16
Tavush	Berd	17	17
Total: third stage	*34*	*325*	*374*
Total: three stages	*52*	*465*	*534*

Sources: Compiled by authors (- hereinafter, unless otherwise noted).

Data analysis and key findings

The need for the municipality expansion was primarily justified by the reduction of unnecessarily excessive salaries and the saving of budgetary expenditures,

which would allow the funds saved to be used for the provision of public services to the population of the municipality.

The government also hoped to increase the relative shares of the local taxes and fees through the possible synergy and a combined local tax policy. However, the experience of the first year shows that the situation has not changed significantly after the expansion. In multi-settlement *communities considerable share of budgetary expenditures is addressed to job retention.*

The experience of already enlarged communities shows that in most cases the links **between local authorities and the population has loosened.** As a partial solution to this issue, the institute of the administrative governors of the settlements was introduced. In most cases, they are former village governors, however they do not completely replace municipal governors. The latter used to have clear powers, which now have almost fully been reserved for the head of the enlarged municipality, leaving rather formal and inessential powers to the administrative governors.

The chart shows that as a result of the enlargement, local tax and fee revenues in the newly formed municipal budget revenues did not change significantly as a result of the expansion, and in fact only a mathematical sum was observed, with no synergistic or similar effects.

If previously local taxes and duties formed 21.2% of the combined budget revenues of 465 merged municipalities, now the same indicator changed to 21.6% in the newly formed 52 enlarged municipalities (Fig. 1).
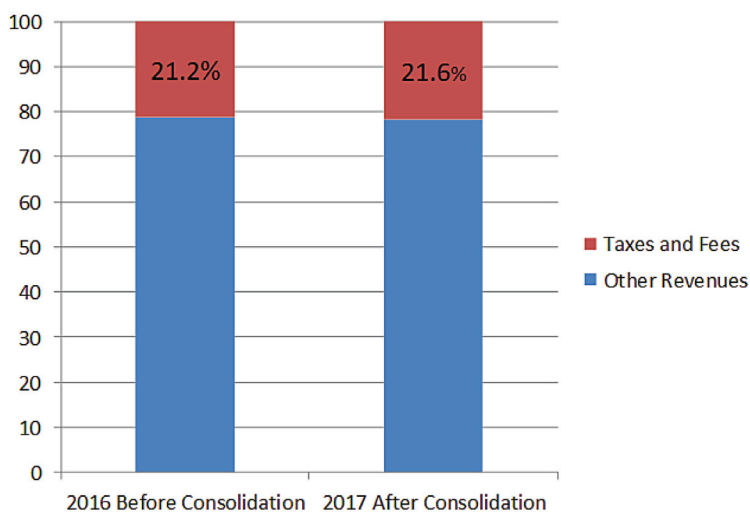

Figure 1: **Relative share of taxes and fees in total budget revenues of 465 municipalities before and after consolidation in 52 clusters**

Sources: compiled by the authors according to their own calculations, based on data from the Ministry of Territorial Administration and Infrastructure of Armenia (- hereinafter unless otherwise stated).

Consolidation has resulted in only minor changes in the relative shares official state transfers in the total revenues of the communities' budgets. Before the consolidation the relative share of the state transfers was 65% of total revenues, which changed to 61.9% after the consolidation. However, this decrease is not due

to the growth of own revenue sources, but rather due to the decrease in subventions, which are the targeted transfers for certain projects (Fig. 2).
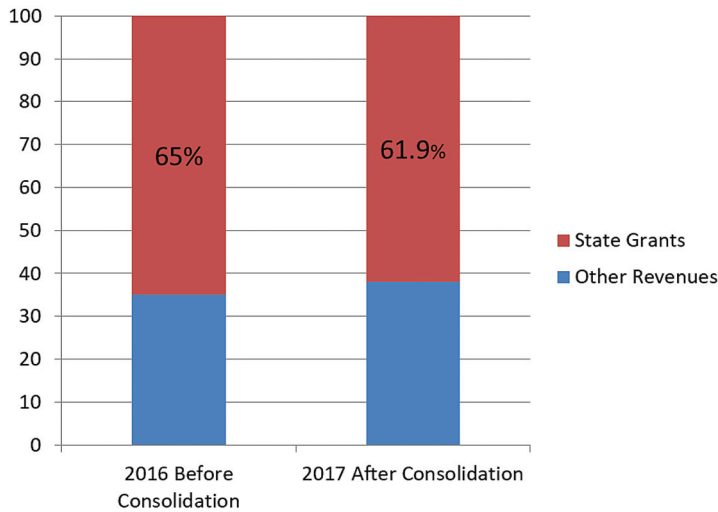

Figure 2: **Relative shares of government grants in total budget revenues of 465 municipalities before and after consolidation in 52 clusters**

Since one of the main official justifications for the municipalities' enlargement policy was the possible growth of capital projects in the newly formed large clusters ensuring better opportunities for the sustainable development of municipalities, it would be noteworthy to compare and reveal the actual changes that the consolidation process has brought about in the volumes of capital expenditures of local budgets. Symbolically, the chart shows that after the consolidation the relative share of capital expenditures in total budget expenditures remained exactly the same – 12.1% (Fig. 3).
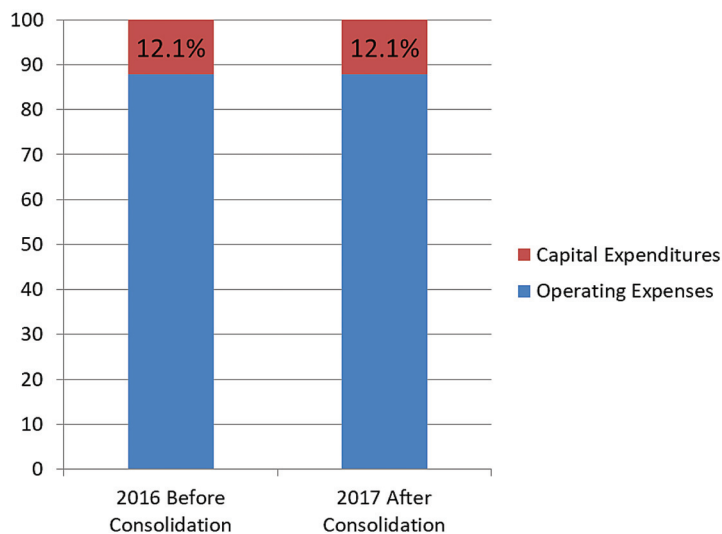

Figure 3: **Relative shares of capital expenditures in total budget expenditures of 465 municipalities before and after consolidation into 52 clusters**

Meanwhile, the enlargement of communities has resulted in a significant reduction in general administrative expenditures as a share of total budget expenditures – from 46.9% to 39%. This type of expenditure essentially reflects the municipalities' staff maintenance costs. It can be argued that some significant increase in the efficiency is observed due to the reduction of municipalities' staff.

However, the experience of the first years after consolidation has shown that municipal staff members who were unemployed as a result of the unification of municipalities and the elimination of unnecessary positions, were artificially transferred to the municipal non-profit organizations or, the so called, budgetary institutions in many cases without even a slight professional relevance to their new positions.

The latter process was launched by an informal political decision not to raise tensions rise against the state authorities that initiated the administrative-territorial reforms (Fig. 4).
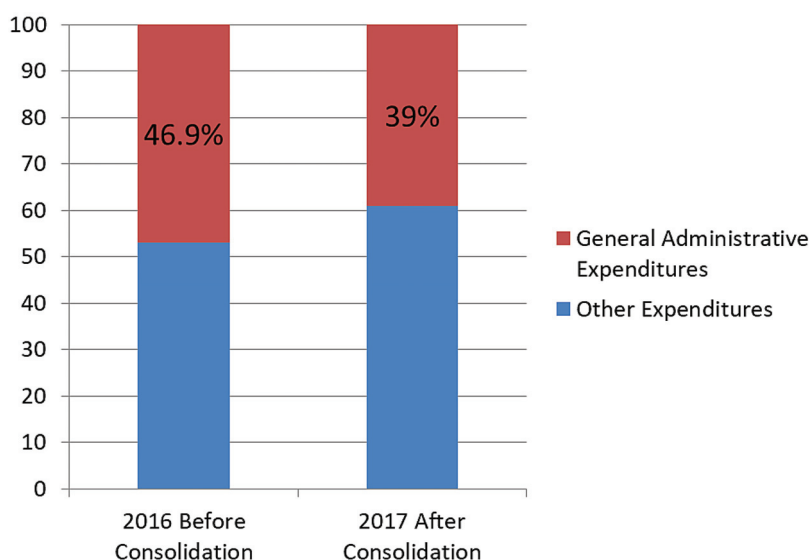
Figure 4: Relative shares of general administrative expenditures in total budget expenditures of 465 municipalities before and after consolidation into 52 clusters

The chart below clearly shows that after consolidation of 307 local government units into 38 enlarged clusters the number of positions in municipalities has been reduced, but instead new positions have been added to the municipal non-profit organizations and budgetary institutions from 4269 to 4614. However, the total number of positions decreased from 6729 to 6528 (Fig. 5).

When evaluating the impact of the enlargement of local government units on the effectiveness of local governance, it is important to analyze how certain public services, provided by local governments to the population have changed. For this purpose, the relative shares of budgetary expenditures in to-

tal expenditures through several key functional spheres before and after the consolidation have been analyzed (Fig. 6).
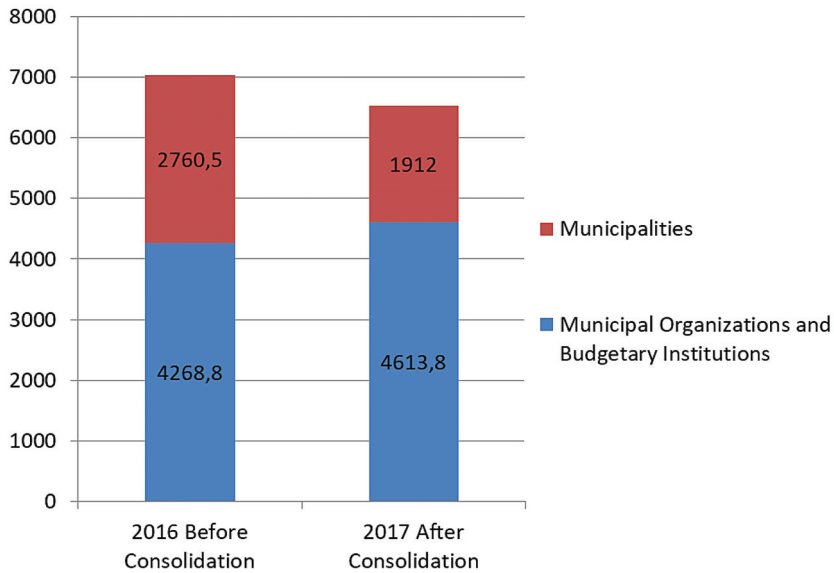
Figure 5: **The number of positions in municipalities, municipal non-profit organizations and budgetary institutions of 307 municipalities before and after consolidation into 38 clusters (*this particular data on the positions in the municipalities was available only for 307 out of 465 amalgamated communities*)**
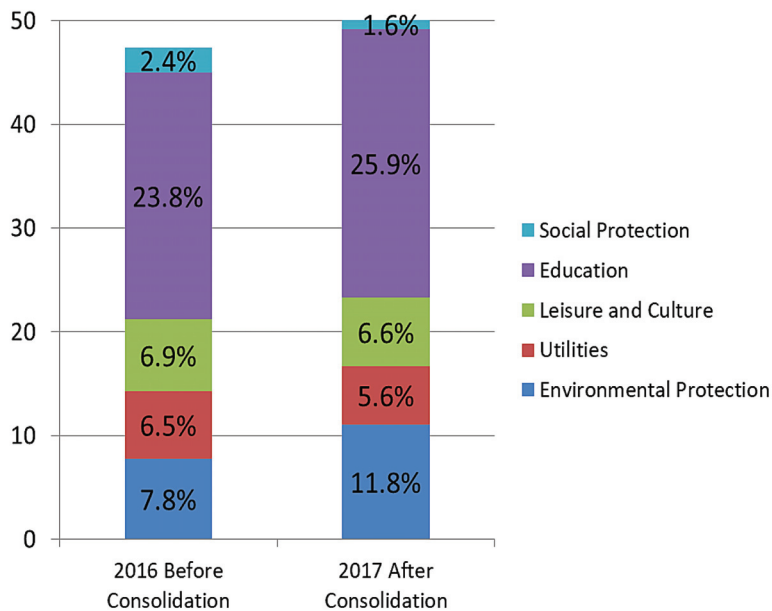
Figure 6: **Relative shares of expenditures in several functional areas in total budget expenditures of 465 municipalities before and after consolidation in 52 clusters**

Figure 6 shows that certain public services were reduced. In particular, the volume of public services in the area of social protection has significantly decreased. If before the enlargement the relative share of budgetary expenditures on social protection in total expenditures was 2.4%, after it was only 1.6%. Not only has the relative share of social protection services delivery decreased, but also the absolute value, from 455mln AMD (Armenian dram) to 323mln AMD.

A similar pattern can be observed for utilities. Consolidation has led to a decline in the relative share of spending on utilities from 6.5% to 5.6%, while the absolute value has fallen from AMD 121 million to AMD 113 million The absolute value of expenditures in leisure and culture has increased to some extent, from 130mln AMD to 132mln AMD, however the relative share in total budgetary expenditures has again decreased from 6.9% to 6.6%. It can be claimed that for this functional direction there has not been any notable change as result of the consolidation.

As mentioned above comparing financial indicators before and after the consolidation, the database was used to build polynomial non-linear regression models to reveal the impact of the size of local government units on the provision of public services. Such analyzes made it possible to determine which size of local government units is preferable for the delivery of certain public services – large or small? Apart from this, the regression models have helped to understand to what extent the size of the local government unit affects the scale of certain public services and how large the units should be to have tangible effects. The independent variable in the regression models was the population size.

The first regression model was used to evaluate the impact of the size of local government unit (population) in 465 municipalities on general administrative expenditures per capita. As mentioned earlier, the latter essentially reflect the personnel maintenance costs of the municipalities. It was quite logical for the linear regression model to show an inverse relationship between the dependent and independent variables, since larger local government units provide some economies of scale in this direction, and per capita staff maintenance costs will decrease.

This fact is reflected in the negative value of the in beta (β) coefficient, -0.203 (Tab. 2 and Tab. 3).

Table 2

**The impact of local government unit size (population)
in 465 municipalities on general administrative
expenditures per capita (linear model).
Model summary *(predictors: (Constant), Population)***

Model:	R:	R Square:	Adjusted R Square:	Std. Error of the Estimate:
1:	.203:	.041:	.039:	34,82240:

Table 3

**The impact of local government unit size (population)
in 465 communities on general administrative
expenditures per capita (linear model).
Coefficients (dependent variable: AdminPerCapita)**

Model:		Unstandardized Coefficients:		Standardized Coefficients:	t:	Sig.
		B:	Std. Error:	Beta:		
1:	(Constant)	34,469:	1,760:		19,588:	.000:
	Population:	-.002:	.001:	-.203:	-4.459:	.000:

However, in the given regression analysis, our initial hypothesis was that the relationship between the two variables is non-linear. *As the size of a local government unit increases, per capita general administrative expenditures decline at a rising, rather than equal rate. In other words, as communities become larger, municipalities' staff maintenance costs decrease more substantially. This means that small or medium-sized clusters do not produce significant savings or enhance effectiveness, thus for ensuring tangible economies of scale, local government units must be much larger than they were before consolidation.* This argument is supported by the statistically significant beta coefficients of the quartic function in our regression analysis. For this purpose, the square value of the independent variable (population size) was added to the initial linear function, afterwards the cubic value was added, and this process was continued until the independent variables yielded statistically significant beta coefficients. In the given analysis, it should be identified whether the polynomial values of the population size had a significant impact on the value of the dependent variable. It is quite common to have the null hypothesis of $\beta_n=0$ and reject it, if the probability is low enough, in particular $P<0.05$ (Maddala, 2001). This would effectively mean that the probability of the independent variable not having a statistically significant impact on the dependent variable is low enough for making justified conclusions about their relationship. Therefore, the given independent variable should be left in the model. This method of shaping the polynomial regression model helped us conclude that the quartic function best characterizes the relationship between the population size and the staff maintenance costs. Furthermore, non-linearity of the relationship between the two variables is also supported by the significant increase in the value of the adjusted R^2, when the linear function was modified to a non-linear one, from 0.039 to 0.151 (Tab. 4 and Tab. 5).

Taking social protection expenditures per capita as a dependent variable and measuring the impact of the population size on it, the regression model does not provide statistically significant beta coefficients ($P=0.385>0.05$). This means that in the observed 465 merged municipalities, the population size does not have a significant impact on the provision of social protection services.

At the same time, we have already discovered that as a result of consolidation, the provision of public social protection services has significantly decreased. This can be referred to the negative practices of local authorities, which have become distant from the local population and pay less attention to social issues (Tab. 6 and Tab. 7).

Table 4

The impact of the size of local government unit (population) in 465 communities on the general administrative expenditures per capita (polynomial model). Model summary *(predictors: (Constant), QuartPopulation, Population, SqPopulation, CubicPopulation)*

Model:	R:	R Square:	Adjusted R Square:	Std. Error of the Estimate:
1:	.398:	.158:	.151:	32,73226:

Table 5

The impact of the size of the local government unit (population) in 465 municipalities on the general administrative expenditures per capita (polynomial model). Coefficients *(dependent variable: AdminPerCapita)*

Model:		Unstandardized Coefficients:		Standardized Coefficients:	t:	Sig.
		B:	Std. Error:	Beta:		
1:	(Constant)	48,389	2,419:		20.002:	.000:
	Population:	-026:	.003:	-2.216:	-8.041:	.000:
	SqPopulation:	3,994E-6:	.000:	10.265:	5,872	.000:
	CubicPopulation:	-1.964E-10:	.000:	-20.113:	-4.914:	.000:
	QuartPopulation:	2,735E-15:	.000:	11,773	4,497:	.000:

Table 6

The impact of the size of local government unit (population) in 465 communities on the social protection expenditures per capita (linear model). Model summary *(predictors: (Constant), Population)*

Model:	R:	R Square:	Adjusted R Square:	Std. Error of the Estimate:
1:	.040:	.002:	.000:	1.27197:

Table 7

**The impact of the size of local government unit (population)
in 465 communities on the social protection
expenditures per capita (linear model).
Coefficients** *(dependent variable: SociaPerCapita)*

Model:		Unstandardized Coefficients:		Standardized Coefficients:	t:	Sig.
		B:	Std. Error:	Beta:		
1:	(Constant)	.897:	.064:		13.954:	.000:
	Population:	-1.702E-5:	.000:	-040:	-.870:	.385:

As already shown, the population of the observed municipalities have received more public services in education and environmental protection. However, it is more important to find out how the population size can influence the provision of these services.

The regression model provides quite valuable results in the table. In particular, in both cases polynomial models better describe the relationship between the population size and the volume of the public services, than linear models. Both for education and environmental protection cubic functions provide statistically significant beta coefficients for the independent variables.

The non-linearity of the dependence is also supported by the significant increase in the adjusted R^2 value, when the linear model is modified to a cubic polynomial function. In the case of educational services, it increased from 0.165 to 0.260 (Tab. 8 and Tab. 9).

In the regression model describing the dependence between population size and per capita expenditures for environmental protection, the value of R^2 has increased from 0.207 to 0.308, when the linear function was modified to a polynomial cubic function (Tab. 10 and Tab. 11).

Table 8

**The impact of the size of local government unit (population)
in 465 municipalities on education expenditures per capita
(linear and polynomial models). Model summary**
*(a. predictors: (Constant), Population; b. Predictors: (Constant),
CubicPopulation, Population, SqPopulation)*

Model:	R:	R Square:	Adjusted R Square:	Std. Error of the Estimate:
1:	.408 [a]:	.167:	.165:	4.66728:
2:	.514 [b]:	.264:	.260:	4.39413:

Table 9

**The impact of the size of local government unit (population)
in 465 municipalities on education expenditures per capita
(linear and polynomial models).
Coefficients *(dependent variable: EducPerCapita)***

Model:		Unstandardized Coefficients:		Standardized Coefficients:	t:	Sig.
		B:	Std. Error:	Beta:		
1:	(Constant)	1,679:	.236:		7.117:	.000:
	Population:	.001:	.000:	.408:	9,609	.000:

Model:		Unstandardized Coefficients:		Standardized Coefficients:	t:	Sig.
		B:	Std. Error:	Beta:		
2:	(Constant)	.400:	.283:		1,415:	.158:
	Population:	.002:	.000:	1,424:	9,232:	.000:
	SqPopulation:	-1.353E-7:	.000:	-2.418:	-5.389:	.000:
	CubicPopulation:	2,034E-12:	.000:	1,449:	4.305:	.000:

Table 10

**The impact of local government unit size (population)
in 465 municipalities on environmental protection expenditures
per capita (linear and polynomial models). Model summary
*(a. predictors: (Constant), Population; b. predictors: (Constant),
CubicPopulation, Population, SqPopulation)***

Model:	R:	R Square:	Adjusted R Square:	Std. Error of the Estimate:
1:	.457 [a]:	.209:	.207:	4.73762:
2:	.559 [b]:	.312:	.308:	4.42570:

Table 11

**The impact of the size of local government unit (population)
in 465 municipalities on environmental protection expenditures
per capita (linear and polynomial models).
Coefficients *(dependent variable: EnvironPerCapita)***

Model:		Unstandardized Coefficients:		Standardized Coefficients:	t:	Sig.
		B:	Std. Error:	Beta:		
1:	(Constant)	1,030:	.239:		4.304:	.000:
	Population:	.001:	.000:	.457:	11.034:	.000:

Model:		Unstandardized Coefficients:		Standardized Coefficients:	t:	Sig.
		B:	Std. Error:	Beta:		
2:	(Constant)	-.310:	.285:		-1.090:	.276:
	Population:	.003:	.000:	1,470:	9,853	.000:
	SqPopulation:	-1.367E-7:	.000:	-2.346:	-5.406:	.000:
	CubicPopulation:	2.001E-12:	.000:	1,368:	4.204:	.000:

The given regression analysis proves quantitatively that having larger local government units would be more favorable to have larger local government units. However, the small and medium-sized consolidated clusters do not provide significant increase in efficiency and provision of local public services. Thus, to achieve significant results from consolidation, the new local government units must be much larger than before. The practical implementation of a two- or even three-tier local governance system can be found in the vast majority of the developed countries in the world. These systems require considerable effort to ensure the effective distribution of local services and related funding sources among the tiers, which can be a subject for further study. The findings of the current study revealed the extent to which the local governance units should be scaled up to ensure that the above public services are delivered more effectively at the local level.

Conclusion

The analysis suggest that productive local governance requires *both large and small local government units* with their respective authorities and powers. In other words, the best solution may be the realization of two-tier local governance in Armenia. We have reached this conclusion, because of consideration of certain criteria necessary for effective local governance.

These include the ability to reflect quickly, the accessibility of the public services provided, the participation of citizens in the administration, the accountability of local authorities, as well as economies of scale. The best way of their synchronized provision is the foundation of a two-tier local government system in Armenia. In particular, the existence of the lower level will provide timely response of local authorities, accessibility of provided service, citizens' participation in governance and accountability of local authorities, while the upper level will ensue economies of scale. *Moreover, it is noteworthy to mention that such an approach is not only for the existence of large local government units and the idea of enlargement, but also the creation of the lower tier will provide an opportunity to have even larger upper units, than in the current process of enlargement, due to which it would be possible to benefit from real economies of scale regarding certain public services, at the same time, not alienating people from local authorities.*

The quantitative and qualitative **analysis** *of the current enlargement process let us argue that, on the one hand, communities formed with the current model, are not large enough to provide considerable economies of scale for effective local gov-*

ernance, for the local government units are still too separated to effectively provide certain public services. On the other hand, they are large enough to weaken or completely lose connection between local authorities and the population.

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EVALUATING DIGITAL GOVERNMENT PERFORMANCE USING SURVEYS: INTERNATIONAL LITERATURE REVIEW AND PROSPECTS FOR THE FUTURE RESEARCH

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Abstract. The use of digital technologies in public administration has become a major trend in both developed and developing countries. Not surprisingly, the research interest to evaluating digital government performance has also increased. Since international indices and national statistics is more focused on evaluating the supply side of government digitalisation, more and more researchers are using survey methods to assess the progress determinants and barriers to digital government success from the demand side. So far, the review of such empirical studies has been quite limited. This paper aims to fill this gap and provides a comprehensive international literature review of using surveys for evaluating digital government performance published in 2011–2021. For the purpose of the study, an analytical framework including four levels of digital government performance (inputs and outputs characterising the government digitalisation process and outcomes and impacts representing public values) as well as cost and risk constructs were proposed and used.

The analysis of 216 empirical papers examining digital government performance in over 50 countries from 5 continents demonstrates that survey-based methods are widely used in both developed and developing economies, with varying levels of digital maturity. Several cross-country studies have been identified but most

of the papers address digitalisation of public authorities at the national or local level. The core focus of the research is related to the adoption of digital public services and the extent of digital participation among citizens (and, to a much lesser extent, by businesses), while outcomes and societal impacts receive less attention regardless the level of e-government development of the relevant country. Noteworthy, there is growing interest in the issue of digital government risks. It is argued that more efforts should be made to evaluate the outcomes and impacts (public value) of digital government. Prospective research areas also relate to using survey methods to evaluate the performance of digital government in regulatory and enforcement areas, exploring variation of trust in government and trust in technology, measuring perceptions of government digitalisation risks, researching the reasons for avoiding digital interactions with the government on the part of citizens and businesses, and several others.

Introduction

Digitalisation has become a major trend in public administrations around the globe, and the trend has been further accelerated by the COVID-19 pandemic which made e-government a 'necessary element of communication, leadership and collaboration between policy makers and society' (United Nations, 2020, p. 215). International organisations, national governments, and academia have expressed high expectations for the role of digital technology in improving governance quality and bringing substantial dividends to citizens and businesses (World Bank, 2016). Some scholars suggest that digitalisation creates new governance paradigms such as ICT-enabled transformational government (Heidelberg, 2009) or digital era governance (Margetts and Dunleavy, 2013).

Others claim that while digitalisation has brought some improvements to public administrations, overall, the impact of technology has been overestimated and the initial expectations have not been met in many cases (Bannister and Connolly, 2020).

Some recent research demonstrates a correlation between the government digitalisation and the governance quality (Durkiewicz and Janowski, 2018), however, the causality between the two has not been confirmed for most gov-

ernance indicators (Dobrolyubova et al., 2019). Noteworthy, most international indicators, such as E-government Development Index (EGDI) and the UN E-participation index (United Nations, 2020) or the Digital Government Index proposed by OECD (OECD, 2020) focus on supply-side indicators and do not include measures on digital government adoption and associated positive outcomes and impacts for internal and external beneficiaries.

The data on digital government adoption is available in official statistics in some countries (notably, EU states and Russia (Dobrolyubova et al., 2017)), both cross-country and national data on digital government benefits and risks is collected and analyzed in various surveys. So far, the analysis of such surveys and the approaches used has been limited to selected studies (Pérez-Morote, 2020).

This paper aims to fill this gap and provide a comprehensive international literature review on the use of surveys for evaluating performance of digital government. Based on the review, key trends and potential areas for the future research are identified.

Methodic approach

For the purposes of this paper, we define government digitalisation as a process of introducing digital technologies in public administration aimed at raising its efficiency and effectiveness. Since we aim to review the experience of countries with various levels of digital government maturity, all stages of digital government transformation ranging from digitising to electronic and then digital government, as defined by the OECD (2016) are included in the review.

The paper methodic approach is based on theory of change (Chen, 1990) and public value theory (Moore, 1995) and differentiates four main levels of digital government performance which can be evaluated using survey instruments: inputs (i.e. presence and operation of information systems and tools enabling digital governance), outputs (i.e. adoption of these tools by the target groups, especially, external beneficiaries such as citizens and businesses), outcomes (i.e. improvements in delivering public services and public goods as a result of implementation and adoption of digital technologies), and impacts of government digitalisation on citizen well-being, economic activity and business climate, and overall government effectiveness.

The first two levels (inputs and outputs) represent the process of government digitalisation, while outcomes and impacts characterize public values achieved as a result of government digitalisation. The framework is generally aligned with the digital government value chain approach (Durkiewicz and Janowski, 2021), except that the public value stage is differentiated into outcomes related to specific digital tools or government functions and broader societal impacts.

Following some previous research (Dobrolyubova, 2021), the framework used for this paper also includes cost and risk dimensions, which can either be the main focus of surveys used to evaluate digital government performance or one of the aspects considered (Figure 1).
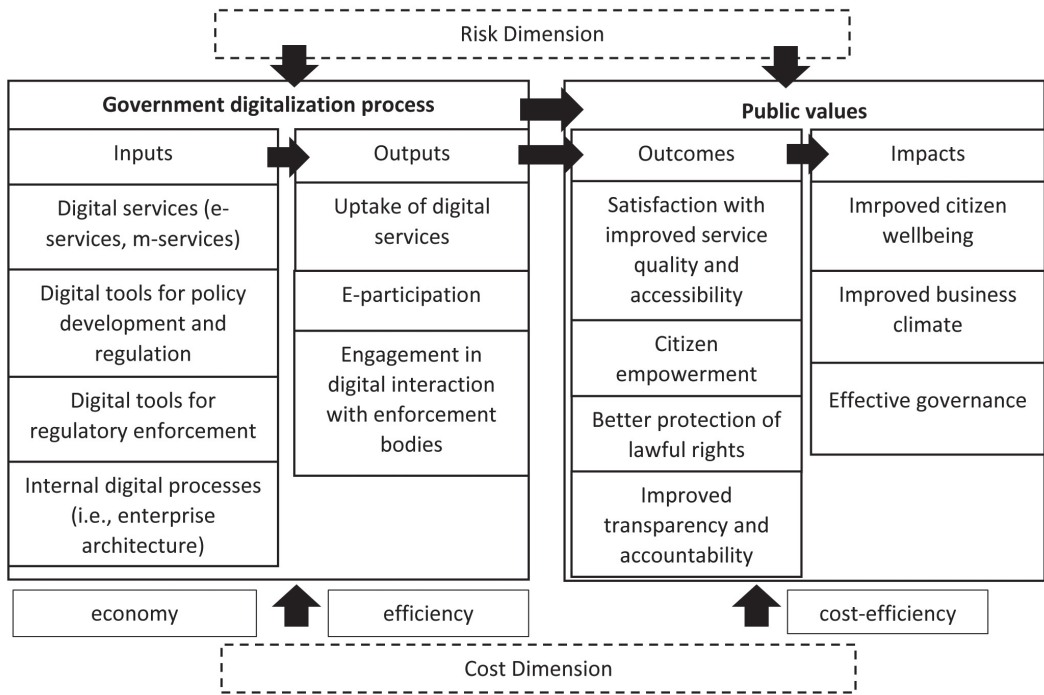
Figure 1. **Digital government performance framework**

Source: Completed by the author (- hereinafter, unless otherwise noted).

It is noteworthy that both costs and risks are relevant to each stage of the digital government performance framework. Thus, reducing costs at the input level translates into economy. Achieving better outputs at lower costs is characterized by efficiency. The ratio of the public value created and the costs of digitalisation allows for evaluating cost-effectiveness of digital solutions (i.e. value for money).

This approach differs from some recent publications where administrative efficiency and improved capability are also treated as public values (Twizeyimana and Andersson, 2019). We believe that these constructs are important for evaluating government digitalisation but, as such, they do not guarantee greater public values (outcomes and impact). For instance, increased administrative efficiency may allow for rendering more public services at a lower cost, but that does not guarantee that the quality of such services is increased. Improved capability in open government data is an important prerequisite for more active e-participation and, if such participation is perceived to be successful – for greater citizen empowerment, but, as highlighted by the recent research, the presence of e-participation tools does not always lead to high levels of adoption of these tools (Le Blanc, 2020), let alone broader societal impacts.

For structuring literature review and identifying trends, potential gaps, and prospective research areas, this paper differentiates surveys of digital government performance by type of beneficiary (i.e., citizens, businesses, government, and public servants). Various purposes of G2C and G2B digital interaction (i.e., public service delivery, e-participation) are also considered.

Based on the above performance framework and some previous research (Dobrolyubova, 2021), the following hypotheses are addressed in the literature review.

H1: Most survey-based research focuses on digital services rather than digitisation of other public administration functions.

H2: Most survey-based research evaluating digital government performance focuses on the perspective of citizens rather than other beneficiaries (i.e., businesses and government).

H3: The growth in research interest to measuring digital government performance using survey methods is associated with growing emphasis on outcomes and impacts (i.e. public value created by digitalisation) as compared to inputs and outputs. This allows for the formulation of two sub-hypotheses:

H3.1: More recent papers tend to focus more on outcomes compared to less recent studies, and

H3.2: Research focus depends on the maturity of digital government: empirical research on digital government performance in countries with higher level of EGDI tends to focus on public value rather than on the government digitalisation process, while research of government digitalisation in countries with high and medium EGDI tends to focus on inputs and outputs rather than on outcomes and impacts.

Given the significant role of government digitalisation during the pandemic and the broad discussion of related risks including privacy concerns (Rowe, 2020), as well as the issue of trust in government which has been raised before (OECD, 2017) but gained momentum in 2020–2021 (Altmann et al, 2020; Devine et al, 2021; Wong and Jensen, 2020), we can hypothesize that:

H4: Significant attention is paid to trust in government both as a predictor of successful government digitization and as a public value created by the implementation of digital tools, and

H5: The use of surveys to measure the risks of digital government has become more common during the COVID-19 pandemic.

Review sample

To identify the sample of research papers for the analysis, Scopus database was used. The search was conducted in January 2022 as follows: (e-government) OR (digital government) AND (citizen) OR (business) AND (survey) AND (benefits) OR (performance) OR (effectiveness) OR (risks). Initial search results included 399 papers, and the paper dynamics clearly demonstrated the growing research interest in the subject. While in 2001–2005 there were only 3.2 research papers on the subject per annum, in 2016–2020 the average number papers reached 30.4, and 43 research papers were published in 2021 alone.

Given the high pace of digital transformation, it was decided to focus on research papers published in 2011–2021 (i.e., in the last 11 years). The types of documents included in the review were limited to 'article', 'review', and 'conference paper'. Books, book chapters, conference reviews, notes, and documents with unidentified type were excluded from the sample to minimise the risk of duplication. After this exclusion the remaining 272 papers were reviewed manually to confirm that they correspond to the selection criteria:

(i) they contain the analysis of digital government performance: address one or more levels of performance (inputs, outputs, outcomes, or impacts) and (or) analyze risks and (or) costs related to government digitalisation; and

(ii) they use sociological surveys as a source of empirical data to support the analysis.

Website surveys and reviews that do not involve respondents were excluded because such data is available from the bi-annual UN e-government surveys and administrative sources. Since very recent literature was included in the analysis, the number of citations was not considered for paper selection.

After application of these criteria and removal of duplications (one paper was indexed twice in the original sample), a database of 216 research papers was compiled for the analysis. The distribution of research papers that met the criteria and were included in the final sample, as well as papers received from the initial search results is presented in Figure 2.
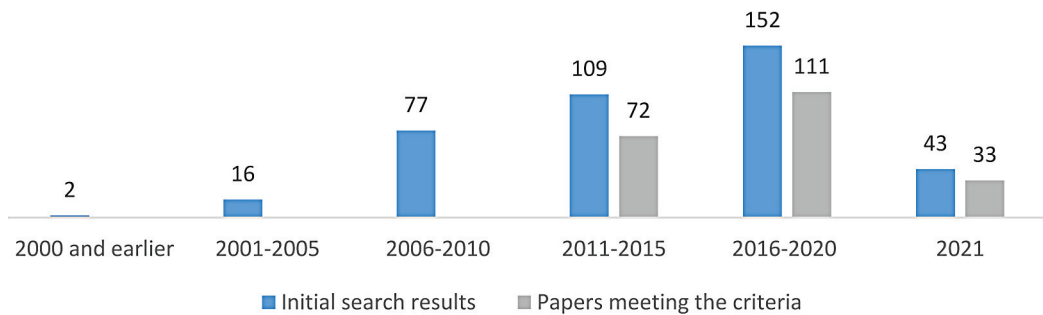
Figure 2. **The number of research papers: initial search results compared to final sample**

Figure 2 demonstrates that the number of papers included in the final sample by time period is proportional to initial search results.

Geographically, the sample of research papers represents all continents and sub-regions of the world. About a half of the research papers included in the sample (115 papers or 53% of the total sample) analyse digital government in Asian countries, including the Middle East (40 papers), South Asia and East Asia (27 papers from each sub-region), and Southeast Asia (21 papers) (Figure 3).

Figure 3. **Distribution of research papers by region, %**

More than a quarter of the total sample (58 papers or 57%) contain digital government surveys conducted in Europe and CIS. About 20 papers present surveys of digital government performance in North and Latin America (14 and 6 pape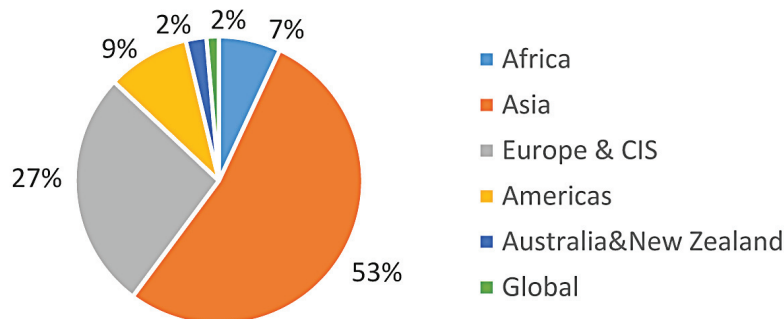rs, respectively), 15 papers are devoted to experiences in Africa, 5 papers evaluate digital government in Australia and New Zealand, and 3 studies include countries from various world regions. Overall, the sample covers the experiences of government digitalisation in 61 countries.

The papers included in the sample also vary by income group as defined by the World Bank[1]. Thus, about a half of the papers are based on the experiences of high-income countries (49% or 105 papers), 30 percent of the sample are studies of digital government in upper middle-income countries (66 papers), while studies of lower middle-income countries comprise 16 percent of the sample. The sample also includes 5 papers from low-income countries and 6 cross-country studies that include countries from various income groups (Figure 4).
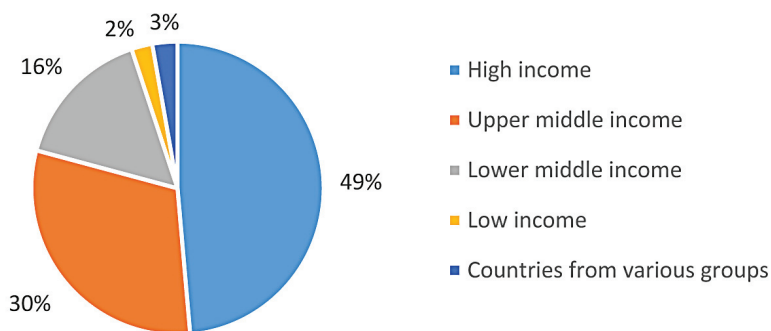

Figure 4. **Distribution of papers by country income groups, %**

Most of the selected papers (137 out of 216) research the experiences of countries with very high levels of EGDI, as measured by the recent UN Survey (United Nations, 2020). However, papers analysing digital government in countries with high and medium levels of EDGI, are also notable (53 and 23 papers, respectively).

Survey subject and respondents

Most studies in our sample focus on one type of digital government functions, though 19 papers (Karunasena et al, 2011; Shah and Lim, 2011; Baldwin et al, 2012; Olatubosun and Rao, 2012; Fu and Lee, 2014; Dos Santos Brito et al, 2015; Batlle-Montserrat, 2016; Maslihatin, 2016; Scott et al, 2016; Deng et al, 2018; Gómez, 2017; Ma and Zheng, 2016; Ma and Zheng, 2018; Akkaya and Krcmar, 2019; Tensina et al, 2019; Vidiasov et al, 2020; Vidiasova et al, 2020; Betala and Gawade, 2021; Zhang and Lv, 2021) focus on two or more areas of government digitalisation.

Over a half of the papers reviewed (59.3 percent) focus on the evaluation of digital services, and only 8 percent of the studies have an e-participation em-

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[1] URL: https://datahelpdesk.worldbank.org/knowledgebase/articles/378834-how-does-the-world-bank-classify-countries (accessed: February 2 2022).

phasis. About one-third of the papers (32.6 percent) addresses the issues of regulation, enforcement, and other aspects of digital government performance (not directly related to digital services or e-participation). Over the past decade, the structure of surveys by subject has not changed significantly (Figure 5) though there is some decrease in the share of studies evaluating digital public services (from 62.8 percent in 2011–2015 to 57.6 percent in 2016–2021) with respective increase in the percentage of studies looking at regulatory, enforcement, and other types of functions in public administration (from 29.5 to 34.2 percent).
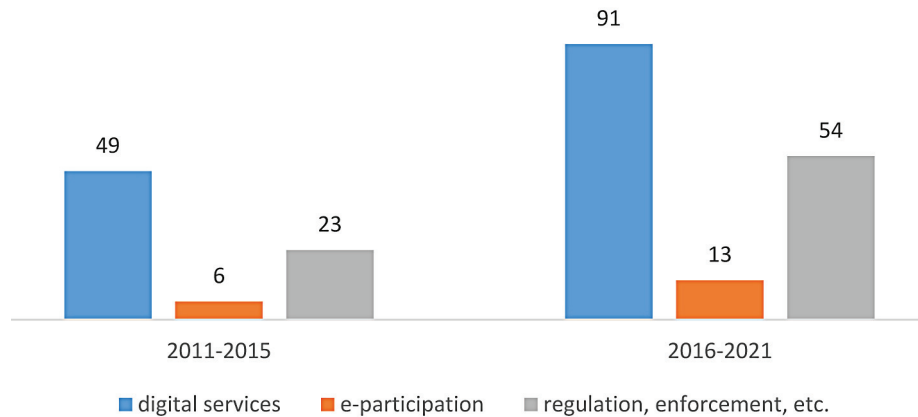

Figure 5. **The number of papers by subject**

Note: the figures do not some up as some papers have more than one subject.

Thus, the first hypothesis of this study (H1) is confirmed: most survey papers in the international literature indeed focus on digital services rather than on other types of public administration functions, while the situation is slowly changing and more aspects are attracting researchers' attention.

Based on the literature review, 5 types of surveys can be defined depending on the respondents:

– citizen surveys (151 papers),
– business surveys (13 papers),
– public official surveys and surveys of public institutions staff, usually from universities (38 papers),
– expert surveys (2 papers), and
– comprehensive surveys that use two or more types of samples listed above (13 papers).

While citizen surveys form the largest group of studies, they vary significantly. They include (i) large cross-country randomized studies conducted in developed (Zheng and Schachter, 2017) and developing (Tassabehji et al, 2019) countries, (ii) national representative randomised studies, for instance, those carried out in the US (Nam and Sayogo, 2011), Germany (Gerpott, Ahmadi, 2016), Taiwan (Lee and Chu, 2018), Hong Kong (Venkatesh et al, 2012); Jordan (Alqaralleh et al, 2020), Pakistan (Khurshid et al, 2019), Portugal (Gonçalves et al, 2021), Russia (Revyakin and da Rocha 2021) and (iii) smaller surveys lim-

ited to selected cities or regions, for instance, Province of Quebec in Canada (Abidi et al, 2012), St. Petersburg City in Russia (Belyi, Chugunov, 2021; Vidiasova et al, 2020), Madina City in Saudi Arabia (Weerakkody et al, 2013), Surabaya city in Indonesia (Susanto et al, 2017); special target population groups, both potentially vulnerable such as the elderly (Choudrie et al, 2017), persons with disabilities (Chu et al, 2011), citizens residing in rural or remote areas (Roy et al, 2015; Dawadi and Shakya, 2016) and those potentially in a better position to engage in digital interaction, i.e., onliners (Niehaves et al, 2012), netizens (Harun et al, 2018), or youth in general (Alomari, 2021).

The literature review also helped identify examples of non-conventional approaches to citizen surveys which are not widespread but could be useful in supporting further digital transformation efforts. One example is related to using a controlled trial method to assess citizen perceptions of regulatory sandboxes conducted in Taiwan (Huang et al, 2021). The survey results demonstrate that respondents who had received more information about regulatory sandboxes before the survey tend to perceive related risks lower than those who had not received similar information. Another example is related to using survey methods to assess the actual citizen experience in applying for public services, i.e., 'citizen journeys' (Sholta et al, 2020), which then help to adapt public services to the specific user needs.

Noteworthy, the second most frequent type of survey conducted to evaluate government digitalisation is a public official survey. The objectives of these surveys vary from evaluating ICT adoption and introduction of certain technological solutions, such as e-document systems in Portugal (Afonso et al, 2012), enterprise architecture, for instance in South Korea (Lee et al, 2016) and Finland (Banaeianjahromi, 2018), public clouds in South Korea (Lee et al, 2020), to assessing e-readiness and adoption of e-government practices at the municipal level mostly in developed countries (Liste and Sørensen, 2015; Batlle-Montserrat et al, 2016; Chen and Kim, 2019; Madytinos, Sidiropoulou, 2020; Tangi et al, 2021) and also in developing (Batara et al, 2017) countries. Some researchers go further and use surveys of public officials to evaluate potential outcomes and impacts of e-government (Torres and Pina, 2011; Abu-Shanab, 2017; Abutabenjeh et al, 2021).

Thus, the internal perspective of the public officials on government digitalisation has a higher influence on international digital government literature than perspective of other external beneficiaries, i.e. businesses. The business surveys that we found focus primarily on the adoption of e-invoicing (Haag et al, 2013; Lian, 2015; Poel et al, 2016; Qi and Che Azmi, 2021), e-procurement (Gupta and Narain, 2012; Seo et al, 2018), and e-filing (Kästik, 2019; Sobotovičová and Blechová, 2021), while the outcomes and impacts for businesses are rarely assessed. An important exemption from this trend is the study (Vashist et al, 2021) evaluating the correlation between e-governance development and profitability of medium and small enterprises in India.

Comprehensive surveys are also not common, but they are usually based on a broader perspective and allow comparing the views of citizens and public officials (Alssbaiheen and Love, 2015; Elamin and Abushama, 2016; Charbonneau and Doberstein, 2020; Vidiasova and Cronemberger, 2020), businesses and experts (Sørum and Fagerstrøm, 2015), or public officials and experts (Guntur et al,

2018; Purwandari et al, 2019). There are also several examples of papers based on surveys of all digital government stakeholders: citizens, businesses, and public officials (Alhyari et al, 2013; Misra, 2014; Wang et al, 2021).

The least frequently used approach involves expert surveys of digital government performance. We found only two such studies in the recent international literature: one on organizational change inspired by introducing enterprise architecture in South Korean public sector (Nam et al, 2016) and another one on critical factors of smart city development (Vidiasova et al, 2019).

Based on the above, the second hypothesis of this study (H2) is also confirmed: some 69.9 percent of the surveys of digital government performance are citizen surveys.

Inputs, outputs, outcomes, or impacts: What is in the spotlight?

Diverse subjects of survey-based international research in digital government demonstrate that studies vary in both objectives and scope. Not surprisingly, the international studies also differ in terms of research focus. About a half of the studies reviewed (51.4%) focus on digitalisation outputs (i.e., uptake of digital public services and the factors that influence the use of such services). Noteworthy, the focus on outputs is especially high in studies of upper middle-income countries.

More than one-third of studies in our sample (36.6%) are fully or partially focused on the outcomes of government digitalisation (issues of citizen satisfaction with improved service delivery, transparency and accountability, empowerment, and the like). About 21.8% of the studies focus on inputs, i.e., information systems deployed as part of public administration digitalisation. Finally, societal impacts and risks are quite rarely addressed in survey-based evaluations of digital government performance. However, the risk dimension has gained more attention in the recent years and among researchers analyzing government digitalisation experience in high-income countries and countries with very high EGDI scores (Table 1).

Overall, the qualitative data from our review does not support the third hypothesis of the study. The percentage of empirical survey research addressing digital government outcomes has not increased (on the contrary, the share of relevant papers dropped from 48.6 percent in 2011–2015 to 30.6 percent in 2016–2021). Increased digital maturity also does not yield more attention to the public value dimensions of the government digitalisation. Therefore, hypotheses H3.1 and H3.2 are to be rejected.

Table 1

Distribution of research papers by main research focus

Research papers group	Research Foci, *% of total papers of respective group*				
	Inputs	**Outputs**	**Outcomes**	**Impacts**	**Risks**
All papers	21.8	51.4	36.6	6.0	7.4
Papers published in 2011–2015	20.8	45.8	48.6	6.9	5.6
Papers published in 2016–2021	22.2	54.2	30.6	5.6	8.3

Research papers group	Research Foci, % of total papers of respective group				
	Inputs	Outputs	Outcomes	Impacts	Risks
Papers by country group					
High income countries	22.9	45.7	35.2	5.7	12.4
Upper middle income countries	16.7	65.2	36.4	3.0	3.0
Lower middle income and low-income countries	28.2	46.2	43.6	10.3	2.6
Very high EGDI	21.9	49.6	38.0	5.8	10.2
High and Medium EGDI	25.0	55.3	36.8	5.3	2.6

Note: The figures do not sum up since some papers have more than one focus (i.e., for instance focus both on inputs and outputs or both on outputs and outcomes).

Sources: Completed by the author (- hereafter, unless otherwise noted).

From theoretical perspective, input-oriented papers are usually based on DeLone and McLean's information systems success model (DeLone and McLean, 1992) linking system and information quality to individual and organizational impact, and its further developments (Seddon and Kiew, 1996) suggesting that user satisfaction is related to information and system quality and usefulness. More comprehensive models of organisational change, such as Burke and Litwin's model (Burke and Litwin, 1992) are used to explain transactional and transformational effects of digital technologies at the organisational level (Nam et al, 2016).

Evaluating outputs of government digitalisation calls for going beyond organizational boundaries and considering the motives of external e-government users. Hence, output-oriented digital government surveys are based on a broad range of theories and models, including Rogers's diffusion of innovation theory (Rogers, 1962), the Technology Acceptance Model (Davis, 1989), the Unified Theory of Acceptance and Use of Technology, UTAUT (Venkatesh et al, 2003) and its various extensions, such as the Technology Readiness and Acceptance Model, TRAM (Lin et al, 2007) and the Unified Model of E-Governance Acceptance, UMEGA (Dwivedi et al, 2017). Psychological theories, such as the Theory of Planned Behavior (Ajzen, 1991) and Social Cognitive Theory (Bandura, 1986) are also utilized to enhance the explanatory power of acceptance models.

Most output-oriented digital government surveys aim at testing whether the acceptance factors proposed by the above models (such as performance expectancy, effort expectancy, social influence, facilitating conditions, perceived risk, perceived usefulness, prior experience, trust in government and technology and some others) influence citizen attitudes toward e-government and public intent to engage in digital interactions with public authorities in various country contexts, for various population groups and in relation to diverse specific digital technologies, services, or applications.

In most cases, the selected theoretical frameworks are empirically confirmed (Table 2). Thus, quite a few studies confirmed the importance of performance expectancy, facilitating conditions, perceived usefulness, user satisfaction, or positive prior experience, as well as ease of use for greater adoption of digital government tools by citizens and businesses.

Table 2

Key factors determining adoption of digital public services and e-participation: Synthesis of empirical literature

Factor	Digital Services		E-participation	
	Significance confirmed	**Significance rejected**	**Significance confirmed**	**Significance rejected**
Performance expectancy	Turkey (Kurfalı et al, 2017), Mauritius (Lallmahomed et al, 2017), Thailand (Bhuasiri et al, 2016), Jordan (Rabaa'i, 2017), Indonesia (Adiyarta et al, 2018), Oman (Alraja et al, 2016), Uzbekistan (Avazov and Lee, 2020), Syria (Saleh and Alyaseen, 2021), Colombia (Sánchez-Torres et al, 2021), Pakistan (Khurshid et al, 2019)		Portugal (Naranjo-Zolotov et al, 2019), South Africa (Hobololo and Mawela, 2017)	
Effort expectancy	Jordan (Rabaa'i, 2017), Oman (Alraja et al, 2016), Syria (Saleh and Alyaseen, 2021), Taiwan (Lian, 2015)	Turkey (Kurfalı et al, 2017), Thailand (Bhuasiri et al, 2016)		Portugal (Naranjo-Zolotov et al, 2019)
Social influence	Turkey (Kurfalı et al, 2017), Thailand (Bhuasiri et al, 2016), Jordan (Rabaa'i, 2017, Alomari, 2021), UK (Al-Muwil et al, 2019), India (Kumar and Sachan, 2017), Taiwan (Lian, 2015), Greece (Chatzoglou et al, 2015)	Jordan (Almaiah and Nasereddin, 2020)	South Africa (Hobololo and Mawela, 2017)	Portugal (Naranjo-Zolotov et al, 2019)
Facilitating conditions	Turkey (Kurfalı et al, 2017), Mauritius (Lallmahomed et al, 2017), Thailand (Bhuasiri et al, 2016), Jordan (Rabaa'i, 2017; Alomari, 2021), UK (Al-Muwil et al, 2019), Saudi Arabia (Alharbi, 2021), Syria (Saleh and Alyaseen, 2021), Indonesia (Jacob et al, 2018)		Portugal (Naranjo-Zolotov et al, 2019), South Africa (Hobololo and Mawela, 2017)	
Perceived usefulness, user satisfaction, prior experience	USA (Nam and Sayogo, 2011), Canada (Abidi et al, 2012; Roy et al, 2015), Greece (Chatzoglou et al, 2015), Mauritius (Lallmahomed et al, 2017), UAE (Al Athmay et al, 2016), UK (Al-Muwil et al, 2019), Jordan (Alqaralleh et al, 2020), UAE (Eid et al, 2020), India (Kumar and Sachan, 2017), Malaysia (Qi and Che Azmi, 2021), India (Vincent and Sengupta, 2019)		Indonesia (Susanto et al, 2017), China (Wang et al, 2021), EU (Zheng and Schachter, 2017), Germany (Winkler et al, 2012)	
Ease of use	Canada (Roy et al, 2015), UK (Al-Muwil et al, 2019), Jordan (Alqaralleh et al, 2020), UAE (Eid et al, 2020), India (Kumar and Sachan, 2017), Canada (Abidi et al, 2012)		Indonesia (Susanto et al, 2017), Germany (Winkler et al, 2012)	

Factor	Digital Services		E-participation	
	Significance confirmed	Significance rejected	Significance confirmed	Significance rejected
Trust in technology (Internet)	Turkey (Kurfalı et al, 2017), India (Kumar and Sachan, 2017), Indonesia (Assegaff et al, 2021), China (Tang et al, 2021)	UK (Al-Muwil et al, 2019)	Taiwan (Fu and Lee, 2014)	
Trust in government	UK (Al-Muwil et al, 2019), Indonesia (Jacob et al, 2017), UAE (Eid et al 2020), Saudi Arabia (Alharbi, 2021), India (Kumar and Sachan, 2017), Malaysia (Qi and Che Azmi, 2021), China (Tang et al, 2021), Jordan (Alomari, 2021), Colombia (Sánchez-Torres et al, 2021), Pakistan (Khurshid et al, 2019), Taiwan (Lian, 2015), Canada (Roy et al, 2015), Greece (Chatzoglou et al, 2015), Canada (Abidi et al, 2012)	Turkey (Kurfalı et al, 2017), Indonesia (Assegaff et al, 2021)	Taiwan (Fu and Lee, 2014)	
Perceived risk	UAE (Eid et al, 2020), Indonesia (Fakhruzzaman and Dimitrova, 2020), Taiwan (Lian, 2015), Canada (Abidi et al, 2012; Roy et al, 2015), Greece (Chatzoglou et al, 2015)	Thailand (Bhuasiri et al, 2016), UK (Al-Muwil et al, 2019)	Taiwan (Fu and Lee, 2014)	
Age	USA (Nam and Sayogo, 2011) Saudi Arabia (Choudrie et al, 2017), Germany (Gerpott and Ahmadi, 2016), Sudan (Elamin and Abushama, 2016), India (Vincent and Sengupta, 2019)		South Africa (Hobololo and Mawela, 2017)	
Gender	Saudi Arabia (Choudrie et al, 2017), Germany (Gerpott and Ahmadi, 2016), Brazil (MacAya et al, 2021), Sudan (Elamin and Abushama, 2016), Pakistan (Arshad and Khurram, 2021), India (Vincent and Sengupta, 2019), Slovenia (Cestnik and Kern, 2017), Finland (Taipale, 2013)			South Africa (Hobololo and Mawela, 2017)
E-literacy, education	Jordan (Nawafleh, 2018), UK (Al-Muwil et al, 2019), Saudi Arabia (Choudrie et al, 2017), Germany (Gerpott and Ahmadi, 2016), Sudan (Elamin and Abushama, 2016), Finland (Taipale, 2013)			
Income	Finland (Taipale, 2013), Germany (Gerpott and Ahmadi, 2016), Sudan (Elamin and Abushama, 2016)			
Urbanization	Germany (Gerpott and Ahmadi, 2016), Finland (Taipale, 2013)			
IS quality and maintenance	Jordan (Nawafleh, 2018; (Almaiah and Nasereddin, 2020), Indonesia (Jacob et al, 2017)			EU (Ma and Zheng, 2018)

However, some findings are quite unexpected. For instance, L. Ma and Y. Zheng (2018) find a negative relation between the quality of government websites' design and maintenance in the EU countries, on the one hand, and the extent of e-participation – on the other.

Different studies come to opposite conclusions regarding the importance of trust in government and trust in technology, perceived risk, social influence, and effort expectancy for digital government uptake. Some empirical results support the importance of social and demographic factors such as age, gender, education, and urbanization, but this conclusion is questioned by other authors.

Most outcome-focused surveys of digital government performance are based on public value theory (Moore, 1996), new approaches to public management approaches and especially balanced scorecards (Kaplan and Norton, 1992). Several papers use a citizen-centric COBRA model (Osman et al, 2014) linking cost, benefits, risks, and opportunities to citizen satisfaction with e-government. Some papers also note other factors influencing citizen perception of e-government success such as well-informedness, trust, participation in decision-making (Scott et al., 2016).

The studies vary in defining outcomes and impacts of government digitalisation. While some authors focus on user satisfaction (Chen and Zhang, 2012; Javaid and Arfeen, 2017; Alkraiji, 2021), others propose a broad range of possible public values. For instance, Karunasena et al. (2011) suggest 4 types of public values created by e-government: the delivery of public services, the achievement of outcomes, the development of trust, and the effectiveness of public organizations. In their later works the list of public values was extended to include 'openness of public organisations, equity, citizens' self-development, and environmental sustainability' (Deng et al, 2018). Another survey identified democracy, reflexivity, and productivity as the key values that citizens expect from the government digitalisation (Agbabiaka, 2018). Some studies focus on public officials' perspectives of government digitalisation outcomes, but improvements in time savings (Abu-Shanab, 2017) and overall administrative efficiency are noted more frequently than better citizen engagement (Rose et al, 2015).

To identify government digitalisation priorities from the beneficiary perspective, some surveys employ willingness to pay approach to identify (Tassabehji et al, 2019; Poel et al, 2016), but in general direct cost – benefit analysis is still not very common in government digitalisation evaluation. Interesting examples include papers based on citizen-centric COBRA-methodology (Lee et al., 2015; Al-Yafi et al., 2016), activity-based costing (Miyata, 2021), and measuring financial gains from government digitalisation for businesses (Kästik, 2019; Vashist et al, 2021).

Trust in government is an important construct considered in all types of empirical studies, and the relationship between this construct and public administration digitalisation is examined from various viewpoints. While some papers evaluate the impact of digital government performance on increased trust in government (Sharma et al, 2018; Mahmood et al, 2019), others use trust in government as a factor influencing the adoption of certain digital tools or satisfaction with government digitalisation (see for instance Nam and Sayogo, 2011; Chatzoglou

et al., 2015; Jacob et al., 2017; Eid et al., 2020; Sánchez-Torres et al., 2021). Therefore, while the correlation between trust in government and digital government performance has been confirmed, the causality of the two still present a promising research area.

Overall, the issue of trust (including trust in government and trust in technology) plays a significant role: 51 surveys in our sample analyze trust (23.6 percent of the total) which allows us to confirm the fourth hypothesis of this paper (H4).

Outcome and impact-oriented papers tend to explore predictors of certain positive outcomes or impacts, rather than estimate impacts of specific government digitalisation initiatives. The latter studies demonstrate some positive effects of government digitalisation, but these effects are not always very significant (Liang, 2011). Therefore, measuring the actual outcomes and impacts of government digitalisation beyond e-government adoption seems to be a prospective research area.

Finally, our review suggests that the risks related to government digitalisation gain more and more research attention. While many surveys take into account perceived risk, a recent cross-country survey provides estimates of the actual risk frequency for identity theft: the authors claim that "*25–30 percent of the adult population in the surveys countries experienced some form of misuse or attempted misuse of their personal information within the past three years*" (Kalvet et al, 2019, p. 660). Risk perceptions are also the focus of recent research on adoption of digital COVID-19 tracing tools (Kozyreva et al., 2021; Lin et al., 2021; Padyab and Kävrestad, 2021), perception and the effects of state surveillance (Tanriverdiand Chen, 2018; Westerlund et al., 2021).

Overall, 8 out of 16 papers primarily addressing government digitalisation risks have been published in the past two years, i.e., during the pandemic. Thus, the fifth hypothesis of this study is confirmed.

Discussion: Gaps and prospects of using surveys for evaluating digital government performance

The review of international empirical survey-based literature focused on evaluating the digital government performance allows for the identification of several gaps which may guide further research.

Firstly, given that more and more countries accept digital-by-default principle for G2B, G2C, and G2G interactions, the adoption of technology is no longer optional for both businesses and citizens. Though some authors (Al-Muwil et al., 2019; Alkraiji, 2021) claim that extended acceptance models are applicable in the case of mandatory digital services, the need and policy relevance of exploring psychological factors driving, for instance, adoption of digital services if the digital communication channel is mandatory (or near-mandatory) is questionable. In this context changing the overall research focus from the outputs and factors driving adoption of technology to the outcomes and impacts of government digitalisation on the society at large seems a logical step forward.

To pursue this path, more empirical data should be collected on the actual (rather than expected) benefits that all stakeholders (especially citizens and

businesses) get from government digitalisation and their perceptions on the impact that digital technologies make on governance quality. While most of the surveys analyzed are based on the perspective of citizens and governments, few of them address the impact of government digitalisation effects on businesses. In this regard, it is worth paying more attention to evaluating digital government outcomes from the business sector lenses. Comprehensive surveys combining the perceptions of various stakeholders identified in this review (see for instance Vidiasova and Cronemberger, 2020; Wang et al., 2021) also provide a promising model for evaluating the outcomes and impacts of government digitalisation.

The review demonstrated that most papers are concentrated on evaluating public services and e-participation while the outcomes of digitalisation of other types of government functions (regulation, enforcement) lacks empirical validation.

The current literature tends to pre-suppose that greater adoption of such technologies is positive for the users. But this may not be the case. Even user satisfaction with certain digital tool that government employs does not mean that the quality of respective public service or function has improved. For instance, business satisfaction with tax e-filing procedures does not automatically mean that the overall efficiency of tax administration has improved, citizen satisfaction with a digital application form for a national passport does not necessarily mean that the administrative procedure has improved significantly, and user-friendliness of an e-participation portal does not guarantee that the issues raised by citizens have been resolved. Addressing this issue, would call for combining the data on perceptions of governance quality with evaluations of public administration digitalisation.

The review demonstrates the growing interest in the issues of government digitalisation risks and related issues of trust in government and trust in technology. The empirical studies on linking these factors with digital government adoption have yielded mixed results. One of the reasons for these mixed research findings may be related to the varied level of trust one citizen might have to various digital tools used by governments for various purposes. For example, one may fully trust the authorities when it comes to applying for social benefits and at the same time distrust the authorities when it comes to digital surveillance tools. The success of ongoing efforts to introduce data-based and data-driven decisions in the public sector, based on applying advanced technologies such as artificial intelligence, would require a better understanding of citizens perceptions of the impact of such technologies on government performance.

One of the promising areas of research in this respect is related to identifying patterns of and reasons for resistance to change and possible protective steps that citizens and businesses can take to avoid the undesired digital surveillance and tracing. A recent paper on self-censorship and the Snowden effect (Tanriverdi and Chen, 2018) presents an example of such an approach.

Noteworthy, digital avoidance challenges some acceptance models which use citizen satisfaction (or prior experience) as a predictor for digital government adoption (see for instance Alotaibi and Roussinov, 2017; Zheng and Schachter,

2017). This factor automatically excludes current non-users of e-government. However, from a practitioner's point of view, it is often more important to find out why some citizens or businesses resist using digital tools rather than why others use them.

Finally, the ongoing COVID pandemic has created natural experimental conditions for researching not only the benefits and costs, but also the limits of digital technology in raising the quality of public administration. While in some areas the use of digital technologies has helped to improve access to public services, notably, in healthcare (United Nations, 2020), there is a growing concern that online learning has decreased school satisfaction (Kirsch et al, 2021) and student motivation (Rahiem, 2021). Therefore, using survey methods to analyze the public value created by government digitalisation from a marginal utility perspective forms another promising area for future studies.

Conclusions

The review of international literature clearly demonstrates growing academic interest in evaluating digital government performance based on survey data. This research area is of interest in both developed and developing countries with varying levels of digital maturity. Increased pace of adopting digital technologies during the pandemic has further stimulated the research, especially on issues related to the risks of digitalisation and the role of trust both as a factor promoting adoption of digital technology and as an impact of digital government performance.

Overall, international studies conclude that importance of performance expectancy, facilitating conditions, perceived usefulness, user satisfaction, or positive prior experience, as well as ease of use influence the adoption of digital government tools by citizens and businesses. The influence of trust, risk perception, and social and demographic factors is debated.

Our review has demonstrated that so far, more research effort has been invested in identifying determinants and barriers to digital governance adoption rather than measuring the actual public value created (or facilitated) by advanced technology. Overall, the papers tend to focus more on inputs, outputs, and administrative efficiency issues rather than on outcomes and impacts. This conclusion is counter-intuitive because the data on outcomes and impacts cannot be easily derived from administrative sources and therefore requires special collection efforts.

While much attention is paid to the perspective of citizens and public officials, the business perspective of digital government performance is less frequently analysed. The same observation applies to the regulatory and enforcement functions of public administration. Further studies on variation of trust in government and trust in technology, measuring perceptions of government digitalisation risks, researching the reasons for digital avoidance, and evaluating public value of digital transformation from marginal utility viewpoint could provide a better theoretical and empirical basis for practitioners engaged in the digital transformation of public governance around the globe.

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