PUBLIC ADMINISTRATION ISSUES

Research and Educational Journal
Published since 2007

NATIONAL RESEARCH UNIVERSITY HIGHER SCHOOL OF ECONOMICS

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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.

The thematic focus of the journal makes it a unique Russian language edition in this field. "Public Administration Issues" is published quarterly and distributed in the Russian Federation and abroad.

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INTRODUCTION

Public administration in most countries of the world is currently facing several multidirectional challenges, and apparently there is neither a single conceptual theoretical scheme, nor uniform patterns of practical action capable of responding comprehensively to these challenges. In this issue of the Journal, we offer the reader a curated collection of articles delineating various strategies to address existing challenges, along with corresponding national approaches. Depending on the historical, cultural, social, and technological contexts, each country determines which challenges are a priority and offers solutions.

Among the regions and governance cases represented in this issue are Africa, the Middle East, East and Southeast Asia, Transcaucasia and the vast region of Eurasia, represented by Russia. This selection is due to the fact that these regions are experiencing original growth of public administration theory and practice that go beyond standard approaches. For example, the peculiarities of the arrhythmic functioning of development agencies in developing countries became fully apparent during COVID; the use of high technologies in the field of defense in developing countries is limited by financial and technological resources, and it is associated with the level of human capital and the limitations of international cooperation, and thus must take special forms; the use of online platforms as an element of public administration is mediated by trust in political institutions and the level of satisfaction of citizens with the previous practice of online functioning platforms.

The articles in this issue refer to one of the four areas of public administration and are structured in the following sections:
1. The digital state, the use of high technologies in the field of defense;
2. The "second-order" consequences of the impact of COVID on public administration and on social processes that go beyond the immediate effects;
3. Approaches to human resource management and moral aspects of the perception of leadership in public organizations that are related to culture and focus more on the reaction of employees to change than on the causes and needs of change;
4. Tools for open governance and feedback from citizens and the state, the role of local communities in the functioning of public-private partnerships in some economic sectors (tourism).

The key question I would like to address to the reader is: Can the new fragmentary research findings that represent the experiences and visions of public administration in developing countries in the vast regions of the world be seen as harbingers of new dominant theories and patterns of practice, or is the era of standards built on the basis of Western-oriented approaches replacing each other as dominant governance paradigms irrevocably coming to an end?

Issue Guest Editor
Alexey G. Barabashev

PAST, PRESENT, AND FUTURE OF DIGITAL GOVERNMENT: INSIGHTS FROM CHINESE PRACTICES

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Abstract. In the digital age, the progression of digital government models presents a nuanced problem that this study meticulously investigates. Contextually, the inception of digital government in China has transpired through three distinct phases, each marked by a characteristic emphasis: technology-oriented, mutual transparency-oriented, and people-oriented. The analysis underscores a critical shift in emphasis across these stages, from an initial concentration on technological deployment to a present focus on mutual transparency and citizen engagement. Despite the evident progress, an issue emerges around capturing and articulating these stages with precision and objectivity. In response to this problem, this study undertakes an in-depth examination of case studies pertinent to each phase, which unravels insights into their defining characteristics. The findings indicate a potential trajectory towards a digital government model that further accentuates public participation. The aim of this study is to deepen the comprehension of the evolution of digital government in China and to shed light on its potential future trajectory, thereby contributing significantly to the dialogue around policy formulation and the future development of digital governance.

For citation: Guo, Y., Zhang, T. and Deng, Y. (2024) 'The past, present, and future of digital government: Insights from Chinese practices', *Public Administration Issues*, 5, pp. 6–24. (In English). DOI: 10.17323/1999-5431-2024-0-5-6-24.

JEL Classification: H79, O38, P41.

Introduction

In the transformative wake of the fourth industrial revolution, the digital sphere's growing influence is profoundly impacting global socio-economic infrastructures. Technologies such as the Internet of Things, cloud computing, big data, mobile internet, and artificial intelligence, are driving this transformation, dismantling traditional boundaries and establishing a new order of interconnectedness and efficiency. At the epicenter of this digital metamorphosis lies the concept of digital government, an entity charged with integrating these advanced technologies into governance mechanisms. It manages the expectations of an increasingly digitally literate citizenry, whose daily lives are closely intertwined with the digital ecosystem. The digital government's role is thus emerging as not merely administrative but pivotal, signaling a paradigm shift in governance strategies. It calls for an approach that leverages technological advancements to streamline processes and enhance service delivery and emphasizes user-centricity and inclusivity. This novel framework encapsulates an understanding of the citizens' needs, seeks their active participation, ensures transparency, and promotes a sense of shared ownership and accountability. Thus, digital government is moving beyond a technocratic tool to an enabler of citizen empowerment, marking a new era in public administration and governance.

In China, a nation marked by its rapid pace of digitalization, this transformation is particularly palpable (Meng, 2012). With the acceleration of "Digital China", construction and the increasing emphasis on modernizing governance capacities, the call for digital transformation of the government is clear and urgent. Progress towards a digital government in China is sprawling, manifesting in varied models that reflect distinct economic standing, industrial foundations, and development goals across different regions and stages of implementation. Each model embodies unique strategies and mechanisms, underscoring the non-static nature of digital government. It is an evolving entity, adaptable and responsive to the changing socio-economic contexts.

The academic discourse on the models of building a digital government can be divided into four main streams. The first stream is the theoretical school (Liu and Zhu, 2019; Kontogeorgis and Varotsis, 2021), which delves into the conceptual framework of digital government. The second stream is the institutional design school (Chen et al., 2020; Jiang, 2021), which focuses on the systemic structures that facilitate digital governance. The third stream is the technological transformation school (Wang, 2022; Zhang, 2022; Guo et al., 2023), which investigates how advancements in technology can spur the evolution of digital government. Lastly, the service model school (Zhang et al., 2021) studies the methods and practices of delivering digital public services. However, these research perspectives, though insightful, have certain limitations. The theoretical school, establishing the foundational understanding, may overlook practical considerations. The institutional design school, which focuses on systemic structure, may underestimate the role of human factors and cultural aspects. The technological transformation school, with its emphasis on technical aspects, might sideline organizational and policy issues. Lastly, the service model school, while being essential, could disregard the interplay between different elements of digital government, such as technology,

policy, and human factors. This paper fills these gaps by offering a comprehensive, holistic approach. It considers digital government not only as an amalgamation of separate elements but also as an integrated system in which policy, technologies, and service delivery interact and evolve together. The paper strives to offer an extensive perspective on digital government's development, especially within the Chinese context, considering its rapid pace of digitalization. In light of these observations, this study aims to address these gaps by examining the evolution of China's digital government. The central research question is: "Does the archetype of China's digital government remain static, or is it subject to evolution?" Guided by this query, the study seeks to delineate the unique characteristics of digital government across different stages of its development, comprehend the drivers behind these evolutionary transitions, and speculate on possible future directions. The study contributes to a more nuanced understanding of digital government, tracing its growth and potential future trajectories, thus enriching the existing body of knowledge.

Literature Review

Digital advancements are reshaping global socio-economic paradigms. Digital government models in China, centered on digital infrastructure and state-driven digitization, are of paramount importance. Much of the current literature on X pays particular attention to four key paradigms in understanding these models: theoretical, institutional design, technological innovation, and service model.

The theoretical perspective

In a globally acknowledged study exploring the accelerating momentum of governmental digital transformation, Liu and Zhu (2019) introduced 'Digital Government' as a new operational paradigm. This approach, deeply rooted in the principle of business dataization and data operationalization, has significantly changed the governmental realm. By carefully examining the theoretical and practical elements of digital government, Liu and Zhu (2019) provided insights into the progressive trajectory of digital government evaluation models. The research brings forward the contributions of key entities such as Gartner, Accenture, and Waseda University, that established digital government maturity models and laid the groundwork for future advancements. Liu and Zhu (2019) built upon these existing models, presenting a data-driven digital government architectural system to accelerate the digital transformation of governmental operations. Through their detailed analysis, two leading digital government evaluation models came to the fore: the five-level digital government maturity model proposed by Gartner and the digital government evaluation model by Accenture. In addition to this commendable advancements, Liu and Zhu (2019) have also highlighted some potential obstacles on the road to the digital transformation of public administration. They emphasize a striking lack of a strategic approach to digital transformation, an evident deficit in digital service innovation and challenges in the expansion of digital services. Most importantly, they underline the need for more effective integration of data management policies and technologies.

The institutional design perspective

Chen et al. (2020) conducted a comprehensive comparison of local digital governance models and identified several common features. Guided by a comprehensive top-level design, these modes typically commence with institutional reform fostering an environment conducive to meticulous planning and effective resource management. The long-term goal is to create a service-oriented government with a citizen-centered philosophy. These principles are exemplified in the digital government models of Guangdong, Zhejiang and Guizhou provinces. Guizhou, for example, has put a big data strategic plan into action. This initiative centers on the development of a comprehensive national big data trial zone (Guizhou), implementing one cloud, one network, and one platform strategy data resources.

Concerted efforts have significantly enhanced data aggregation, from 10 TB in 2015 to a remarkable 1,387 TB in 2020 (CAICT, 2021). This strategic plan facilitates systematic experimentation in seven crucial areas, including data resource management, sharing openness, data center integration, data resource application, data element circulation, big data industry agglomeration, big data international cooperation, and big data system innovation. These orchestrated initiatives pave the way for the exploration and advancement of new technologies, products, applications, models and regulations, thereby making a significant contribution to critical sectors such as inclusive finance, cultural tourism, transportation, and employment.

Jiang (2021) underscores that the development of a digital government plays an integral role in executing the Digital China strategy and paves the way for the modernization of the national governance system and enhancing governance capabilities. A comparison of the digital government building strategies in Guangdong, Zhejiang and Guizhou provinces reveals common characteristics. These encompass a strong emphasis on strategic planning and top-level institutional structure design, an intense focus on restructuring organizational mechanisms, and a prioritization of building an integrated government service cloud and big data platforms within the technological framework. Despite these similarities, there are also significant differences in areas such as the perceived opportunities and set objectives for building digital government, the implementation modes and intensity of advancement within digital government, and the measured outcomes and focal points of the digital government building process. Looking to the future, building a digital government requires a comprehensive strategy that takes into account the key facets of values, organization, regulatory systems and technology.

The technological innovation perspective

Building on the research on the connotations, models and iteration paths of digital government, Wang (2022) puts forward three distinct models of digital government: data-driven, computational power-driven and algorithm-driven. Zhang (2019) presents a compelling chronicle of the evolution of digital government in China, marking the transition from version 1.0 to 2.0. More intriguingly, this transformation is rooted in distinct digital government models that align with different temporal frameworks, specifically the Information Age, the Data Age and the Intelligent Age. These epochs represent unique stages of digitalization facilitating a smooth shift from traditional to modern, data-driven and intelligent gov-

ernance systems. According to Zhang (2019), the digital transformation of government marks a significant progression in the building of digital government The transformation is presented in a three-stage model that not only illustrates the progression but also forecasts future trends in digital government. Digital Government 1.0 is the first stage, which symbolizes the Information Age. This stage is characterized by data gathering, sharing and presentation of data through digitization. The subsequent stages are encapsulated in Digital Government 2.0, which represents the Data Age and the Intelligent Age, respectively.

In these later periods, intelligence becomes the driving force behind government reform and innovation. This shift propels a transformation in traditional governance approaches, promotes alterations in business processes, and fosters the creation of new governance models.

Guo et al. (2023) claim that from the perspective of information technology development, global government has traversed three epochs: the Weberian model, the New Public Management model, and the Integrated Government model. Based on the developmental stages of governance in China and empirical explorations of building digital government in Qionghai, Guizhou, Shandong, and Guangdong provinces, they summarized four contemporary models of digital government. These include the "Small Government" model, the "Multi-level Coordination" model, the "Process Reengineering" model, and the "EPC General Contracting" model. The era of digital government is characterized by the concentration of computational power, data centralization, business centralization, and consolidated services. In the context of digital transformation, the overarching approach to building digital government in China involves the establishment of a four-tier architecture. This architecture features the distributed deployment of computational power, the effective integration of government and enterprise data, the authorized operation, application of public data, and ubiquitous around-the-clock government services. This strategy aims to expedite the transition from an "Integrated Government" to an "Intelligent Entity Government."

The service model perspective

Zheng et al. (2021) conducted a study focusing on building digital government in ten representative provinces and cities. The backbone of their analysis was resource dependency theory and platform governance theory, providing a lens to categorize the digital government initiatives into three distinct models. These include the Platform Monopoly Model, the Service Delivery Model, and the Internal Management Model. This classification occurred against the backdrop of a national policy that encourages pioneering efforts in building digital government by local governments, thus granting them considerable autonomy to explore different approaches. The dynamics between local governments and their external environment, in particular the degree of their resource dependency, emerged as a decisive factor in selecting the model for building digital government. This interdependence shaped the power relationships among the various stakeholders involved in building digital government, leading to notable differences. Such differences were especially evident in the distribution of decision-making power, formal and informal regulatory power, and ownership rights. As a result, more adaptable models for

building the digital government, reflecting the unique resource dependencies and power structures, emerged in these representative provinces and cities.

The current body of scholarship on digital government models has gravitated predominantly around four main domains. Firstly, scholars have delved into the theoretical dimension, mapping out the frameworks and principles that underpin the concept and operation of digital government. Secondly, an emphasis has been placed on institutional design, including the planning, setup, and management of digital government systems. The third area of focus lies in the realm of technological transformation, scrutinizing how various technologies foster the transition of governmental operations to the digital realm. Lastly, research has extensively addressed the service delivery model, and how digital government can enhance public service delivery and citizen engagement. However, far too little attention has been paid to the dynamic nature of digital government evolution. Most studies have adopted a static approach, focusing on digital government models within a particular time frame or at a specific stage of development. This approach does not adequately capture the continuous evolution and transformation of digital government models over time. Moreover, the changing needs, expectations, and behaviors of citizens – as key stakeholders in digital government – have not been comprehensively explored in existing studies.

Addressing these gaps, this paper embarks on a journey through the changing landscapes of digital government models. It proposes a unique three-stage model of digital government evolution in China (Figure 1): the Technology-oriented Digital Government stage (1996–2006), the Mutual Transparency-oriented Digital Government stage (2007–2015), and the People-oriented Digital Government stage (2016-present). Each stage captures a distinct phase of digital government development, reflecting the changing priorities and focuses over time. By examining the dynamic progression of digital government from a temporal perspective, this study offers a comprehensive understanding of the transformative trajectory of digital government. Furthermore, by foregrounding the people-oriented stage of analysis, the study emphasizes the critical role of citizens in shaping the direction and pace of digital government evolution. Through this approach, the study seeks to illuminate the intricacies of the digital government evolution process and elucidate the strategies for the further development of the digital government in China and potentially beyond.
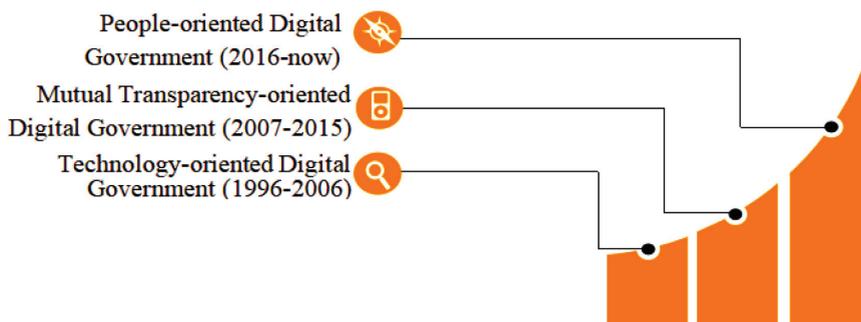
Figure 1: **The evolution of Chinese digital government**

Content analysis was employed in this study as the primary research method. This approach, utilizing content analysis, delves deeper into specific textual and media data to identify patterns, themes, or biases, focusing on the frequency and relationships of specific terms or concepts. Traditional narrative analysis of digital government case studies, on the other hand, emphasizes the sequence and structure of stories or accounts.

While both methods are qualitative in nature, content analysis offers a systematic technique to condense vast amounts of information into discernible categories or themes. In contrast, narrative analysis is centered around understanding the overarching narrative structures, their inherent meanings, and their roles in the digital government context. When observing the single evolutionary model for digitalization since 1996, content analysis can provide a detailed exploration of its progression, spotlighting shifts and trends that may not be immediately apparent in broader narrative accounts.

Technology-oriented Digital Government (1996–2006)

Digital government that adheres to a technology-oriented approach, focusing on national efficiency and productivity, predominantly assigns decision-making roles based on technical expertise (Myeung, 2020; Myeung, 2023). This focus marked the advent of China's commitment to government digitalization, signaled by the launch of the "Three Golden Projects". These initiatives encompassed infrastructure, business systems, and information networks and coincided with China's inaugural access to the Internet in 1994 (Yun, 2018).

The period leading up to 2006 marks the inception of China's digital government, characterized by four distinct yet nascent traits. Primarily, the emphasis rested on technical aspects related to network infrastructure. With the dawn of the digital era, the government started to probe into the potential of technology to enhance administrative efficiency. Nevertheless, the coverage and integration of digital technologies remained at a rudimentary stage, with a predominant focus on building the necessary infrastructure. Secondly, the government embarked on efforts to actively disseminate and utilize information. Digital platforms began to function as conduits for government departments to communicate and share information with the public. However, at this stage, the emphasis was predominantly on one-way transparency, illustrating the initial attempts of the government to disclose information to the public. The strategies and systems to ensure comprehensive information transparency were still in their formative stages, pending maturity. Thirdly, this period witnessed the initiation of an expansive and broad-based construction of the digital government. As digital government initiatives began to seep into diverse governmental departments and functions, the ground was being prepared for a more comprehensive implementation in the future. Lastly, security considerations were prioritized during this incipient phase. The introduction of digital technologies in government functions brought potential security concerns to the fore, triggering the formulation of preliminary measures to safeguard the operations of the budding digital government.

Mutual Transparency-oriented Digital Government (2007–2015)

Concept and characteristics

The evolution of the Chinese digital government saw a pivotal shift around 2007. Between 2007 and 2015, the Chinese digital government transitioned gradually from a technology-driven, one-way transparency model to a model of mutual transparency. This change was not just about the government's openness and transparent services towards the public but also encompassed the public's transparency towards the government. This involves a continuous exchange of information between the government and its citizens, with a firm emphasis on openness and transparency in its operations. One way to visualize this relationship is through the analogy of a fish tank (Figure 2), where the government is inside, and citizens are outside. Citizens can view the inner workings of the government, understanding its operations and structure. Simultaneously, the government is aware of the external environment and the public sentiment (Myeung, 2020; Myeung, 2023).
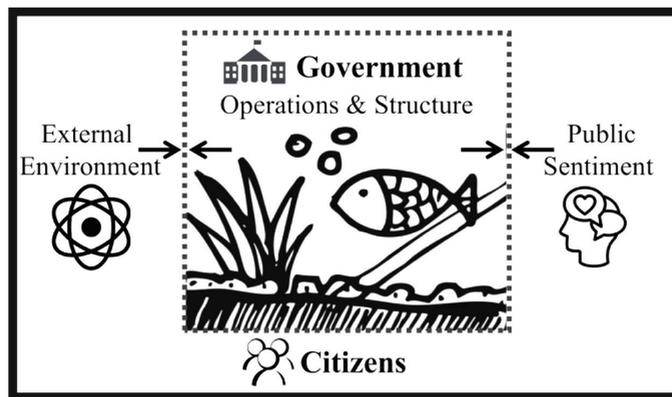
Figure 2: **Mutual transparency-oriented digital government**

Mutual Transparency-oriented Digital Government embodies distinct characteristics that shape its functioning and interaction with citizens. Firstly, information flows bidirectionally, unlike traditional one-way communication. The government transparently shares operations, policies, and services, fostering an ongoing conversation with citizens who provide their feedback and suggestions (Zhai, 2018). Secondly, openness and accountability are central, encouraging transparent actions and decisions and fostering trust and understanding (Lourenco, 2023; Shenkoya, 2022; Fullin Saldanha et al., 2022). Thirdly, citizen engagement is vital, actively involving them in policy-making and oversight to instill a sense of ownership (Cox, 2014; Chen and Chang, 2020). Fourthly, privacy protection is a priority, striking a balance between transparency and privacy to avoid "super-transparency" risks (Cox, 2014; Chen and Chang, 2020). Lastly, quantifiable transparency is emphasized, allowing for objective assessment and continuous improvement of government performance to avoid unnecessary costs while maintaining effective governance.

Theoretical foundation

Information asymmetry, elucidated by the economists Akerlof, Spence, and Stiglitz (1970), describes disparities in market information, leading to challenges like fraud and unfair competition. While its roots are in economics, its relevance spans sectors, including government management. In building a digital government, this asymmetry manifests itself as a gap between the government's comprehensive knowledge of policies and the public's limited awareness. Addressing this, digital government platforms and transparency measures have been developed to bridge the information divide, augment government transparency, and foster public understanding. The two-way transparency model further advances this effort. Differing from traditional one-sided governmental transparency, this model emphasizes both the outward and inward information flows, engendering an informed citizenry capable of both accessing and contributing to governmental data. Leveraging digital platforms, this approach offers citizens engagement avenues, enriching both governmental and public perspectives. Advanced tools in digital government refine this model by using data analytics to ensure effective information dissemination.

Practical case studies and summary of experiences

By the end of 2008, every department of the central government, along with provincial and municipal governments, had established portal websites. At the same time, websites had been set up by 99% of city-level and 92% of county-level governments. Even many streets, townships, and village committees created their own websites or web pages. A significant shift occurred on May 1, 2008 with the implementation of the "Regulations on the Disclosure of Government Information". This sparked a broad wave of applications, as citizens eagerly sought to gain access to public information.

The Capital Window, a pivotal part of the Beijing municipal government portal website, acts as a comprehensive information hub and digital platform for the city's residents. It continually strives to augment government transparency and foster greater interaction with the public. This digital platform, deeply rooted in the principles of mutual transparency, serves as a two-way communication conduit between the government and its citizens.

In terms of outward transparency, the Capital Window takes the initiative to disseminate vital information about the government's operations, policies, services and even the intricacies of its decision-making processes. This open access to information offers citizens a rare insight into the workings of their government and makes governance more understandable and accountable.

At the same time, the Capital Window encourages inward transparency by promoting active citizen participation in policy-making. The platform offers various communication channels for the public to express their views and suggestions on different facets of governance, thereby giving the citizens a sense of power and involvement in the development of their city. As part of its transparency initiative, the Capital Window employs advanced data analysis tools to process user interactions and feedback, which help pinpoint gaps in information delivery and consequently enhance the quality of disseminated information.

Through these efforts, the Capital Window ensures that citizens receive timely and relevant information. This unique approach to mutual transparency has brought tangible benefits by reducing information asymmetry and enabling the public to better understand government operations. At the same time, the feedback collected through this interactive platform has played a key role in refining the government policies and services.

In summarizing the distinctive features of the Capital Window in promoting mutual transparency, three points are particularly notable. First, the Capital Window systematically publishes a wide array of government data, shedding light on how decisions are made and services are delivered. Second, it actively encourages citizens to voice their opinions and ideas on governance, thus promoting the democratic participation of the public. Lastly, it employs advanced data analysis to enhance the quality and efficiency of information dissemination, ensuring the relevance and timeliness of the information being conveyed. The Capital Window, therefore, stands as an exemplary model of a digital government platform that effectively embodies the principles of mutual transparency.

People-oriented Digital Government (2016-Now)

Concept and characteristics

In the span from 2016 to now, China's digital government progressed towards a model of people-oriented digital governance. This phase specifically emphasized the needs and interests of the citizenry, with a focus on improving governmental efficiency and productivity while delivering comprehensive services to the public. The concept of a people-oriented digital government situates citizens at the core of its operations, maintaining a focus on efficiency and productivity. This approach scrutinizes the quantity and speed of services provided to the public, indicating a strong commitment to the people. Additionally, this model pays significant attention to public opinion, signifying a deep understanding of its work's intended recipients. Public opinion reflects the desires, judgments, attitudes, and interests of citizens toward public affairs and societal behaviors (Myeung, 2020; Myeung, 2023).

Embarking on a new era of governance, China has been moving towards a people-oriented digital government model since 2016. Distinguished by its profound dedication to serving the citizenry's needs and interests, this approach reshaped the digital government landscape by prioritizing efficiency, productivity, and comprehensive public services (Zhang, 2019). As a logical evolution of the Mutual Transparency-oriented Digital Government model, the People-oriented approach centers on the citizenry, positioning them at the heart of its functions. This approach marks a clear shift from simply using technology to actively using it as a catalyst for social improvement, ensuring the harmonious integration of management and technology.

The people-oriented digital government is characterized by prioritizing active public participation, enabled by digital platforms for citizens to voice thoughts and engage in decision-making. This model sets a new efficiency standard, streamlining processes and leveraging technology for faster service delivery, fostering

both satisfaction and trust. Interaction becomes a cornerstone, promoting a two-way dialogue for mutual feedback and adaptability in response to real-time public sentiment. Acknowledging diversity, the model strives for equal access to digital government services, bridging the digital divide and fostering an inclusive digital society. Commitment to high transparency and accountability reinforces trust by openly sharing information about government operations, ensuring citizens that their government acts in their best interests. This shift marks a transformative phase in China's digital governance, where technology truly serves the people.

In 2016, China's approach to building digital government changed significantly. The focus turned towards information disclosure, enhancing government-citizen interaction, and improving government services, all with the goal to establish a citizen-centric digital government. In the same year, the "Guiding Opinions of the State Council on Accelerating the Advancement of 'Internet + Government Services'" were introduced. This development spurred governments at all levels to pioneer a set of innovative reforms. These included the "run at most once" policy, "approval without meeting", "one network for all tasks", and "one task, one time". The practical impact of these reforms became evident as services began to shift online and to mobile platforms through government websites and new public affairs media. This marked a significant improvement in administrative efficiency and reduction of systematic transaction costs, fueling ongoing progress in the "delegating powers, improving regulation, and upgrading services" reform.

Building on these improvements, the "Detailed Rules for the Opinions on Fully Promoting Government Openness" were also introduced in 2016. This initiative put forward proposals to use the internet to build a unified system of government services. This initiative gained further momentum in 2018 when the General Office of the State Council issued the "Guiding Opinions on Accelerating the Construction of the National Integrated Online Government Service Platform". The publication of these guidelines highlighted the need to focus on top-level design, encourage overall linkage, enhance normative management and accelerate the construction of a national integrated online platform for government services.

This sustained progress culminated in a significant decision on November 17, 2021. The State Council Executive approved a strategic plan to advance the informatization of the national government for the "14th Five-Year Plan". This plan seeks to enrich the functionality of the national platform for integrated government services and provide more user-friendly public services. These milestones mark the ongoing commitment to reducing information asymmetries and building a more responsive, citizen-centric digital government.

Theoretical foundation

New Public Management (NPM) and the Innovation Diffusion Theory (IDT) critically underpin the evolution of modern governance towards citizen-centric digital government. NPM, a late 20th-century emergence, counters traditional public sector inefficiencies by advocating private sector practices, emphasizing performance, cost-efficiency, and citizen-centric service delivery. As governments transition to digital domains, these principles demand streamlined processes, transparency, and enhanced citizen engagement. Conversely, IDT offers in-

sight into the adoption rate and rationale for new technological implementations in governance. It helps understand stakeholder behavior and the factors driving the assimilation of digital tools, particularly their perceived utility. As highlighted by Meng (2012), governments are leveraging e-Government platforms, data analytics, and user experience design, resonating with NPM's core tenets. Meanwhile, IDT-guided strategies focus on promoting technological acceptance, encompassing digital literacy initiatives and addressing technological gaps. Collectively, NPM and IDT provide a comprehensive blueprint for the ongoing transformation of citizen-centric digital governance, emphasizing streamlined performance, innovation diffusion, and holistic citizen engagement.

Practical case studies and summary of experiences

Since 2016, China has accelerated the development of its digital government, issuing a multitude of policy directives from both the central and local levels. Central government policy documents, include major policies such as the "Thirteenth Five-Year Plan for National Informatization," "Guiding Opinions on Accelerating the Advancement of 'Internet + Government Services'," "Construction Guide for 'The Internet + Government Services' Technology System," "Outline for the Promotion of Big Data Development," "Guiding Opinions on Accelerating the Construction of the National Integrated Online Government Service Platform," "Rural Digital Development of Work Points by 2022," and the "Digital China Construction Overall Layout Plan" serve as guidance, and illustrate the government's unwavering commitment to promote digitalization in governance. These policies aim to harness the transformative power of digital technologies to enhance the efficiency and effectiveness of public services. At the same time local policy documents, spanning across various provinces and cities, complement these central guidelines, underlining the government's holistic approach in fostering a digitally-empowered state. These local strategies tailor the overarching national policy directives to the local contexts, ensuring a well-rounded and comprehensive implementation of digital governance across China.

Since the 18th National Congress of the Communist Party of China, the journey towards a modern socialist society has shifted into high gear, with the "14th Five-Year Plan for National Economic and Social Development and the Outline of the Long-term Goals until 2035" acting as the primary driving force. This crucial plan emphasizes the "Accelerating Digital Development and Constructing Digital China", signifying China's resolve to become a digitally empowered nation. This commitment was further cemented in the 20th National Congress report, underlining the strategic goals of creating a high-quality, networked, and digitized nation. In this metamorphosis, the Central Committee of the Communist Party and the State Council have been diligently crafting strategic plans aimed at modernizing the national governance system and enhancing governance capabilities, with digital construction as the core principle. This strategy achieved a notable breakthrough on June 23, 2022, when the State Council issued the "Guiding Opinions on Strengthening Digital Government Construction". This blueprint laid out a comprehensive approach to building a digital government in China. To accelerate this digital governance strategy

in March 2023, the State Council introduced a reform plan leading to the inauguration of the National Data Bureau.

Managed by the National Development and Reform Commission, this newly minted bureau was envisioned to provide a sturdy institutional foundation to expedite the progress of Digital China, the digital economy, and the digital society. According to the "Explanations on the Reform Plan of the State Council", the Bureau is tasked with building a data infrastructure system and guiding the evolution of Digital China, the digital economy, and the digital society, while ensuring stringent data security and industry data supervision. This strategic initiative draws upon invaluable lessons gleaned from the establishment of big data management institutions at the local government level since the 18th National Congress of the Communist Party of China. These experiences provide crucial insights, contributing significantly to the formation and effective operation of the National Data Bureau. This institutional innovation marks a significant milestone in China's journey towards a comprehensive digital transformation of governance.

Marking a significant milestone in the evolution of digital government, the "National Integrated Government Service Platform" was officially launched on May 31 , 2019. The initiation of this platform reflects the importance that the CPC Central Committee and the State Council attribute to a people-centered digital government. This is a crucial step in the path towards creating a more citizen-centric governance structure. As a technology enabler, this platform aids various localities and departments in expediting the standardization of government services. This acceleration ensures a more efficient sharing and recognition of government service information, thereby fostering a more robust digital government ecosystem. One of the hallmarks of the platform is its potential as an exploratory pathway for streamlining processes. It reinforces the idea of "one network", "one window", and "one visit", by effectively addressing and resolving administrative issues such as redundant certifications, procedural complexities, and circular certificates.

Moreover, a fundamental shift occurs through the platform – a transition of government services from offline processing to online booking and acceptance, eventually reaching comprehensive online network management. These improvements do not merely represent a technological upgrade; they significantly enhance the accessibility and convenience of government services for the public and administrative counterparts, thereby augmenting their sense of achievement. By May 8, 2020, the platform had already demonstrated its value and reach. The number of registered users had surged past 100 million, hosting over 800 million visitors and accruing a cumulative user base exceeded 4.5 billion. Furthermore, the "National Government Service Platform" WeChat mini-program emerged as the first national government mini-program with over 50 million real-name registered users. This platform does not just boast impressive numbers; it has also brought about a significant operational change. It plays a vital role in achieving nationwide "one network operation", maximizing data utility, and reducing errands for citizens. People can now search, discover, and access government services across departments, regions, levels, and platforms. The effects of this transformation are tangible. The platform has significantly bolstered administrative

efficiency, facilitated the equitable distribution of public services, expanded the scope of services, and enhanced the extensibility of services.

The people-oriented digital government focuses on the "National Integrated Government Service Platform" as a model for citizen-oriented digital government. The selection of this platform is propelled by several compelling factors, most notably , the rapid evolution of digital government services in China. This evolution caused a surge in the number of government websites and applications, creating a considerable financial burden for the Chinese government due to their development and maintenance costs. CNNIC's 2021 report revealed that, the total number of e-government websites in China had increased exponentially by June 2021. This proliferation led to management complications and left users puzzled about the most suitable platform, resulting in only a few sites securing high user loyalty and law overall user engagement.

The Chinese government has displayed a proactive approach to digitalization and the development of digital government since the 18th National Congress of the Communist Party of China. This commitment aligns with global trends and provides a strong institutional foundation for digital government growth through organizational leadership, national strategy, and top-level design. As a result, digital government now extensively supports various governmental departments in their roles. It meets the demands of diverse tasks and objectives in public services, social governance, market supervision, macro-control, and ecological protection. This contribution promotes administrative system reform and the establishment of a service-oriented government, playing a vital role. Interconnectivity now exists between central and local governments as well as departments. This interconnectivity facilitates the centralized provision of government services on the national digital government service platform, providing one-stop government services. This development plays a critical role in addressing the challenges faced by enterprises, such as difficulties, delays, and complexity, and has achieved notable results. The "National Integrated Government Service Platform", which was launched in 2019, serves as an example in this stage.

In this context, the "National Integrated Government Service Platform" plays a critical role in addressing these issues, providing a crucial tool for enhancing data sharing, improving service delivery, integrating online and offline services, and increasing the transparency of government information. The platform's continuous evolution and enhancement will significantly contribute to resolving these persistent challenges in China's digital government.

Findings and Discussion

Digital governance in China has undoubtedly evolved over time, showing a notable shift from mutual transparency to a people-oriented focus and potentially moving towards a model that places even greater emphasis on public participation.

Originally, the digital model of government based on mutual transparency pioneered a shift in the relationship between the government and its citizens. It pushed beyond the traditional one-way flow of information from government to citizens, introducing the novel concept of mutual transparency.

While this model made an important contribution to the promotion of open government, it still positioned the public rights as secondary. Transparency was at the forefront, with public participation lagging behind. Following this era, the people-oriented digital government model emerged, taking strides to correct this imbalance.

This evolution brought citizens at the center of their activities and focused on the efficiency of services and the active engagement of the public in governmental processes. This model marked significant progress in integrating citizen participation, but there is still room for more robust citizen involvement (Mossey et al., 2019; Vaerst et al., 2015). Envisaging the future of digital governance, the emphasis on the public's right to participate in governance appears to be the next logical step (Park and Suyoung, 2021; Perez-Morote et al., 2020; Reuter et al., 2020).

It is hypothesized that the next iteration of digital government will move beyond the people-oriented approach prioritizing not just efficient delivery of services, but also the facilitation of extensive public involvement (Espinoza, 2022; Yong and Kim, 2007).

The future model aspires to combine the strong points of previous models (Figure 3): the mutual transparency of the model and the people-oriented model's emphasis on public centrality, while positioning public participation as a core operational principle. In this proposed model, technology functions as a critical tool, enabling transparency and public participation by enhancing access to information and providing citizens with interactive platforms. Nonetheless, despite the vast potential of technology, future digital governments should be aware of possible challenges such as privacy infringement, the digital divide, and the risk of becoming overly dependent on technology. The primary objective is to tap into technology's benefits while protecting the rights and interests of citizens. Therefore, the progressive shift from mutual transparency to people-oriented digital governance, and possibly towards a model accentuating public participation, exemplifies the dynamic nature of digital governance. Each stage contributes unique learnings, focus points, and contributions to the evolution of digital government, outlining a path that progressively includes and prioritizes public participation. In essence, the future of digital government appears to be gearing towards an approach that equitably blends transparency, citizen-centric services, and sturdy public participation. Such an approach would cultivate a more inclusive and participatory form of governance. A public participation-oriented digital government possesses the following characteristics:

Firstly, the orientation of public participation has a strong driving effect, emphasizing diversified participation, co-governance and sharing with public participation as the core. Under the conditions of digital government, public institutions are gradually becoming more and more open, and the governance entities are showing a diversified development trend in the process of public participation. The public participation-oriented digital government is a typical form of collaborative governance. This truly changes the manager role of government. The public, enterprises and other social organizations collaborate together. The improvement of the public participation will bring about the improvement of the market and social organizations.

Secondly, mutual transparent interactive channels remain important. The operational orientation of digital government is shifting, and public participation is becoming the core content. The government provides sufficient resources and support for public participation. Deepening the development of a mutual transparent participation and interaction model, the digital government can better play the role of service providers and promote the public to become a protagonist of governance. In addition, at this stage, the government pays more attention to the universality of interaction and communication with the public, facilitating the government to listen and integrate public opinions, thereby understanding people's livelihoods, resolving potential social conflicts, improving the interaction between the government and the public, and enhancing the government's credibility.

Finally, the government empowers the public through innovative electronic consultation, electronic decision-making, and other participatory methods. Public participation is closely related to the protection of rights. It is necessary to safeguard the public's right to information, participation, expression, and supervision, as well as the subject rights and control rights formed by new resources such as data and information. In the process of realizing relevant political rights, personal rights and property rights, the public decision-making process becomes more transparent and effective with public participation.
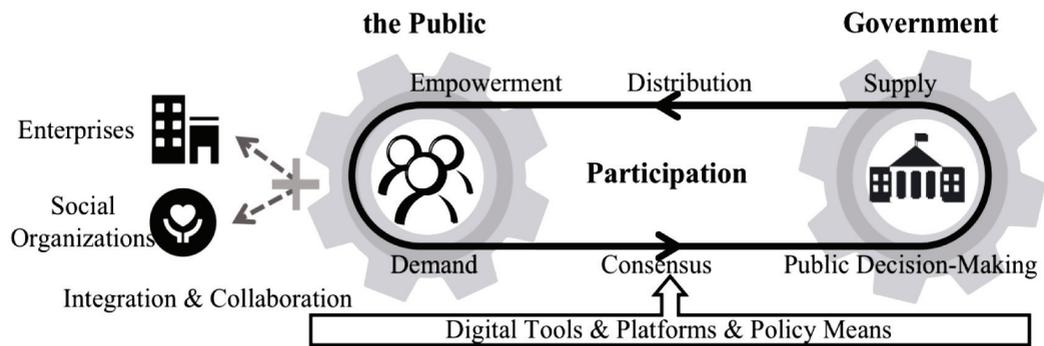
Figure 3: **Public participation-oriented digital government.**

Public-oriented digital government is an advanced model and a form of government development in the digital era, which pays more attention to digital inclusivity, autonomy and selectivity, and achievement sharing. It encourages the public to realize their rights and demands through substantial participation in the decision-making process, supported by new technologies, two-way transparency, and people-centered approach.

To achieve a public participation-oriented digital government the following measures should be taken. Firstly, at this stage of development, the government should expand participation channels, innovate public-oriented operational models, and actively explore various forms of participation. The Government should also develop a governance model of co-construction and sharing, and a digital government that is inclusive. Secondly, the government should strive to continu-

ously improve mutual transparent communication channels, including channels for providing information to the public and channels for obtaining information from the public. A mutual transparent information exchange and communication channel are necessary conditions for fostering public participation, promoting the fair distribution of public resources from dimensions such as the degree and breadth of public participation. Thirdly, addressing the dilemma of information asymmetry and political passivity from the supply side, by providing convenient and legitimate procedures for the public to access public services, participate in public decision-making, and conduct public supervision. Finally, the concept of participation in digital government, guided by public participation, has been expanded, especially in terms of the content and scope of participation, allowing the public to participate in important processes such as public decision-making, policy implementation, and performance evaluation. Wider participation of the public, third-party enterprises, and organizations in the design and evaluation of public goods and services can improve the service experience and supply levels of public goods, and better meet the public needs.

Conclusion

To encapsulate the key insights drawn from this study, it is evident that digital government, as it traverses distinct historical periods, presents unique characteristics, highlighting a dynamic evolution rather than a static state. The central premise of this discourse is the segmentation of the progression of China's digital government into three distinct stages. This chronological demarcation not only gives an organized structure for understanding the evolving nature of the digital government but also provides a framework to analyze the characteristics inherent in each stage, thus enriching the discourse on digital government evolution. The paramount contribution and innovative facet of this research lie in the proposition and exploration of these three developmental stages of China's digital government. The first stage, the Technology-oriented phase (1996–2006), was hallmarked by a preoccupation with technological advancements, although it grappled with some inherent challenges, such as a deficiency in rational planning, a lack of apparent performance, and prominent island effects. This stage primarily focused on the integration of information technology into government operations, rather than on public interaction and engagement. Transitioning into the second stage, the Mutual Transparency-oriented Digital Government phase (2007–2015), the Chinese digital government transformed a technology-centric, one-way transparency model to a mutual transparency model. This model was driven by a more inclusive bidirectional exchange of information between the government and citizens, furthering the vision of a transparent, open government. Lastly, the study delves into the People-oriented Digital Government phase (2016-present), where the government model pivoted towards a citizen-centric approach, accentuating service efficiency, public participation, and enhanced government-citizen interaction. These stages not only mark the transition in terms of operational focus but also signify the growing recognition of citizen participation and civil rights in the functioning of the

digital government. Such innovative classification of the stages of digital government, complemented by case analyses, lends a comprehensive lens to understand the nuanced evolution of China's digital government. It provides a solid foundation for identifying and analyzing the unique characteristics, challenges, and successes inherent to each stage. Consequently, it contributes significantly to the body of knowledge on digital government development, setting a valuable precedent for further studies in this field.

However, the study is not devoid of limitations. The demarcation of the stages in the development of digital government, along with the traits attributed to each stage, inevitably involves an element of subjectivity. While efforts have been made to mitigate this subjectivity through extensive expert consultations, it is impractical to eliminate it completely. Future research could employ diverse quantitative methods, such as structural equation modeling and multiple regression analysis, to delve into the aspects of citizen participation and civil rights, and to probe their influence ratio in the impending digital government. Qualitative studies, using methodologies as historical investigations, can also provide a deeper understanding of these factors. Such endeavors would be instrumental in offering more refined recommendations for the future trajectory of the digital government.

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DEFENSE EXPENDITURES WITHIN THE FRAMEWORK OF POSITIVE EXTERNAL EFFECTS FROM THE PRODUCTION OF HIGH-TECH WEAPONS *(THE CASE OF ARMENIA)*[1]

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Abstract. The article explores the issues of defense spending optimization in Armenia from the point of view of possible positive externalities of the production of high-tech weapons. It attempts to answer the question of how to solve the well-known dilemma of "guns versus butter" for Armenia amid the current geopolitical and geoeconomic challenges.

To achieve the objectives, the differences between the concepts of *effectiveness* and *efficiency* of defense spending were considered. The potential impact of the production of high-tech weapons on the economy and the military sector was discussed through the prism of the "exploration-exploitation" dilemma. Such an approach is aimed at emphasizing the differences between the economic efficiency at different stages of new military technologies' life cycle and the opportunity cost of military spending. As for possible positive externalities of the high-tech weapons production, an improvement in the balance of payments, relieving the public debt-servicing burden, developing human capital, increasing employment, creating and deepening bilateral and multilateral military-political and military-technical cooperation are presented as such in the article. However, *peace* and *transfer of technology to other sectors of the economy*, in defiance of the accepted approaches, have not been considered to the externalities of the high-tech weapons production.

The study concluded that the redistribution of a part of defense spending to the high-tech sector, the ultimate goal of which is to gradually ease the burden of military spending for the state, can be the beginning of qualitative changes in terms of economic development and security duo to the positive externalities of innovation and mastery of high-tech industries.

Keywords: Defense spending, externalities of production, high-tech weapons, defense industry, military innovations.

Introduction

The quandary about economic development and military security ensuring – better known in academic circles as the "guns or butter" dilemma – is one of the most difficult for countries that are not rich in natural resources but have serious defense and security issues. The complexity of the dilemma is caused by the fact that a state with intricate security problems cannot theoretically have a developed economy, because on the one hand it will not be possible to prevent the "brain drain" and "capital flight", which are the main driving forces of economic development in any country, and on the other hand, under conditions of high probability of possible shocks, it will be difficult to ensure the stability and effectiveness of fiscal and monetary policies which are important pillars of economic growth.

It is also theoretically impossible that an underdeveloped state could provide such a level of protection against internal and external security threats that would be acceptable to the majority of the population. Security is a very expensive public good and requires a viable and efficient economy. The only way to get out of the vicious circle of limited opportunities and the incommensurable complexity of tasks faced by small countries with limited resources is to develop an indigenous defense industry based on advanced technologies. This statement is based on the fact that the defense industry was almost the main driving force of scientific and technological progress, the cradle of breakthrough innovation, from which new technologies were also transferred to civilian areas. However, the problem takes on a slightly different content if we take into account that in the last two decades, since the beginning of the 21st century, the reverse process has been taking place, and now technologies from the civilian to the military sector are being transferred (Sayler, 2019).

The paper discusses the issues of increasing the efficiency of military expenditure in Armenia (as a small country with limited resources) from the standpoint of the development of indigenous advanced technology based on defense industry

and the possible positive externalities thereof. The discussion came to a close with an attempt to answer the question of how to solve the "guns or butter" dilemma for Armenia in the face of current geopolitical challenges.

The influence of military spending on the economy of Armenia

For almost two decades, Armenia has been characterized by a large share of military expenditure in the country's general government expenditure and consistently ranked among the top-fifteen countries in this indicator (see Figure 1).
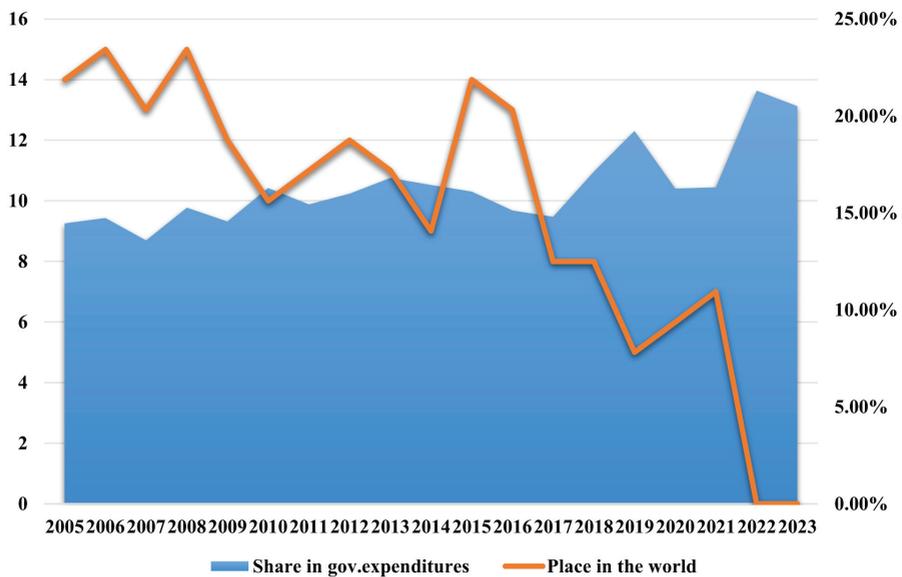
Figure 1: **Share of military expenditure in RA general government expenditure for 2005–2023**

Sources: The chart was built based on data published by the Stockholm International Peace Research Institute (data for 2005–2021, URL: https://milex.sipri.org/sipri) and RA interactive budget data for 2022, 2023. URL: https://e-gov.am/interactive-budget.

The high military expenditures have been objective due to the security issues facing the country over the years, but the question of their effectiveness remains controversial, especially now, after the 44-day war in Nagorno-Karabakh, where most military experts attribute Azerbaijan's victory to its technological advantage (Amirkhanyan, 2022). However, the inefficiency of the allocation of military spending, despite its extreme importance, is only one aspect of the issue, because the military spending in Armenia has negatively affected the development of the entire economy. In particular, based on the regression analysis of statistical data from 1996 to 2020 using Johansen cointegration and Granger causality tests, we have previously shown that the increase in Armenia's external debt was determined by a two-year time lag in the growth of military spending. A similar causal relationship was found between the trade balance and external debt. Moreover, the trade balance, in turn, determined the change in military

spending, while reverse causality – that is, military spending determined the change in the trade balance – was not confirmed (Harutyunyan, 2023). Such results of the econometric analysis led to the conclusion that a large proportion of Armenia's external debt was formed as a result of the weapons and military equipment import necessary for addressing the defense and security issues facing the country.

Military expenditure by itself, without affecting the negative balance of foreign trade (that is, if they were not directed mainly to imports), could not influence external debt. This is obvious because the long-term relationship between non-military expenditures and external debt is generally not discovered, despite the fact that there are categories in non-military expenditures (for example, expenditure on social security), which outweighs military expenditures. It is pertinent to note that in 2020, the RA public debt reached 63.5% exceeding the dangerous threshold of debt-to-GDP ratio set by RA law "On public debt" – 60%.

Over the past five years, payments for servicing public debt have reached up to 10% of state budget expenditures, which is equivalent to about 2.7% of GDP (see Figure 2).

It turns out that the country's security issues and the military spending allocated for their addressing led in a chain reaction to such economic changes that have created additional security problems but this time from the standpoint of military-economic security, the overcoming of which is also associated with significant difficulties for a small state like Armenia.
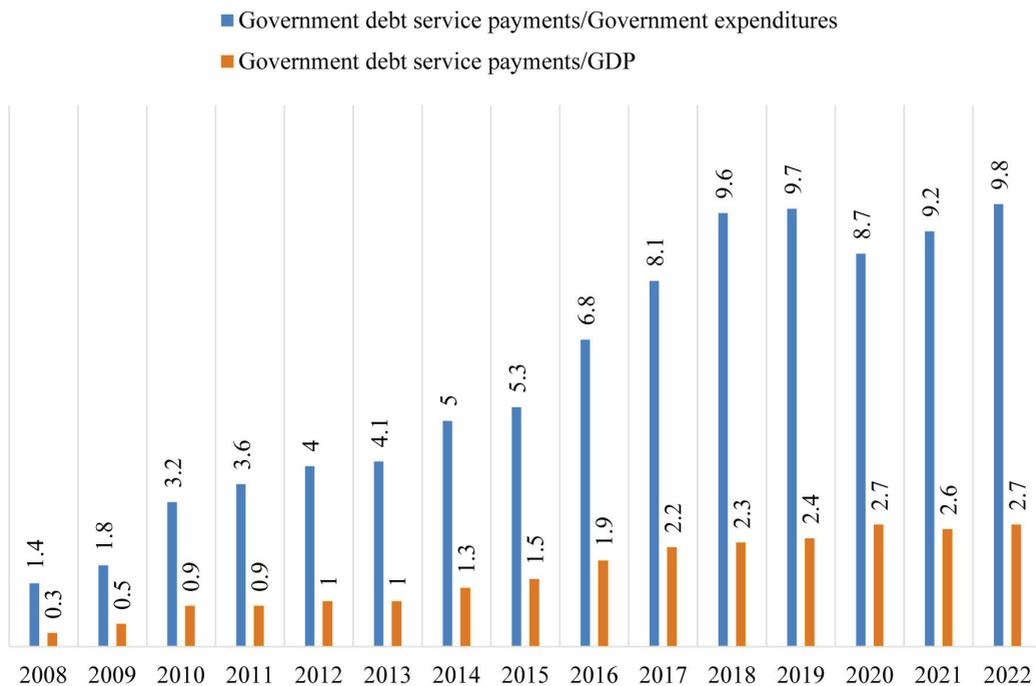
Figure 2: **RA Government Debt Service in 2008–2022.**

Source: Official website of the Ministry of Finance of the Republic of Armenia. URL: www.minfin.am/hy/archive (accessed: 22 May 2023).

Under such conditions, it is obvious that the development of such a manufacturing sector should be placed at the core of the economic development of the country, which will expand the possibilities of rapid economic growth, create preconditions for a gradual reduction in the import of military equipment and strategic products, and most importantly, will lead to positive externalities in the entire economy.

The fact that the defense industry has such a potential for positive changes is confirmed and substantiated by the examples of different states (including Armenia) and by various studies (Lesnykh, 2008; Ando, 2017; Harutyunyan, 2017b). However, the nature of modern wars, the speed of penetration of technological innovations into the military realm and the current realities of their widespread use require that more attention be paid to studying the possibility of developing "new technology-based" weapons production and assessing the bipolar influence of the main factors.

The issue of cost-efficiency of the production of new technological weapons

The introduction and application of new technologies in any field, including the military, predicts "inevitable" advantages over competitors, as well as a noticeable increase in efficiency. However, when talking about the efficiency of innovations, it is important to pay attention to the difference between the concepts of *cost-efficiency* and *effectiveness* (Namatulina and Prokofiev, 2013). If the former is about a simple comparison of costs and outputs and the most economical use of resources, the latter is about the goals to be achieved with these costs, without taking into account the price and means to achieve them. In the matter of **effectiveness,** the most obvious and unequivocal assessment of the production of weapons based on new technologies is the degree to which the country's security is guaranteed.

Meanwhile, consideration of the issue from the point of view of **cost-efficiency** can reveal certain contradictions, underestimation or ignoring of which can distort the true assessment of efficiency. In any case, it is unacceptable to uncritically equate technological innovations with positive changes. Here are some aspects of the production of new technological weapons that may be of significance in assessing cost-efficiency.

One of the well-known dilemmas in the academic literature on the implementation of national innovation systems is the **"exploration-exploitation dilemma"**. It is based on the fact that people (decision makers) have a natural and often justifiably tendency to "sacrifice" long-term benefits (available duo to the *exploration* and innovation) to short-term benefits (available through *exploitation*) (Berger et al., 2014).

If we project judgments on the issue of the efficiency of innovations in the military sphere, it becomes obvious that the choice of an "*exploitation strategy*" can imply the use of already known, time-tested weapons under conditions of minimal uncertainty or the purchase of such weapons, if we consider the issue in the context of an alternative "purchase or development" of new techno-

logical weapons. The "*exploration strategy*" is the search for new opportunities, for example, the development of new weapons under conditions of considerable uncertainty of their usefulness.

In the private sector, the solutions to this dilemma are not so complicated, since financial resources are all that can be lost because of unsuccessful innovations. Meanwhile, the failure of innovations in the military sector, and inefficient allocations of military research and development (R&D) in the face of limited financial resources, can lead to a decrease in the combat capability of the Armed Forces of the state, deepening defense and security issues and loss of human lives (Andrews and Macdonald, 2016).

The next important circumstance from the point of view of cost-efficiency is the high cost in **the development stage** of new military technologies (the emphasis is important, because already in **the production stage**, the cost intensity is significantly reduced, which subsequently leads to a decrease in the prices of new military technologies (O'Hanlon, 2020; Waldrop, 2016; Harutyunyan, 2022). These costs may be substantiated by the requirements of using patented innovations and the need to maintain confidentiality, and are quite often not justified. Such overspending has long been an ordinary reality for developed countries; for example, in the period 1990–2010, at least 53 billion US dollars were invested in military innovations in the United States, none of which turned into a final product (Rodriguez, 2014).

Notwithstanding, if for developed countries such costs are rational, at least for the simple reason that they prepare fertile ground for future innovation and technological improvements, then for small developing countries, such costs can be considered irreversible losses (especially in the case of inconsistency of innovation policy), which also significantly increase the burden of military spending for the economy and society.

It is also important to consider that military innovations and the use of new technologies in the military sphere cannot be effective, moreover, can often become counter-productive when addressing defense and security issues unless they are harmonized with strategic, conceptual, and organizational changes. New technologiescan provide notable success on the battlefield, but in themselves they rarely lead to radical changes in the balance of military forces.

Nevertheless, the most important measurement for assessing the cost-efficiency of the production of new technological weapons is the opportunity cost. Consideration of the opportunity cost through the prism of P. Wicksteed's concept of "lost opportunities" (Blaug, 1994, p. 454) assumes that the assessment of the production costs of new technological weapons come down to the measurement of the utility that has been given up in making these costs. In other words, in conditions of limited resources, the channelling some part of the expenditures to military innovations or to development and production of new technological weapons can, in general, cause a loss in the combat capability of the Armed Forces and reduce the effectiveness of the military domain. On the other hand, if the government does not allocate enough resources to military innovations, then it, per se, renounces their potential effectiveness in the future. The allocation of military spending between maintaining the current com-

bat capability of the Armed Forces at a sufficient level and building new future capabilities is a distinctive risk management exercise that tries to balance the expectations of future effectiveness and the ability to maintain the defense and security of the country using traditional means (Kuo, 2022).

The measurement of effectiveness always involves two sides of weight scales. Therefore, an assessment of the cost-efficiency of innovative weapons cannot be complete unless we consider all the positive spillover effects (positive externalities) from high-tech weapons production.

The possibility of positive externalities

The externalities of high-tech weapons production have been studied mainly using the methodology for assessing the spillover effects of military R&D spending. For instance, one of the most interesting studies carried out for OECD countries based on data of military R&D spending, non-military R&D spending, employment and wages across 26 industries over a period of 23 years, attempted to identify how public R&D funding affects private R&D, and its ultimate effect on productivity growth in the country, therewith military R&D spending was used as an instrumental variable.

The study revealed that the increase in government funded R&D spending, which was generated mainly by increases in defense R&D, translate into significant increases in privately funded R&D expenditures with the most reliable estimates of the long run elasticity between 0.2 and 0.5. In particular, a $1 additional increase in public R&D funding resulted in $2.4 to $5.9 of extra R&D funded by the private sector (Moretti et al., 2016).

This is somewhat contradicts to the views of those researchers – for example, Hartley (2006) – who believe that military research and development has obvious opportunity costs, because military R&D often monopolistically use limited highly qualified scientific personnel and assets, which otherwise could be used with great benefit in civil sector's scientific research works. Other studies refute this last statement. In particular, case studies on the examples of the United States (Chakrabarti, 1993) and Israel (Peled, 2001) confirm that military R&D contribute to the growth of output in the civilian sector and to economic growth through technological changes based on patents for the use of military R&D results (Harutyunyan, 2017a).

In our opinion, when assessing the externalities of new technology-based weapons production, it is important to take into account the fact that we are dealing with a monopsony market, where the government is the only buyer of manufactured products, and it buys any military products and services to ensure the country's security, guarantee peace and increase its political weight and influence in the world.

Discussing the issues from this standpoint, *peace,* which some analysts see as a positive spillover of weapons production, ceases to be so, since *peace*, which can be seen as an equivalent of *security,* is the ultimate goal of the state defense order and, therefore, of military spending, but not their externality. This view is also shared by Hartley, who believes that any "technical spin-offs" of defense

R&D should be regarded as a "windfall benefit" of defense spending (Hartley, 2011, p. 13). However, **security** as a multi-product basket, including defense, feeling of protection, safety, peace, economic stability and risk reduction (Solomon et al., 2008), enables a person, an individual, a member of society to realize freely and without hindrance their abilities and talents, contributing to the growth of their well-being, and hence the well-being of society as a whole. From that perspective, the most important positive externality of the new technological weapons is the prevention of the "brain drain" from the country, which is a substantial factor in the development of economy.

In current conditions, transferring new technologies developed for weapons production to civilian sectors can also be considered as a positive externality, but with some caveats. Over the years, this trend really prevailed, and many countries such as Israel, Singapore, South Korea, Turkey, etc., have managed to give a powerful impetus to the innovative development of the entire economy thanks to the development of military technologies. However, new digital technologies, which are an important factor determining the nature of future wars and weapons, are mainly improved in the civilian sector, and only when transferred to the military sector. Furthermore, the financial resources allocated to scientific and technological developments in the civilian sector have significantly exceeded the costs allocated to defense R&D so that the defense sector has become somewhat dependent on the civilian or commercial sector in terms of some technological developments (Missiroli, 2020). Therefore, in modern times, it would be more logical to consider the development of new technological weapons production as an externality of new technological civilian production, rather than the other way around.

The positive externalities of the new technology-based weapons are not limited to the two manifestations presented, but also include an improvement in the balance of payments, facilitating the management of external debt, the development of human capital, the increase in employment, the establishment and deepening of bilateral and multilateral military-political and military-technical cooperation, which can create additional security pillars. From the point of view of the discussion on the redistribution and optimization of military spending, to which the paper refers, these realities will ultimately confirm that it is necessary to allocate a significant part of military spending to domestic research and development of high-tech weapons. Having in mind the unfavorable outcome of the 44-day war for Armenia, it is quite reasonable to assume that military expenditures in Armenia have not been optimally distributed for years, which has led to the so-called "failure of military innovation" (Amirkhanyan, 2022), but a more in-depth analysis of the problem can lead to completely different conclusions.

Inferences for Armenia

There are several reasons that can objectively justify the low share of R&D allocations in the structure of military expenditures in Armenia over many years (see Table).

Table

Dynamics of the allocations to military R&D in Armenia for 2008–2023 (bn. AMD)[2]

	Military/ Defense Spending	Military/ Defense R&D Spending	Share of Military/ Defense R&D Spending in Military/ Defense Spending (%)
2008	125.4	0.8	0.6
2009	149.6	1	0.6
2010	135.7	1	0.7
2011	146.2	1.1	0.8
2012	154.5	1.2	0.8
2013	182.7	1.4	0.7
2014	194.1	1.5	0.8
2015	199	1.6	0.8
2016	207.3	1.6	0.8
2017	209.8	1.6	0.8
2018	245.6	2.4	1
2019	309.6	2.9	0.9
2020	307.2	4.7 = 0.76+3.9	1.5
2021	311.7	5.4 = 0.76+4.6	1.7
2022	345.5	5.9 = 0.71+5.2	1.7
2023	517.3	7.6= 0.76+6.8	1.5

Source: Laws "On the State Budget of the Republic of Armenia" 2008–2023. URL: Budget (minfin.am).

First of all, it is obvious that in terms of military innovations, development of new types of military equipment and weapons, and the modernization of the military sphere as a whole, Armenia fell into the aforementioned "exploration-exploitation" trap. As many theorists studying military innovation pointed out, the best time for innovation is peacetime, although there is a high probability that in peacetime "wrong choices and irrelevant investments will occur and will be hard to correct" (Murray and Millett, 2010, p. xiii). However, the situation prevailing in Armenia for almost three decades preceding the 44-day war is dif-

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[2] Data in the table is presented from 2008 onwards, because before that, the funds allocated for military/defense R&D were not separately presented in the state budgets. Starting from 2020, as an indicator of R&D spending in the defense sector, Table 1 shows the amount of budget funds allocated to two programed activities: "Scientific and technical (military and technical) support for R&D" (presented as a programmed activity of the Ministry of Defense) and "Special purpose scientific and scientific-technical research in the field of defense" (presented as a programmed activity of the Ministry of High-Tech Industry).

ficult to consider a peacetime. The constant danger of renewed war, large and small Armenian-Azerbaijani and Artsakh-Azerbaijani border clashes with indefinite regularity, and the intensive replenishment of the enemy's arsenal with offensive weapons would in no way allow us to perceive the period as a period of peace. It was necessary to be ready for warfare every day. For a small country with limited capabilities, *"being ready for warfare every day"* meant first of all choosing an ***"exploitation strategy"***, that is, replenishing the arsenal with time-tested weapons, which implied minimal uncertainty compared to innovations. Even with the adoption of strategic approaches characterized by the priority of promoting innovation, the funds allocated to the military R&D could not be sufficient to ensure the production of tested and effective new technological weapons for the defense sector in a short period (within 5–10 years). The best argument for such a statement is the military R&D expenditures of several countries – Turkey, South Korea, Israel – standing out for their indicators of developing an innovative defense industry. For example, in these countries in 2017 the military R&D expenditures amounted to 1.6, 3.8 and 6.7 billion US dollars, respectively (Sargent Jr., 2020). Compared to Armenia's GDP, these figures correspond to 10%, 33% and 58% of Armenia's GDP in 2017 (USD 11.5 billion), respectively.

Another important consideration is that the military doctrine of the Republic of Armenia has a pronounced defensive character, which is reflected in the whole process of building up the entire of the Armed Forces of the Republic of Armenia, including military procurements, where defensive weapons prevail. Meanwhile, the production of new technological weapons required an "aggressive" innovative strategy, the leitmotif of which was to be formed in the realm of military strategy. The defensive strategy of "deterring the enemy" or "depriving the enemy of the opportunity to win" could not give this leitmotif to the country once defeated the strongest enemy, with an already formed "winner's complex", especially in the conditions of limited resources and many socio-economic problems facing the state.

It would also be difficult to determine the optimal amount of military R&D allocations, according to which they could measure the effectiveness of newly developed military equipment and weapons in tests, without reducing the minimum necessary level of security, as well as deepening socio-economic problems of the country as a result of negative externalities. In fact, the best what the military budget could provide was a *"minimum level of security"*, but Armenia paid for this twice as much (as it follows from the current external debt of service indicators), since the country's military spending cycle ended at the customs border.

The new age of digital transformation provides an opportunity to radically change the situation, and, above all, by changing the direction of technology transfer, and, consequently, through positive spillover effects. In this regard, it could be considered a far-sighted and well-thought-out decision to change the departmental subordination of the Defense Industry Committee from the Ministry of Defense to the Ministry of High-Tech Industry, because this change corresponded to the perspective of transferring the positive externalities of the high technologies development in civilian sector to military. But the expecta-

tions remained incomplete since the budget funds allocated for these purposes, actually were under fulfilled during the last three years. Thus, in 2020, the implementation rate of special research work carried out within the budget program "Special purpose scientific and scientific-technical research program" was 72%, and the executive authorities substantiated the deviation with the COVID-19 pandemic and declared martial law in the country. In 2021, the implementation rate was only 26% and the main reason cited for the deviation was the "delays in the deadlines set by the contract procurement schedules by the companies implementing R&D as a result of the supply slowdown amid the pandemic". The military R&D implementation rate was only 34.6% in the first nine months of 2022. The deviation was due to "problems in the logistics of imported raw materials, equipment and a reduction in the capabilities of the microelectronic base, as well as the fact that the Defense Industry Committee approved intended research topics in September"[3].

Undoubtedly, the reallocation of a part of military spending to the high-tech sector could be the beginning of qualitative changes both in terms of economic development and addressing security issues. The point is that such changes will allow to gradually alleviate the military burden on the state due to the positive externalities from innovation and high-tech production. However, it looks like that in this breakthrough period of the development of cross-cutting digital technologies, Armenia is again losing the opportunity to develop new models of high technological weapons and military equipment, to introduce innovative technologies into the military sphere, or at least to incubate such a potential.

Determining the optimal amount of budget funds allocated for military R&D for Armenia, with a clear definition of time horizon for qualitative changes, as well as determining the optimal amount of budget funds allocated to individual R&D projects (topics) to ensure the effectiveness of these programs, remains a separate topic for research.

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[3] State budget reports of the Republic of Armenia for 2021, 2022, and first nine months of 2022 regarding the output (performance) indicators of the state budget programs and activities according to the public authorities implementing these activities. Source: URL: Պետական բյուջեի հաշվետվություն (minfin.am)

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THE WORK OF THE DEVELOPMENT AGENCIES AND ITS EFFECT DURING THE COVID-19 PANDEMIC: THE CASE OF SERHAT DEVELOPMENT AGENCY

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Abstract. The Development Agencies were established in 2006 in Türkiye to support regional development, with the budget transferred from the central government. The Development Agencies collaborate with public administrators, local governments, provincial administrations, universities, non-governmental organizations, and the private sector to adopt an effective governance model. The work of agencies in exceptional situations is also distinctive compared to other actors. It is crucial to evaluate the efforts of the Development Agencies in mitigating the social and economic impacts of the COVID-19 pandemic and draw conclusions about their effectiveness in the region.

The impact of a pandemic outbreak on the Development Agencies has not yet been researched. This study aims to evaluate the work of the Serhat Development Agency and the effect of this new process on the local development of the region during the pandemic period, which continues its activities in the provinces of Agrı, Ardahan, Kars and Iğdır covering the TRA2 region of Türkiye. The study was conducted using the qualitative method. In-depth interviews were utilized during the field research in the agency between 19–29 October 2021 and 18–22 January 2023. The results obtained show that the pandemic process has reduced the interaction of the agency with its stakeholders and new projects have not been supported, which had a negative impact on the development of the region. Agriculture continued without any interruption during the pandemic. Negative effects were seen in the tourism, food, and service sectors, but no additional efforts were made to remedy them.

1. Introduction

Regional development aims to reduce social and economic disparities between regions by utilizing local resources and making investment decisions. Türkiye has been working to reduce inequality between regions for years and established the Development Agencies in 2006 to conduct research and implement plans. The central government in Türkiye establishes the Development Agencies that play an effective role in the development of the regions.

The COVID-19 pandemic, which has affected the whole world since the beginning of 2020, has caused regional inequalities to increase even more and has negatively affected the development of regions in Türkiye as well as the rest of the world. In Agrı, Ardahan, Kars, and Iğdır provinces of the TRA2 region, the research was focused on the Serhat Development Agency's studies in their scope. When evaluating the findings obtained from the study, it is seen that the Serhat Development Agency followed an already determined agenda during the COVID-19 pandemic process but could not conduct studies that would reduce the negative effects of the pandemic, make the development process sustainable and support the region.

The study is divided into four parts. The first part focuses on the methodology used, while the second part discusses the establishment of the Development Agencies in Türkiye. The third part provides an overview of the general situation of the TRA2 Region during the COVID-19 pandemic. Finally, the fourth part presents an analysis of the work done by the Serhat Development Agency during the COVID-19 pandemic. Local development has been assessed in relation to the work of the Serhat Development Agency during the COVID-19 pandemic in the latter part.

2. Relevant studies and possible approaches

Several articles have examined the impact of the COVID-19 pandemic on the Development Agencies from different geographical locations. Byron et al. (2021) studied the social and political effects of COVID-19 in the Commonwealth Caribbean region and found that the pandemic has increased economic hardships and highlighted the risks to global economic integration. The study aimed to develop solutions that are crises resilient.

The study found that receiving the assistance of the Development Agencies, restructuring, and rebuilding processes were crucial. The International Monetary Fund (IMF) and other International Financial Institutions (IFIs) mobilized resources for the giants in the C.C. area (Byron et al., 2021). The conclusions of the article support the need for a concrete approach to multidimensional development and for making human well-being the primary objective of development. Regular monitoring of economic growth is necessary. The crisis has caught the Caribbean nations unprepared (Byron et al., 2021).

A study by Shibuya et al. (2022) reviews East Asia's development capacities, best practices, and experiences with significant outbreaks, particularly during the COVID-19 pandemic. The research highlights four key East Asian characteristics that could contribute to resistance to future outbreaks, emphasizing the need for coordinated public health emergency management systems, sustainable investments in public health infrastructure, and open data sharing. The study suggests that national interests in global health are vital for development.

The study indicates that East Asia receives development assistance from development organisations such as the Japan International Cooperation Agency (JICA), the Korea International Cooperation Agency (KOICA), and the Overseas Development Assistance (ODA). Regional multilateral the Development Agencies such as the Asian Development Bank (ADB) and the WHO Regional Office for the Western Pacific have also contributed significantly to regional development (Shibuya et al., 2022).

Omar et al. (2020) examined how the COVID-19 outbreak affected Small and Medium-sized Enterprises (SMEs), development organizations, and entrepreneurs in Malaysia. The epidemic has negatively impacted small and medium-sized enterprises, industries, and the global economy. The goal is to identify the strategies used by SME owners to survive. The study involved conducting semi-structured telephone interviews with the owners of specific small and medium-sized enterprises.

Small and medium-sized enterprises (SMEs) need cash reserves and emergency funds to cover overheads and fixed costs for at least six months and to prepare for operational and financial challenges such as supply chain disruption, cash flow issues, and access to stimulus packages. These challenges are magnified during global crises, and SMEs must remain adaptable and have precise strategic resources to weather them (Omar et al., 2020). A study of India's digital sectors during the COVID-19 era found that the virus has significantly impacted Indian enterprises, with sales decreasing in 70% of the analyzed enterprises and employment rates remaining vulnerable despite employers' efforts to educe the workforce (Fabeil et al., 2020).

Fabeil et al. (2020) examined the options micro-entrepreneurs make to maintain their businesses in Malaysia when faced with crises. The epidemic has a greater impact on microbusinesses. Regarding the effects of a pandemic on micro businesses, specifically their continuity and recovery strategies, there is a shortage of labor in developing countries. Telephone interviews with micro-entrepreneurs in Malaysia were conducted to explore the crisis management strategy from the perspective of micro-entrepreneurs affected by the COVID-19

epidemic. The interview's findings demonstrated how the pandemic crisis disrupted micro businesses on several levels, having an impact on them. In Malaysia the food and beverage industry, agriculture, retail, building and transportation industries, and tourism were affected. In order to ensure ongoing profits, entrepreneurs are encouraged to be more adaptable and make big changes in their businesses (Fabeil et al., 2020).

The search conducted in the Web of Science database encompassed a comprehensive review of papers on the effect of COVID-19 on sustainability using both bibliometric methods and a meta-analysis method. The analysis indicates that the COVID-19 pandemic has harmed the Sustainable Development Goals (SDGs), but it also identifies potential new opportunities for the SDGs. Throughout the post-pandemic period, the article's conclusion provides relevant suggestions for achieving sustainable development objectives. Accordingly, the fields with the greatest number of publications are environmental sciences, green sustainable science technology, environmental studies, and public health. This has been proven to bring significant scholarly attention to environmental sustainability during the COVID-19 epidemic. The world economy has become unstable due to the COVID-19 epidemic (Wang and Huang, 2021).

Amis and Janz (2020) analyzed rural enterprises under the guidance of Scottish Enterprise, the country's national development organization, and the Scottish Government's Economic Recovery and Advisory Group. The participants were chosen to use the services of agribusiness and rural providers. The study's initial investigation focused on the components of a human-centered approach and its importance in the fight against the pandemic. Second, the institutions' social and economic contexts, particularly in the public and private sectors, were investigated.

Additionally, the study is expected to provide guidance on a variety of topics, including global development and how to create the best business analytics. Institutionalizing technology whose online applications have evolved into normal operating procedures during the epidemic will hasten resilience in the pandemic-fighting effort (Amis and Janz, 2020).

The effectiveness of COVID-19 pandemic management policies is investigated in the Research and Policy Brief conducted by Stuti (2020). The pandemic-related crisis presents a chance to increase trust in state institutions for corporate leaders and international development partners driven to enhance governance for economic development.

The study suggests that international organizations have an advantage in this position due to their absence from the local political system. International organizations may attempt to provide humanitarian relief through non-governmental organizations instead of governments due to concerns about the elite's capture of foreign aid. Due to issues about elite capture of foreign aid, international organizations may attempt to bypass governments and deliver humanitarian relief through non-governmental organizations (Stuti, 2020).

There are numerous studies on the COVID-19 pandemic phase and its aftermath focus on development studies in various parts of the globe concerning institutional crisis resistance, crisis management, governance, and social and po-

litical repercussions. Financial difficulties have been observed among the Development Agencies, governmental, and non-governmental organizations involved in development during the pandemic process. Some of these organizations have received support from central government institutions and international financial institutions, such as the International Monetary Fund (IMF) or the Asian Development Bank (ADB).

The Development Agencies were not prepared for the pandemic, and it exposed institutional weaknesses. To better handle future crises, development organizations must adhere to governance principles, coordinate with other institutions, and share data transparently.

The pandemic disproportionately impacted on small and micro-businesses and several industries, including agriculture, retail, transportation, building, and tourism in developing countries. However, the pandemic also resulted in benefits such as improving crisis management skills and increasing public trust in regional development organizations.

3. Methodology

The current study investigates the extent to which the work of the Serhat Development Agency has been affected by the pandemic period. The primary objective is to determine the challenges it faced before and during the pandemic, develop solutions/measures for them, and identify possible vulnerabilities of the institution and its resilience, if any.

The basic assumption of the study is that the interaction of the Serhat Development Agency with its stakeholders and project support has decreased in the pandemic process, and this has a negative impact on the development of the region it serves. In this study, the qualitative method was applied. General meanings, concepts, themes, and generalisations were extracted from the data found. The Analyzed data were obtained from documents, observations, and decoded conversations. Consequently, an induction was made with the applied method. The resulting analysis was created by making generalisations and organising the data in a consistent and understandable way (Neuman, 2014,).

A qualitative research method was used in this study, specifically in-depth face-to-face interviews, to provide a realistic analysis of the topic. The researcher's impressions and perspectives gained during the interviews have been incorporated into the data.

The study was conducted in the institutional building of Serhat Development Agency from 19–29 October, 2021 and 18–22 January, 2023 , with the target population being the agency's managers. Eight executive managers were interviewed in-depth for the study.

In the interviews, short biographies, areas of responsibility, and service periods of the participants were shared when necessary. Questionnaires were used, and the semi-structured questions were prepared in advance to obtain flexible and open-ended responses. Managers were asked about their experience, age, education, and hometown. The findings were analyzed and interpreted based on the relevant headings after conducting in-depth interviews.

4. Fundamentals of RDAs and establishment policies in Türkiye

The Regional Development Agencies (RDAs) established around the world have distinct legal statuses, obligations, powers, and activities based on the unique regional systems. Numerous institutions and organizations collaborate with RDAs due to their coordination responsibilities. Because of this, it is critical to establish the legal status of RDAs before beginning this research in order to prevent institutional conflicts (Eroğlu and Kum, 2010). The importance of RDAs globally has been boosted by the new public management strategy. Despite the fact that nations have created annual development plans and general development plans to ensure development, regional economic, social, and cultural diversity within a nation pose serious political and administrative challenges.

Changes in regional policies and an understanding of the importance of implementing local dynamics led to the widespread adoption of the regional Development Agencies in Europe after World War II. Since the 1950s and 1960s, certain countries in Western Europe have included the Development Agencies in their regional policies. The potential of these institutions to help people deal with the difficulties of corporate restructuring has sparked a lot of attention (Damborg et al., 2017). The traditional management approach has given way to the new public management approach as a result of the economic crisis that began to develop after 1970, the disruptions experienced in the supply of public services, and globalization. Public administration has undergone a transition and transformation due to this approach known as governance. The notion of global cooperation is the driving force behind the new public management approach. Governance is applied at every level, whether it is local, governmental, or international. The idea has been implemented in numerous other areas, including health, education, the environment, and international relations, and has significantly aided the advancement in these areas. Local and regional enterprises, non-governmental organizations, and the Development Agencies will benefit from this new approach (Tunç et al., 2019). Legal Status of RDAs in Various Countries is listed in Table 1.

Table 1

Legal Status of the Regional Development Agencies in Various Countries

Country	Legal Status
United Kingdom	Limited Company with Guarantee of Local Authorities
ABD	Nonprofit Association
Belgium	Inter-municipal agency or original legal personality Owner Public Organization
France	Nonprofit Association or Mixed Economy Company
Germany	Limited Liability Company or Public Entity
Spain	Private Public Institution
Italy	Limited Liability Public Company

Source: Eroğlu ve Kum, 2010, p.179.

Within the administrative structure of the countries, RDAs in England by limited companies with the guarantee of local authorities, by non-profit associations and unions in the USA and France. It is seen that it was established by private public institutions in Spain and by limited liability public companies in Italy. The central government is the sole owner of the Regional Development Agencies in terms of their structure, organization, and function at the regional level, but most of them were founded by the state. In the 1950s and 1960s, RDAs promoted economic growth by attracting foreign capital into the nation. Later, they offered services to regional and local businesses either on their own or in collaboration with other organizations.

Since the 1990s, it has been aimed to bring vitality to the intra-regional economy, to ensure sustainable development, and to reduce interregional development disparities, especially in Western Europe (Atay, 2011). In 2001, the EU introduced governance principles in its White Paper. This included accountability, equity, participation, transparency, efficiency, and localization service. By following the principles of Governance (EUROPEAN UNION, 2001) and (Celikyay and Turgut, 2011), the Development Agencies transparently work on fundamental issues. In Europe, the Regional Development Agencies, or RDAs, are typically characterized as publicly supported organizations that are independent of the national and local governments and work to advance economic development in areas that have been identified as priority or problematic areas (Damborg et al., 2017).

Concerns about changes in administrative structure in public administration started in the 2000s. Türkiye adopted several laws to harmonize with the EU acquis during the EU candidacy process, and occasionally amended some of its existing laws. The Nomenclature of Territorial Units for Statistics (NUTS) has been taken into consideration based on the idea of addressing local needs at the local level in order to make better use of the resources already available, lessen development disparities between regions, and strengthen local governments. Additionally, other difficulties are also noted, such as the need to restructure local institutions to meet the European Charter of Local Self-Government criterion (Hamza and Çelikyay, 2018).

In this context, Türkiye passed a law in 2006 promoting economic growth through RDAs.[1] With the new law, the European development model was adopted, and the regions were accepted as the source of economic growth. Development strategies have been moved closer to the local level, away from traditional sector-based, centrally directed national policies. By creating a national system of semi-private RDAs, the aim is to shift towards regional economic growth. Turkey's centralized state tradition and regional economic disparities came to the fore in the face of this reform plan. The Turkish regional Development Agencies are analyzed in a context based on the literature on New Regionalism and the European Union Regional Policy, and they are identified as a useful example of effective regional economic development (Young-Hyman et al., 2008).

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[1] The previous name of the law was "Law on Establishment, Coordination and Duties of the Development Agencies," which was changed to "Law on Services of the Development Agencies" with Article 75 of Decree-Law No. 703 dated 2/7/2018.

The Regional Development Agencies (RDAs) are a new governance model at the sub-national level in which political, administrative, economic, non-governmental organizations and other actors take part (DeasandWard, 2000, p. 277). They are institutions that are financed by the public administration, which directs and implements activities to support local economic development at the regional level, apart from the central and local government (Halkier, 2006,). RDAs help to ensure that the development efforts provided in the region and carried out at the national level along with the development of the regions lead to more reasonable and precise results (Keleş and Mengi, 2013).

The structure and purpose of the establishment and legal status of RDAs differ from country to country; some were used to ensure decentralization, while others were used to distribute national government policies effectively and efficiently (Harding, 2006). Although RDAs are independent from the central government in terms of structure and organizational structure, most of them were established by the central government. The European Union's Regional Development Agencies often have a certain degree of autonomy (Eryılmaz and Tuncer, 2013).

In 2001, the European Commission prepared the Accession Partnership Document that included the Development Agencies. In the context of Türkiye's harmonization with the "European Community Regional Policy," the expectations of the EU are stated in the short term. These expectations are the preparation of NUTS in accordance with the Union rules, adopting a strategy for the development of regional policy, starting the use of regional policy criteria in the selection of projects in the planning process, and establishing a strategy for strengthening regional statistics (Akpınar and Özaslan, 2005).

Since the Helsinki Summit in 1999, Türkiye has been working to align its regional policies with those of the European Union (EU), including the creation of creating NUTS-II-level regions with RDAs. This new regional structure was initiated to align with the European agenda, resulting in 26 statistical areas at the NUTS-II level, encompassing all 81 provinces of Türkiye. RDAs are expected to provide support and financing for regional development projects (Lagendijk et al., 2009).

With the adoption of Law No. 5449 in 2006, RDAs were founded in Türkiye as institutions that place a strong emphasis on the recognition of regionalization, localization, and entrepreneurship. In order to lessen regional inequalities, take advantage of the funds provided by the EU to member states, and adapt to the EU in terms of regional politics, Türkiye, which has implemented numerous reforms in the EU membership process, has established the Development Agencies (Savaş Yavuzçehre, 2016, pp. 370–371).

In Türkiye, the Development Agencies are defined as "an institution established to develop and revitalize the entrepreneurial potential of a bordered region, and which has an administrative structure independent of the central government in order to contribute to development in this way" (DPT, 2000, p. 54). Prior to its accession, Türkiye used the European Commission to implement its regional policy plan (Young-Hyman, 2008,). However, it is thought that RDAs do not meet the expectations for the strengthening of local governance, instead, they mostly function as a different centralization tool, and serve only popular

economic goals rather than enriching local democracy and political participation (Sadioğlu et al., 2000). The comparison of RDAs in Türkiye and Europe is presented in Table 2.

Table 2

The comparison of RDAs in Türkiye and Europe

Criteria	RDAs in Europe	RDAs in Türkiye
Aim	Providing interregional competition	Eliminating interregional inequality
Constituent	Centralized and local governments, local authority, foundations	Established with the confirmation of the Presidency
General Characteristics	A semi-autonomous position, easy politics for the firms, wide ranging devices, flexibility, directing the developments	Compulsory participation of the regional actors, flexibility within the regional development policies
Organizational Structure	General Assembly Executive Board, Chairman Board of Control Secretary-general	Executive Board, Development Council, Secretary-general, Investment Support Offices
Legal Status	Public Corporation Stock Company, Limited Company, Non-profit Foundation, Public-Private Legislation Institutions, Inter-municipalities Agencies, Non-departmental Public Body Autonomous Organization	Institutions which are subjected to the private law provisions in terms of agencies, being provided with legal entity, decentralization institutions
Fields of Activity	Internal development, Attracting the foreigner investors, The services provided for entrepreneurs, local and regional authorities, Education services, International activities, Financial intermediation, Providing technical aid, Supporting the research institutions	Regional development plans, Supporting local government plans, Providing regional cooperation, Supporting the researches about regional development financially
Financial Resources	Funds provided by participants, Centralized government funds, Revenue from services Donations EU funds	Transfers from the general budget EU and other international funds, The share of one to one hundred that will be transferred from the budget revenue of the Chamber of Industry
Staff Structure	The employment of staff by the Development Agency is subject to its own establishment laws concerning financial rights, wages, and social security, as well as the laws governing public officials	Determined by the executive board on condition that the wages and daily pages of secretary-general and other staff and their other financial and social rights do not exceed the sub and upper limits subjected to Law of Social Insurance in terms of retirement and social security
Supervision	They are mostly responsible for local or regional directors and some of them are responsible the related minister and parliament, co-founders and executive board	Responsible to Ministry of Industry and Technology, Executive board, Secretary general, Internal auditor, Executive board and Development Council
Project Centers	One-stop shops	Investment Support Offices

Source: (Savaş Yavuzçehre, 2016, pp.377–379) and (Presidential Decree No. 4, 2018).

Türkiye administrative tradition has a centralized structure, which influences the design and operation of Regional Development Agencies. The Ministry of Industry and Technology is responsible for overseeing RDAs in Türkiye, and the national government provides the majority of their funding. The close relationship between Turkish RDAs and the central governments of the country has a significant impact on the success of the agencies. Positive relations between RDAs and the central government will help the agencies to achieve their goals (Dura, 2007\).

The administrative organization of RDAs in Türkiye includes the Development Board, the Executive Board, the General Secretariat, and the Investment Support Offices. The Board of Directors makes the decisions for RDAs and is in charge for creating and carrying out the agencies' policies. The Board of Directors is made up of individuals nominated by the central administration who are representatives of the groups that helped form the agency. In addition to the other members, there are private sector representatives on the Board of Directors. This board elects the Director General , who has the crucial responsibility of instructing the technical team (Demirci, 2003).

The Secretary General is the executive body of the RDA and carries out the duties assigned by the Board of Directors and is responsible to the Board while performing these duties.

The foundation of the Development Agencies by the Turkish government, the fact that they receive a sizable portion of publicfunds, and the fact that the central government oversees them all demonstrate that these organizations are public legal entities. However, the development organizations have their own employees and are not regarded as public property, demonstrating that they are governed by private law (Öztürk and Tatarolu, 2018).

5. The general situation of the COVID-19 pandemic and the TRA2 region

5.1. General Information about the Serhat Development Agency

The Serhat Development Agency was founded to promote development in the TRA2 Region, which includes Kars, Ardahan, Agri, and Iğdır. It aims to provide locally-focused solutions to local problems, serve sustainable development, and promote coordination and cooperation between the public and private sectors, civil society, and universities. Its goal is to bridge the development gap in the region.

The Serhat Development Agency is managed by Türkiye's Ministry of Industry and Technology and has a Board of Directors as the primary decision-making body. The General Secretariat serves as the executive body, and the Development Board is the advisory body.

The agency has several units, including the Legal Advisory and Results-Oriented Program Management Unit, Monitoring and Evaluation Unit, and various Investment Support Offices. The functions of the departments are listed on their website (https://www.serka.gov.tr), and Table 3 shows their human resources data for 2019 and 2021.

Table 3

Data Provided by the HR Department of The Serhat Development Agency

Year	Head of Branch	Specialist	Support	Financial Aid	Total
2019	10	17	7	16	50
2021	10	9	7	16	42

The Serhat Development Agency experienced a decrease in the number of qualified personnel during and after the pandemic period, but the heads of units, support personnel, and auxiliary services remained the same. The pandemic may have an adverse impact on the agency's financial statements, and a comparison of income and expenses has been made. Table 4 includes the income statement data for 2021.

Table 4

The Serhat Development Agency Income Statement

Income items	Estimated Revenue 2021 (TL)	Actual Revenue 2021 (TL)
Transfers from Central Government	34.000.000,00	15.589.147,51
Transfers from Special Provincial Administrations	2.833.891,60	2.833.890,88
Transfers from Municipalities	2.706.333,70	932.479,90
Transfers from CCIs	74.453,22	70.047,68
Resources from EU and Other Funds	0,00	0,00
Operating income	1.100,00	11.821,08
Donations and Aid (Social Development and Gender Equality Policies Center (SOGEP)	0,00	5.700.000,00
Collections from Receivables	6.101.072,89	695.052,62
Refunds from Project and Activity Support Payments	0,00	0,00
Interest and Other Income	929.482,69	785.687,23
TOTAL	*46.646.334,10*	*5.328.979,40*

Source: (SERKA, 2021, p.43).

There is a substantial disparity between the income items of the agency and those not related to the "Shares Transferred from Special Provincial Administrations." In 2021, the agency did not receive any funding from the EU or other agencies.

Additionally, the projects and activities did not generate any income or support payments. Overall, there was a significant decrease in general revenues, amounting to TL 41,317,354.7, which is approximately nine times the budget. Expenditure data for the first six months of 2021 is shown in Table 5.

Table 5

**The Serhat Development Agency Expenditure Table
for the First Six Months of 2021**

Income items	Estimated Expenses 2021(TL)	Actual Cost 2021(TL)
General Management Services	16.408.642,00	5.777.246,16
Monitoring, Evaluation and Coordination Services	1.973.122,99	570.325,00
Plan, Program and Project Services	1.545.000,00	19.761,00
Research and Development Services	3.464.340,00	11.510,66
Promotion and Education Services	3.180.000,00	205.625,67
Project Support Services	86.112.208,19	13.503.816,29
Activity Support Services	2.814.425,00	120.000,00
TOTAL	*115.497.738,18*	*20.208.284,78*

Source: (SERKA, 2021, p.44).

Estimated expense items and revenues experienced a significant decrease. The pandemic has led to restrictions that impacted the operations of the organization and its stakeholders. The estimate recorded in the expense item was reduced by approximately six times.

5.2. The Serhat Development Agency Interview Findings

One-to-one interviews held between 19–29 October 2021 and 18–22 January 2023 show the demographic characteristics of the Serhat Development Agency executives.

The study discusses the Secretary General, Kars Investment Support Office, Ardahan Investment Support Office, Monitoring and Evaluation Unit, Human Capital and Coordination Unit, Tourism and Environment Unit, which operated during the pandemic, fought against COVID-19 and its impact on local devel-

opment. Semi-structured interviews with experts from The Serhat Development Agency envolved fewer people than other development organizations because it covers four small cities in the East of Türkiye.

The Agency experienced frequent negative shifts in the number of employees because of its location in the East.

In this context, semi-structured interviews were conducted with only 8 interviewees due to the low number of personnel at the executive level of the Agency. The results obtained are shown in Table 6.

Table 6

Demographic Characteristics of Interviewed Managers

Number	Gender	Age	Place of Birth	Years lived in Kars
1	Man	47	Kars	11
2	Woman	28	Samsun	2
3	Man	39	Agrı	2
4	Man	30	Kars	23
5	Woman	29	Kars	24
6	Man	46	Mersin	7
7	Woman	27	Manisa	1
8	Man	30	Elazığ	3

Source: Compiled by the authors based on interviews.

The managers at the administrative building in Kars Province were asked about their familiarity with the region's social and cultural characteristics, demographic structure, and economic conditions. Four of the eight interviewed managers had been working in the office for less than seven years and were not from the area.

The educational attainment of managers, their length of service at the institution, and their professional background were also surveyed.

Table 7 illustrates the categorization of administrators based on their educational qualifications, area of responsibility, length of service, and professional expertise.

All the managers have university degrees; two of them have postgraduate degrees, and one of them has a doctorate degree. One of the directors is also pursuing further postgraduate study. Two managers previously held the posts in public institutions before joining the agency, while the others had previously worked in the private sector. Before starting at the agency, three of them had never held the post in an institution, therefore they lacked prior work experience. On-the-job training exercises are regularly conducted by all the managers of the agency.

Table 7

Educational Level , Term of Office, and Professional Experience of Managers[2]

N	The level of education	Position	Qualification	Previous Experience	Department	Experience in the current position (Years)	Total experience (Years)	Service training received
1	Under-graduate study	Expert	Expert	Private sector	Investment Support Office	11	11	Yes
2	Under-graduae study	Manager	Sociologist	Special Education Institution	Human Capital and Coordination Department	2	2	Yes
3	Phd	Senior Manager	Geomatics Engineer	Private Sector, Local Government, Public Institution	Senior Executive	1	18	Yes
4	Under-graduate study	Head of Tourism and Environment Department	Electrical Engineering	Private Sector	Tourism and environment	4	4	Yes
5	Under-graduate study	Coordinator of Investment Support Office	Political Science and Public Administration	–	Investment Support Office	5	5	Yes
6	Post-graduate study	Expert in Monitoring and Evaluation Department	Food Engineering	Ministry of Commerce	Investment Support Office	–	8	Yes
7	Undergraduate study	Expert in Monitoring and Evaluation Department	Economics	–	Investment Support Office	–	3	Yes
8	Undergraduate study	Expert in Monitoring and Evaluation Department	Management	–	Investment Support Office	–	5	Yes

Source: Compiled by the authors based on interviews.

[2] The boxes denoted by the (-) sign could not receive an answer.

5.3. Executives' Perceptions on Development Agency Studies and Local Development

Regional Development Agencies are the institutions responsible for the development of projects that support local development and ensure its sustainability in their area of responsibility. The definition of local development by institutional managers and their view of this concept is considered significant. The participants provided their definitions of local development in this context. Responses were received from people-centered research describing local development.

"Educating people, training human capital locally and integrating it with industry within the possibilities in the region…"
"Tourism, rural development, the manufacturing industry is not actually a potential, it should be developed in a socio-economic sense with the right policies and local decisions."

According to some participants, local development is a concept that can be explained by the precondition of recognizing local (stakeholders).

"Development from the local starts with getting to know a local. It is about knowing the capacities and capabilities of each local stakeholder."

Different responses have defined local development as a concept that encompasses multiple aspects and sectors.

"Multidimensional work, from its spatial dimension to its economic, social and environmental dimensions."
"A mechanism where all sectors come together and act in coordination and local people benefit from it."

Participants assessed the impact of Development Agencies on local development. Tourism, agriculture, and animal husbandry, human capital, social support, and entrepreneurial programs for women and youth are the areas that the agency considers to be effective. To succeed in local development, some participants suggest the development of agricultural high schools, empowerment of women, and skills training for local personnel.

The agency's structure can operate in any sector as required due to their institutional structure and ability to work in a variety of areas. It can also assist investments, engage in lobbying efforts, develop expertise, and work in a variety of industries. Given the region's highly successful and dynamic structures, it is believed that raising their budgets will enable them to reach local development.

"In Kars, the impact of promotion and cattle breeding activities on employment is indisputable in both the tourism and manufacturing industries."
"The agency had a great impact on human capital and women's entrepreneurship."

The participants emphasized the agency's coordinating role as an issue. Because of this role, the agency is in an effective position for the stakeholders.

"We are in the position of a collaborating institution."
"Guiding both entrepreneurs, investors and institutions."

Actors that are effective in the realization of local development are also important. Some participants listed these actors as governors, mayors, presidents of the Chamber of Commerce and Industry (CCI) and agency general secretary. It is noteworthy that the managers of the institutions are listed as active actors rather than the institutions. The roles that the institutions play in local development are seen as directly linked to the office managers, as evidenced by the following opinions.

"Provincial governors, mayor, president of the chamber of commerce and industry, secretary-general of the agency."
"In fact, we can call it the members of the board of directors."

In some responses, institutions, especially the agency, were addressed directly. However, participants answered about the work done with local actors. The studies emphasized the importance of local actors as stakeholders. According to the project content, examples of the studies conducted with the provincial organizations of the central government, non-governmental organizations and universities were listed. In some responses, central government's the provincial organizations of the central government are also mentioned.

"We always define local actors as stakeholders."
"We did a project under the name of social entrepreneurship."
"We have only just begun to focus on civil societies."

The participants drew particular attention to Non-Governmental Organizations (NGOs). Together, producer organizations, NGOs, cooperatives, unions, and the public will achieve local development.

"Producer organizations and other organizations, cooperatives, unions, and the public a little more bluntly are the most significant local actors, in my opinion."

5.4. The Serhat Development Agency TRA2 Regional Studies

In this part of the study, questions were posed to managers about the TRA2 region (Ağrı, Ardahan, Iğdır and Kars Provinces), which is included in influence and responsibility of the SERHAT Development Agency: What work is needed for the development of the TRA2 region, what work has already been done and what effect the agency has on the work. The participants emphasized the importance of strengthening human resources and providing employment while expressing the region's shortcomings on a sectoral basis. The development of rural areas requires agricultural operations as it is one of the least privileged areas in Türkiye.

"The most important potential has firstly the tourism sector, secondly agriculture and animal husbandry, and thirdly the manufacturing industry."
"There is a lack of intermediate staff and qualified personnel."

Opinions were also expressed that the provincial organizations of the central government should operate in the region and that local administrations' city services should be strengthened.

"The provincial directorate of commerce and the provincial directorate of industry must somehow be opened and brought here."
"We have a lot of infrastructure problems in local tourism."

When considering the inquiry into whether the works adhere to a specific plan and are deemed successful, it is essential to note that the works are executed in accordance with predetermined strategies and objectives. The regional plan is carefully outlined, and a comprehensive analysis of Strengths, Weaknesses, Opportunities, and Threats (SWOT) is conducted. Furthermore, an impact assessment is also conducted to evaluate the effectiveness of the work.

"The plan of the region has been determined. The current situation has been revealed. Strategies and targets were determined."
"We have provided support for every sector that may be related to urban, agriculture, tourism, industry or not."

For the development of the TRA2 Region, it was asked whether the investors in the region carried out studies in coordination with the producers and the local population. The managers shared that there were meetings with stakeholders and that the agency was in charge of coordinating them.

"There is a sectoral unit meeting. Good Eastern Express etc. in Kars's tourism. They ask, what is your offer for this year, what is your opinion?"
"We are in constant consultation with the major industrialists, the representatives of the major tourism sector, the organized industrial zone, the Chamber of Commerce and Industry."

Agriculture, industry, and tourism are the three main areas covered by the agency's Result-Oriented Program (SOP). In addition, an annual work program was prepared, and a roadmap was developed with the relevant stakeholders. Other stakeholders included the Union of Beekeepers, Provincial Directorates of Agriculture and Forestry, Chambers of Commerce and Industry, and the universities as partners.

"We have a program called the result-oriented program (SOP) for the development of tourism destinations."
"From the Beekeepers' Union to the Provincial Directorates of Agriculture and Forestry, the university, and the Chamber of Commerce and Industry, we attempt to act with a multi-stakeholder structure."

The managers were asked about the studies and the impact of the studies on the development of the TRA2 Region. Some prominent works in the region were mentioned. The inclusion of the Ani Ruins on the UNESCO list, the Caucasian War History Museum, the opening of the Cheese Museum, the Eastern Express, the vicinity of *Çıldır Lake* and the restoration of Kars Castle are among the prominent works.

The development of structured industrial zones in Iğdır, Kars, and other provinces, the inauguration of the Kars Cheese Museum, and the expansion of the tourism industry have been accomplished. Collaborative efforts with vocational high schools and women's cooperatives have been undertaken to empower women and increase the number of cooperatives. However, the recent economic crisis has led to a reduction in both state investments and ongoing projects. As a result, the Ministry has the authority to suspend and transfer the budget of projects supported by the Agency operating under its supervision.

> *"It is a very serious study for Ani Ruins to be included in UNESCO."*
> *"The Caucasus Line History Museum received 120.000 visitors in the first two years it was opened."*
> *"After the Eastern Express, a Kars train exploded, but if you didn't invest here, this bubble would collapse."*

While there have been some successes, there are still some areas that need to be improved, for example, unsustainable projects, incomplete efforts, stakeholder reluctance and a lack of information, underutilized agency capacity, and a lack of employee motivation within the institution.

> *"Everything we do here actually benefits something, touches something, but I think there is more to do."*
> *"Not everyone can do their job well enough. Everyone does their job, but apart from that, they don't want to do much."*

The TRA2 area was designated as an immigration area. The question has been raised as to what kind of studies have been conducted to increase youth employment and prevent migration. This situation needs to be evaluated on a regional basis, as requested. The agency's work is predominantly aimed at preventing migration and includes projects geared towards vocational training and employment in secondary education institutions. It is anticipated that the outcomes of these projects will be available in the forthcoming years.

> *"Most of the agency's work is geared towards preventing migration."*
> *"We have studies and meetings on youth employment."*
> *"We provide internship programs for vocational high schools which ensure employment."*

Considering the characteristics of the region, the participants were queried about the criteria employed to evaluate the project applications submitted to the agency and the priorities that guide such evaluations. The responses received indi-

cate that the application process entails certain stages, a transparent and straightforward application guide, and evaluations by independent auditors based on predetermined criteria. The preferred project selections should be development-oriented, responsive to the needs of the local populace, and prioritize regional benefits over individual gains. Moreover, projects that contribute to the branding process of the provinces are also accorded due consideration.

> *"When you say local dynamics, how does Kars become a brand? What comes to your mind when you think of Kars, Ağrı, Iğdır and Ardahan in Türkiye. We want to work on them."*
> *"Our priority is to see if it brings out the local dynamics. After that, there is nothing we can clearly say that this is our sine qua non."*

6. COVID-19 pandemic process

6.1. The Effect of the COVID-19 Pandemic Process on the Development Agency Studies

The COVID-19 pandemic has undoubtedly disrupted the routine functioning in many areas, causing the postponement or cancellation of planned projects, loss of labor and human capital, and financial problems. The cases that emerged in Türkiye in early 2020 and some legal restrictions have also affected the work of Development Agencies.

The questions posed were aimed at gauging the extent to which the ongoing pandemic has impacted the Serhat Development Agency and the associated studies. At the beginning of the pandemic, in-person meetings and promotional events were no longer possible. Personnel work schedules were arranged on a rotational basis, with those who could be physically present in the office doing their work remotely.

The pandemic has a greater impact on stakeholders, thereby affecting the institution as well.

Financial issues were not the cause of direct problems. However, due to the problems that arose, general economic problems and the rise in exchange rates, the projects were delayed, and the budget was exceeded.

The COVID-19 pandemic has not caused any significant impairment among the agency's personnel. The psychological effects of the process have been highlighted. Factors such as employee discomfort and the inability to feel comfortable in the work environment have been cited. In addition, remote work is not as efficient as face-to-face.

> *"Several staff members were ill with COVID-19, which had a psychological effect."*
> *"There were no job cuts due to the pandemic."*
> *"There was no change in the scope of duties due to COVID-19."*

Many sectors and institutions have taken a number of measures due to the pandemic. The development agency was questioned about the specific measures. The guidelines of the Ministry of Health and the Ministry of Labor and Social Se-

curity were implemented, disinfection procedures were carried out for the institution within the framework of the mask- distance- hygiene rule, staff was informed, the application of the Hayat Eve Sığar (HES) code started, precautions were taken to maintain physical distance in the work environment, working hours were reduced and reorganized.

> *"The Ministry of Labor sent 14 rules to institutions. The staff has been informed. HES Code application, masks, and disinfectants."*
> *"We reduced the 10-hour working hours to 8."*

The pandemic response is the focus of the new project calls. Support programs continued. The projects launched in this and the previous period offered several conveniences in terms of funding, duration and activity.

> *"The calls coincided with the period in which the restrictions were reduced. No restrictions were imposed on COVID -19 related projects."*
> *"We have taken the COVID -19 precautions. We have not taken any additional measures for the project."*
> *"Our technical support is usually face-to-face; they were conducted online."*

Despite receivingthe demand for project calls, none of the projects were found to be successful due to deemed successful on the basis of the evaluation. There is no new project in this process. With the Development Agencies Combat and Resilience Program against COVID-19" of the development agencies announced on 31.03.2020, it is intended to support projects that will contribute to the fight against the risk of the epidemics and offer urgent solutions to reduce the effects of the epidemic. The program supports projects that provide solutions to the problems that already exist or that may arise in the performance of economic activities due to the epidemic (EU Council Presidency, 2020). The agency was asked about the number of projects it has supported under this program. A call was published in the region as part of the program. Many applications were submitted, but no project was deemed successful.

> *"Calls were made regarding the pandemic in four provinces."*
> *"There were delays in the projects. Additional time extensions were provided for the projects due to COVID."*

There are different oppinions about whether the pandemic affected the development agency's support. According to some managers, the development agency's support was affected, according to others, support was not affected. Despite the consensus that investments and project processes have been affected, these views are not based on quantitative data. The impact of the pandemic cannot be measured, as the managers explained.

> *"The pandemic has affected development investment and support for services. We couldn't measure it, so we can't provide data."*

The pandemic did not cause the current problems and there were no problems with the flow of funds in general. According to one opinion, the amount of funding has decreased due to the pandemic. Project budgets have been affected by the current exchange rates, as there have been interruptions in the implementation of projects.

> *"There were no problems with the flow of funds. Due to COVID-19, fewer funds were sent from the central budget compared to normal figures."*
> "We did not have any financial support due to the pandemic."

A question was asked about the impact of the pandemic on planned studies. The pandemic prevented many organizations from planning. Domestic and international trade fairs, stakeholder meetings region-specific work on aromatic plants and snow rallies are among the events that cannot be held.

> *"Promotions and organizations could not be held; meetings with stakeholders could not be held."*
> *"We had a study on aromatic plants in Ardahan and Kars, but we could not carry it out."*

6.2. Impact of the COVID-19 pandemic process on local development

The impact of COVID-19 on local development in the TRA2 region was examined by interviewing managers about the sectors affected and the measures taken by the development agency. The tourism and food sectors were the most affected, and the agency provided financial support to manufacturing industry, while the service sector, particularly tourism, was significantly impacted. Rural activities continued with minimal impact and distance learning became more common. Consulting activities had minimal impact on investment and support, and projects were revised, with either less equipment or a larger budget requested. The Doğu Express, a major tourist attraction, was completely closed, severely affecting the service sector.

> *"It has mainly affected the tourism industry. Studies are needed to measure how much it has been affected. The project of the city of Kars with its historical identity has been accepted. Work on the Ebul Menuçehr has been carried out. Work continues for the Bedesten in Kars Stream. A café in Bayraktepe in Sarikamis Ski Center was opened and brought into tourism. Susuz Waterfall was built (All these studies are independent of the COVID -19 period)."*

Several projects, including the Ebul Menuçehr Mosque, the Sarikamish Ski Center Bayraktepe Cafeteria, the Kars Stream and Covered Bazaar Project and the Susuz Waterfall were carried out during the pandemic period. However, many tasks of the 2020 work program, including training, advertising, consulting and technical inspections, were postponed or not completed. There was no specific planning for the pandemic, and the primary goal was to continue the ongoing process and ensure the survival of the company receiving financial support.

Managers were asked to evaluate the impact of their work before and during the pandemic on the region's development. A development plan focused on agriculture was adopted by the TRA2 region. There were no difficulties as agricultural activities continued without interruption during the pandemic. On the other hand, as already mentioned, the tourism sector was emphasized. A program was introduced to support micro and medium-sized entrepreneurs. In addition, training was provided to strengthen the skills of women's cooperatives and beekeepers. Over 700 farmers were trained in animal care, nutrition, sanitation, and animal diseases as part of the "Exemplary Producer Training Program.

"Nothing was interrupted. If there is something that was interrupted, it was interrupted by the institutions of those involved."

"The activities before and after the pandemic continue. There is no change there."

"I do not think COVID -19 has affected the city like Istanbul."

The development agency's influence on the TRA2 region in the fight against the pandemic is limited.

6.3. What are your recommendations?

Finally, the managers were asked for their general suggestions. It was emphasized that the support programs of the Ministry of Health and other relevant ministries can be implemented and that it is necessary to get used to the new normalities that came with the pandemic. Proposals have been made for support programs specifically targeted at the health sector. Although the initial lockdown process was challenging for all sectors, they continued their activities in the following processes. The possibility of employees contracting the disease is a problem that can occur. The service industry, which includes hotels, cafes and restaurants, was hit hard by the COVID-19 outbreak. However, they said that businesses that produce certain goods, including milk and dairy products, can be protected from negative effects by increasing their capacity for e-commerce.

"A support program can be made to combat the pandemic."

"The sector most affected by COVID was the service sector. Businesses that are not good at e-commerce started to stumble during the COVID period."

7. General assessment and outcome

Executives at Serhat Development Agency discussed the agency's human resources, stakeholder interaction, project support and budget, as well as their approaches to local development, the challenges of the pandemic and the sectors that need support. The agency remained open during the pandemic with rotating staff and remote working. There were no significant changes in human resources, but some entrepreneurs suffered job losses. The study included opinions of three executive managers from the region, providing a comprehensive insight.

When compared to the initial estimates at the start of the epidemic, the agency's revenue and spending components have changed dramatically over time. The overall income in the predicted budget has decreased by almost nine times, while the spending items decreased by around six times. However, this has not negatively affected the agency's operations. The amount of funding allocated to the projects declined as a result of the overall status of the economy and the rise in exchange rates. The TRA2 region has adopted a development plan for agriculture. Agricultural activities continued uninterrupted during the pandemic. Negative effects were observed in the tourism, food and service sectors. Nevertheless, no further study has been done for the sectors that are determined to be impacted. The new project calls are only expected to be made within the ministry's project program in 2022. According to this study, the Serhat Development Agency, which was founded for regional development, required investments, support, incentives and research during the pandemic, but none of this was done. During this period, the Development Agencies started consistent project calls decided and programmed by the central government. From the interviews, it was discovered that SERKA recognized the needs of the region but did not respond to them during the pandemic.

The unsustainability of the projects and the incompleteness of some of them, the reluctance of the stakeholders and the lack of information, the inability to fully use the agency's capacities and the lack of motivation of the institution employees are the weaknesses identified during the pandemic period. An analysis of the region's strengths and weaknesses, opportunities and threats (SWOT) was carried out and an impact assessment was made. Quantitative data is not available to measure the effects of the pandemic.

It has been said that face-to-face training and remote work during the pandemic has developed into a useful habit for the post-pandemic period. Additionally, the field study carried out by SERKA found that people who had lost their jobs due to the pandemic were entrepreneurs and that entrepreneurship was on the rise.

Supporting local development requires human-oriented studies. Local development studies acknowledge the importance of the young population staying in the region, as it is a migratory area. It is necessary to increase youth employment, strengthen human resources and prevent out-migration in the region. Adapting new norms and highlighting support programs for the healthcare sector are necessary due to the pandemic. The Ministry of Health and other central government organizations at the provincial level that support the development of the region should be opened in the region and the municipal services of local governments should be supported.

It has been determined that the pandemic has a significant impact on various stakeholders. Both domestic and international fairs, stakeholder meetings, and events that were planned prior to the pandemic, were canceled. Under the "Development Agencies Combat and Resilience Program against COVID-19," the agency issued a call in the region, which resulted in numerous applications but ultimately no successful projects were identified. Throughout the pandemic, no new projects were initiated, indicating a lack of initiatives by Development Agencies in Türkiye to address the negative impacts of the pandemic in their

respective regions. Consequently, the project support provided by the Ministry is deemed adequate when faced with unforeseen circumstances such as the COVID-19 pandemic.

Development Agencies play a crucial role in the economic and social advancement of their respective regions. Their guidance and support for various projects and activities have contributed to the development of the region. Public investments channeled through these agencies have aimed to enhance employment opportunities and overall life satisfaction in the area. This has also created opportunities for the private sector, which has its own social and economic priorities, as well as a need for fundamental infrastructure. The post-pandemic efforts of these agencies continue to contribute to the social and economic growth of the region.

The analysis of the data supports the hypothesis that the pandemic has led to a reduction in interaction between the Serhat Development Agency and its stakeholders. Additionally, it is evident that new project support has not been realized, and this situation has periodically hindered the development of the region

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DETERMINANTS OF COVID-19 FATALITY RATES IN INDONESIA: A CONFIGURATIONAL ANALYSIS OF GOVERNMENT POLICIES AND SOCIETAL CONDITIONS

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Abstract. This paper systematically identifies the determinants of COVID-19 death rates at the initial stages of the outbreak in Indonesia by considering configurations of government conditions (responsiveness, ability to control case rate, and capacity to cure infected people) and societal conditions (vulnerability and compliance). Configurational analysis using crisp-set QCA was employed to analyze these sets of conditions and outcomes in 34 provinces throughout Indonesia. The results show that the high ability of local government to control the spread of the disease is a necessary and sufficient condition for a low death rate.

However, the opposite condition (the low ability of government) is only necessary but not sufficient for a high fatality rate. To create sufficient conditions for a high death rate, the low ability of local governments to restrain the spread of the virus requires other specific conditions, particularly a low level of community obedience to the restriction policy. The present study highlights that the institutionalization of a new normal life during the pandemic through regulative, normative and cultural-cognitive mechanisms is of paramount importance.

Keywords: COVID-19 pandemic, death rate, public policy characteristics, societal factors, configurational analysis, Indonesia.

Introduction

The coronavirus disease (COVID-19) has spread rapidly throughout the world, and has disrupted most countries' social, economic and political orders (Anttiroiko, 2021). In the face of the pandemic, governments experience contradicting challenges, such as tensions between human safety and economic security. While movement restrictions, mass gathering bans, area lockdowns, school closures, isolation and work-from-home regulations are required to prevent the spread of the disease, the negative economic consequences are of great concern. However, the idea of the trade-off between health and economy is not fully supported by empirical evidence.

Hasell (2020) shows that countries with the highest COVID-19 death rate in August 2020 (> 600/million), such as Peru, Spain and the UK, suffered the worst economic downturn (negative GDP growth of > 20% in Q2/2020). In the same period, countries with a low death rate (<50/million) such as Taiwan, South Korea, Lithuania, Indonesia and Norway succeeded in preventing a deeper economic decline (negative GDP growth of 1–5%). In contrast, countries with a similar decline in GDP (minus 8–10%), for instance, the USA, Sweden, Denmark, the Netherlands and Japan, had very different mortality rates: the USA and Sweden (> 550/million), the Netherlands (364/million), Denmark (107.73/million) and Japan (10.16/million).

There is no doubt that policy measures play an essential role in reducing infection and fatality rates (Capano et al., 2020; Asmorowati, Schubert and Ningrum, 2021). In this vein, prior works highlight the government's ability to control the spread of the disease (Mei, 2020; Walensky and del Rio, 2020; Hsiang et al., 2020), in responding to the crisis quickly (Kim, 2020; Migone, 2020), and in curing infected people (Khan et al., 2020). However, the critical role of societal factors cannot be ignored, such as social vulnerability (Daoust, 2020; Karaye and Horney, 2020) and community compliance with health policies (Murphy et al., 2020; Van Rooij et al., 2020). Because they are interconnected and equally important (Bloukh et al., 2020; Capano et al., 2020), such conditions should be considered as configurations rather than single causal factors. Therefore, configurational analysis is needed to identify combinations of necessary and sufficient conditions for either success or failure in dealing with the pandemic.

To date, very little configurational analysis of the recent crisis has been carried out. Primc and Slabe-Erker (2020) have only identified combinations of conditions related to governmental policies, which led to either a high or low COVID-19 death rate. Despite considering a societal factor (population vul-

nerability), Ito and Pongeluppe (2020) examined the combinations of contextual factors that (only) led to a negative outcome, i.e low spread of COVID-19. No previous study has examined the role of combinative conditions in determining two different COVID-19 outcomes (positive and negative, respectively).

Using crisp-set qualitative comparative analysis (cs-QCA), this present work makes contributions by systematically identifying necessary and sufficient conditions, related to both government and society, for the high or low COVID-19 death rate. This study is guided by the research question: How do public policy characteristics and societal factors in combination enable either a low or high COVID-19 death rate at the initial stages of the outbreak in Indonesia?

Indonesian provincial cases were purposively selected for analysis to enrich theoretical contributions based on Asian narratives, as COVID-19 studies using QCA were mostly conducted in western countries, e.g., international comparison of European countries (Primc and Slabe-Erker, 2020) and comparison between parts of a country in South America (Ito and Pongeluppe, 2020). More importantly, as a country with a relatively low death rate and a modest economic impact, Indonesia provides relevant local cases to study configurational conditions for the COVID-19 death rate during the critical initial stage, i.e., six months after the country's first case was announced. The configurations are beneficial points of consideration in developing a more sensitive crisis management model.

In the next section, we sketch out the theoretical backdrop underpinning the study. Then we move on to the description of the method, followed by the presentation of the findings highlighting the necessary and sufficient conditions for either a low or high COVID-19 death rate. Finally, we discuss the theoretical implications of our analysis and provide some suggestions for future research.

The theoretical background of COVID-19 fatalities and their potential causal conditions

COVID-19 deaths are the key indicator to assess the pandemic fatality. When the WHO first declared it a pandemic on January 30, 2020, the death toll was 171. On December 31, 2020, the number had reached 1.8 million. However, the WHO estimates that the actual death toll is at least 3 million or 66% higher than officially reported (WHO, 2020). Many countries still lack accurate data on deaths. Comparisons are often difficult because countries use different methods to report COVID-19 mortality. Furthermore, the use of indicators varies, for example, fatality rate, crude death rate, deaths per capita, excess mortality or others, and the most appropriate indicator is still debated (Heuveline and Tzen, 2021).

Mortality indicators are critical, but the causes of high fatality rates are even more important to study. This section provides a brief overview of five conditions that can determine COVID-19 death rate: societal conditions (community vulnerability and obedience to restriction measures) and government conditions (the government's ability to control the spread of COVID-19, the responsiveness and capacity of health facilities and medical personnel).

Vulnerability

Bloukh et al. (2020) reveal that, during SARS-CoV, MERS-CoV, and COVID-19 outbreaks, high mortality rates were observed among elderly patients whose immune systems have been compromised by their illnesses, such as diabetes, hypertension, and cardiovascular disease. People who are over 60 years old, suffering from chronic diseases, or having both conditions, are more susceptible to infection with COVID-19 (Wyper et al., 2020). This condition is in accordance with Venton and Hansford's Crunch Model (2006), highlighting that a disaster can occur when a hazard meets a vulnerable situation. Thus, areas with a more vulnerable population tend to face a greater threat of a disaster than other regions.

Obedience

The community's compliance with health protocols and restrictive policies, such as working from home, minimizing mobility, and not visiting public areas such as shopping centers, is critical to reducing disease transmission (Bloukh et al., 2020). Citizens' compliance with government policies can result from either rational or normative reasons (Foorthuis and Bos, 2011). Rational reasons reflect individual considerations to comply with regulations influenced by cost-benefit calculations and the use of rewards and punishments. In contrast, normative reasons indicate people's considerations to obey rules or norms because they are seen as legitimate and appropriate, not because of fear of punishment (Scott, 2014). Several studies show that adherence to social distancing rules depends on socio-economic reasons, such as whether citizens have access to flexible work arrangements, and behavioral factors such as beliefs about virus transmission (Akesson et al., 2020). In addition, studies indicate that civic and citizenship values determine the degree of compliance with such public health containment measures (Barrios et al., 2021; Durante, Guiso and Gulino, 2021).

Control

The government's ability to control the spread of COVID-19 is required to reduce the death rate. The most commonly performed measures include restrictions on mobility and activities in public places and the enforcement of health protocols (Migone, 2020). However, the implementation of these measures varies greatly. Lockdowns can take many forms, ranging from very loose to very strict. Some countries, such as China, South Korea, France, and the UK, imposed more strict lockdowns, such as border closures, international and local flight bans, public event cancellation, and the closure of schools and businesses in all regions (Primc and Slabe-Erker, 2020; Atalan, 2020; Kim, 2020).

However, less strict forms of quarantine were observed in many other countries. One example is Indonesia, which preferred a looser and partial restriction (called *Pembatasan Sosial Berskala Besar* or "PSBB") in several regions rather than a strict lockdown in all localities. This policy was taken to avoid the negative consequences of a total lockdown, which would have a significant impact on workers in the informal sector (Andriani, 2020; Olivia, Gibson and Nasrudin, 2020). In short, the primary consideration of such a restriction policy is to balance

between public health and economic safety. Supervision of the implementation of health protocols also varies from country to country and from region to region within a country, which can lead to different outcomes.

Responsiveness

The government's rapid response to the pandemic can curb the spread of COVID-19 and reduce the death rate (Primc and Slabe-Erker, 2020; Kim, 2020). Migone (2020) states that Australia, Japan, and South Korea have succeeded in reducing the low COVID-19 infection rate because they responded quickly to the pandemic. In South Korea, collaborative and fast responses led by the government were the key, particularly in conducting extensive tracing and testing and facilitating early quarantine after the spike in new cases of infection (Kim, 2020). Based on their research in China, Wang et al. (2020) prove that the government's effective emergency response played an essential role in flattening the epidemic curve and slowing the onset of peak periods. As a result, the emergency measures effectively prevented a spike in the number of infected patients that exceeded the capacity of the medical system

Treatment

The capacity of health facilities and medical personnel to cure infected patients is the other critical requirement to reduce the fatality rate. In their study on healthcare capacity, Khan et al. (2020) found that greater health care capacity is associated with a lower number of COVID-19 fatalities. An essential finding of this study is that countries with strong health care capacities have lower death rates. Souris and Gonzalez (2020) state that during the first critical phase of COVID-19 in France, there was a significant spike in daily deaths in metropolitan areas due to the overload of healthcare facilities caused by significantly increased hospitalization rates. In contrast, limited access to healthcare facilities for French people living in rural areas was the cause of high fatality rates in areas with low population density. Similarly, Bravata et al. (2021) found that COVID-19 patients treated in the Intesive Care Unit (ICU) during increased ICU demand had a higher risk of death than patients treated in the ICU during decreased ICU demand. Besides increasing the number of COVID-19 tests, Upadhyay and Shukla (2021) also highlight the importance of augmenting health care spending and improving overall health care capacity to reduce the COVID-19 death rates.

Research Method

Data and measurements

The research is a multiple case study of all 34 Indonesian provinces intended to identify the patterns of relations between COVID-19 death rate and their causal conditions. The conditions observed in this comparative study include two societal conditions (community vulnerability and compliance with mobility restrictions) and three government conditions (responsiveness, ability to control case rate, and capacity to cure the infected people). The following are descriptions of data used in assessing the outcome and each studied condition.

The outcome

The outcome assessed in this QCA is the COVID-19 death rate for each province, labeled *Death* (coded as "D"). The number of Covid-19 deaths was chosen because the variation in population and number of infected people between provinces in Indonesia are very large, while just one death indicates a condition requiring greater attention. The cut-off value for this outcome was determined by the median of death rates in 34 provinces in Indonesia on August 2, 2020, as compiled by the COVID-19 National Task Force. A province is considered to have a high death rate if its value is 33.5 or above (coded as "D_0"). Meanwhile, a province with a lower value is classified as the opposite (coded as "D_1").

The conditions

The first examined condition is community vulnerability (coded as "V"), which is observed from the composite variable based on the percentage of the population aged over 60 and the morbidity rate[1] with a weighted value of 60:40. The higher the number, the more susceptible the population is to diseases, including being infected with COVID-19. The data were obtained from Statistics Indonesia or *Badan Pusat Statistik* (BPS, 2019). The vulnerability level of a province's population is considered high (coded as "V_1") when the value is above the national average (>10.5 percent). In contrast, a province with a lower value is categorized as low vulnerability (coded as "V_0").

Community compliance is the second condition of interest and is labeled *obedience* (coded as "O"). This condition represents the extent to which the population in each province complied with the call to reduce activities outside the home. The condition was observed based on data, processed using the Google mobility index, indicating the difference between the decrease in the percentage of people working in the office and those visiting shopping venues (traditional markets, shopping malls, supermarkets) during the first week of the implementation of the restriction policy (*PSBB*) in the Indonesian capital (April 10–17, 2020). This period was chosen because at that time the Central Government warned all Indonesians (not only in the capital city) to reduce their activities outside the home. The warning also included continuing the work from home and distance learning, which had started on March 16, 2020. A large gap (>30%) indicates that people in a province tend not to comply with the call, i.e., the number of people working in offices had decreased significantly, but those visiting shopping venues had not decreased much. Provinces with values above 30 are considered to have a low level of obedience (coded as "O_0"). Meanwhile, provinces with a lower value are classified as having a high degree of obedience (coded as "O_1").

The third condition assessed is government responsiveness (coded as "R"), that is, the speed with which the local government reacts to the event of a deteriorating situation at the beginning of the COVID-19 pandemic. It must be noted that not all provinces have adopted the restriction policy (called PSBB). Considering

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[1] The morbidity rate is the percentage of the population experiencing health problems caused by illness or accidents, interfering with their daily activities.

the economic consequences of the restrictions, the central government did not want all provinces to implement the restriction policy. The provinces that wanted to adopt the policy were required to submit a proposal to the central government. The central government would then review the proposal and decide whether or not to allow a province to apply the restrictions in full or in part. Therefore, for provinces that have implemented PSBB, the responsiveness is assessed by considering the speed at which PSBB was fully or partially implemented, measured in the number of days before implementation of the PSBB. After obtaining permission from the central government, the provincial and district governments needed to prepare technical arrangements, disseminate them to the public, and officially implement the restriction policy. A local government is regarded as slow to respond (coded as "R_0") if the restriction policy was not officially implemented until more than ten days after a positive case spike in the province. Provinces that take less than ten days to implement PSBB, or that introduce adopting PSBB before the first spike, are considered fast responders (coded as "R_1"). The number of days is counted from the time the proposal is sent to the central government until the restriction policy is officially implemented. For provinces where several districts started implementing PSBB at different times, an average value is used. The data were collected from the National Agency for Disaster Management or BNPB, i.e., the list of provinces and districts that implement PSBB, and various news media, i.e., the dates of the proposal submission, approval, and PSBB implementation in each province or district.

For provinces that have not implemented a PSBB, the responsiveness is based on their ability to control the case fatality rate (CFR) in the first three months of the pandemic in the country. Local governments are considered highly responsive ("R_1") if the CFR in their area was less than 5% of the total infected people by the end of May 2020. Provinces with a higher CFR are classified as low responsive ("R_0"). The CFR of COVID-19, i.e., the ratio between the number of confirmed deaths from the disease and the number of confirmed cases in a specific time and place, was used as a proxy for local government responsiveness, as the data can indicate how quickly a local government has taken the necessary actions to prevent or reduce the risk in the area. The data were obtained from the official website of the COVID-19 National Task Force (https://covid19.go.id/).

The fourth condition is labeled *control* (coded as "C") and represents the local government's ability to control the spread of the disease, which was observed by the percentage of positive cases in the regions compared to the total positive COVID-19 cases in the country. The data were compiled from the official website of the COVID-19 National Task Force (https://covid19.go.id/). The cutoff point is established at the median, which is defined as 1 percent. As a result, provinces that have a proportion of 1 percent or higher are categorized as low (and marked as "C_0"), whereas those with a proportion below 1 percent are categorized as high (and marked as "C_1").

The last condition is the ability of healthcare facilities and medical personnel in the regions to cure COVID-19 patients, labeled as *treatment* (coded as "T"), which was identified by calculating the number of infected people who recovered (recovery rate) in the regions on August 2, 2020.

Table 1

The outcome variables and their antecedents by provinces

Provinces	Σ Death	Vulnerability	Obedience	Responsiveness	Control	Treatment
East Java (JI)	1719	14.63	39.5	PSBB: 41.5 days	19.3	71.3
Jakarta (JK)	860	9.70	39.87	PSBB: 16 days	18.90	63.2
Central Java (JT)	655	14.07	40.37	PSBB: 30 days	8.3	63.6
South Sulawesi (SN)	321	11.40	34	PSBB: 30 days	8.3	69
West Java (JB)	210	12.01	40.25	PSBB: 30 days	5.7	58.5
South Kalimantan (KS)	295	10.18	32	PSBB: 21 days	5.3	59.9
North Sumatra (SU)	201	9.94	34.12	Death in May: 10.45%	3.5	42.4
Bali (BA)	48	13.72	21.87	Death in May: 0.85%	3	86.7
South Sumatra (SS)	163	10.00	34.75	PSBB: 38.5 days	2.9	62.3
Papua (PA)	33	5.58	20.5	Death in May: 0.9%	2.70	57.3
North Sulawesi (SA)	133	13.21	34.12	Death in May: 10.98%	2.3	55
West Nusa Tenggara (NB)	116	13.64	30.62	Death in May: 1.58%	1.8	62
Banten (BT)	90	11.28	43.88	PSBB: 23 days	1.6	70.8
Central Kalimantan (KT)	91	8.89	30.62	PSBB: 21 days	1.5	70.6
North Maluku (MU)	49	8.23	38.5	Death in May: 6.54%	1.4	51
East Kalimantan (KI)	36	8.35	34	Death in May: 1.02%	1.4	62.5
Gorontalo (GO)	35	13.59	41.5	PSBB: before the first spike	1.2	71.1

Provinces	Σ Death	Vulnerability	Obedience	Responsiveness	Control	Treatment
Maluku (MA)	23	9.13	38.37	Death in May: 3.59%	1	59.5
West Sumatra (SB)	34	11.77	33.62	PSBB: 17 days	0.9	70.6
South East Sulawesi (SG)	13	10.24	29	Death in May: 1.64%	0.7	67.9
Yogyakarta (YO)	21	15.86	28.87	Death in May: 3.62%	0.7	66.1
Aceh (AC)	15	11.25	29.75	Death in May: 5%	0.4	15.7
Riau (RI)	12	8.40	27.87	PSBB: before the first spike	0.4	52.2
Riau Islands (KR)	18	6.74	39.75	Death in May: 7.89%	0.4	60.3
West Papua (PB)	6	7.27	34	Death in May: 0.6%	0.4	65.6
North Kalimantan (KU)	2	8.90	31	PSBB: 12 days	0.3	90.5
West Kalimantan (KB)	4	9.79	28.62	Death in May: 1.08%	0.3	92.7
Bangka Belitung (BB)	2	9.88	35.75	Death in May: 4.35%	0.2	94
Bengkulu (BE)	19	10.20	36.5	Death in May: 3.3%	0.2	58.7
Central Sulawesi (ST)	7	11.73	31.87	PSBB: 11 days	0.2	90.3
Jambi (JA)	4	8.70	33.25	Death in May: 0	0.2	56.2
Lampung (LA)	13	11.83	40	Death in May: 8.27%	0.2	73.6
West Sulawesi (SR)	4	10.62	28.62	Death in May: 2.17%	0.2	62.5
East Nusa Tenggara (NT)	1	13.93	37.37	Death in May: 1.09%	0.1	85.5

Sources: the authors' compilation.

The recovery rate was used as a proxy for the ability of health treatment particularly provided to the infected people in a specific time and place. Although the recovery of patients with COVID-19 can be caused by their own ability to recover, the medical treatment they receive during hospitalization determines the recovery speed. The data were gathered from the official website of the COVID-19 National Task Force (https://covid19.go.id/). The cut-off for this condition was determined by the mean national recovery rate (>65.86%). Provinces with 65.86% or above are categorized as high (coded as "T_1") and below as low ("T_0"). As shown in the table, there were different conditions in the provinces in terms of mortality and recovery rates, where high mortality rates were not always followed by low recovery rates. This indicates that the two were not always interdependent and therefore QCA was required to recognize the patterns of differences and similarities in the cases studied across the provinces and considered them in identifying necessary and sufficient conditions for high or low death rates.

Analysis strategy

We used the qualitative comparative methodology (QCA) to identify conditions or combinations of conditions that are necessary or sufficient for the outcomes, as high or low death rates. Developed by Charles Ragin in the 1970s, QCA can be used to understand situations and contexts in a systematic and transparent way (Greckhamer et al., 2018). QCA was initially developed as a middle ground between qualitative (case-oriented) and quantitative (variable-oriented) approaches, providing researchers with a novel set of tools to identify complex causal relations through systematic comparisons and configurational analysis (Fiss, Marx and Cambre´, 2013; Thomann, van Engen and Tummers, 2018; Fischer, 2015). Particularly, we utilized crisp-set QCA (csQCA), following the methodology of Rihoux and Mour (2009), and conducted our analysis using the Tosmana v1.5.2 software, developed by Cronqvist (2016). The use of QCA varies widely, encompassing activities like developing typologies, pinpointing subset relations, testing existing theories, and inductively generating new hypotheses, as described by Thomann and Maggetti (2020).

The present study is not aimed to test hypotheses, but rather to find partial relationships between the conditions and outcomes studied, which can be considered hypotheses generated by the approach. The analysis is performed in four steps, which are briefly described below.

Step 1: Data preparation

To conduct csQCA, the conditions and outcomes of each case must first be converted into dichotomous data. For example, high and low death rates were determined by using the median as a cut-off value, i.e. the death rate in a province is classified as high if its share of the total national mortality rate is > 33.5. Based on this cut-off value, there are 16 provinces with high death rates, while 18 others are classified in the low death rate category. We also determined a cut-off point for each condition to classify the provincial cases into ones with a high or low level of each condition. The binary data were entered into the Tosmana worksheet. Data processing was then performed using the Tosmana program to produce a truth table (i.e., a table listing all logically possible configurations of binary caus-

al conditions, along with the empirical outcome associated with each configuration) and Boolean expressions indicating configurations of conditions that result in either a high or low death rate.

Step 2: Necessity analysis

Following the csQCA protocol, necessity and sufficiency analyses were carried out based on a truth table presenting certain combinations of conditions related to a given outcome (Rihoux and Mour, 2009). As recommended by Ragin (2006), we performed a necessity analysis before conducting sufficiency analyses.

A necessity test is used to identify single conditions that are considered necessary or required for an outcome. A condition (X_1) is necessary for an outcome (Y_1) if the occurrence of Y_1 is not possible without the presence of X_1, but X_1 alone is not necessarily sufficient to produce Y_1. A condition is necessary if it is present in most cases or if the consistency value is above 0.9 and the coverage value is above 0.5 (Ragin, 2006; Schneider and Wagemann, 2012; Thomann, van Engen and Tummers, 2018).

The consistency value ranges from 0 to 1 and expresses the proportion of cases with a specific condition in all cases with a particular outcome. With the same range of values, the coverage value shows the number of cases with a particular condition and a particular outcome compared to cases with the same condition and a different outcome.

Step 3: Sufficiency analysis

One of the features of QCA is causal asymmetry, i.e., that the opposite conditions cannot be automatically assumed to affect the opposite outcome. Therefore, separate sufficiency analyses were then conducted to identify a set of conditions leading to high or low death rates, respectively. The Tosmana program produces several tracks indicating set-relationships between particular conditions or combinations of conditions and outcomes. It is important to note that the analyses included the empirical cases and the logical remainders, as suggested by Rihoux and Mour (2009). The exclusion of the logical remainders or potential cases only results in descriptive formulas (i.e., complex formulas expressing set relations between conditions and outcomes of the empirical cases). To obtain shorter or simpler *Boolean* expressions, the software must be allowed to take potential cases into account. Rihoux and Mour (2009, p. 60) explain that 'the simpler a *Boolean* expression, the larger the number of configurations it covers. … [The software] selects some logical remainders useful to achieve shorter formulas, adds them to the set of observed cases, and makes 'simplifying assumptions' regarding these logical remainders.' As a result, this mechanism produces simpler formulas expressing set-relationships between conditions and outcomes.

A set-relationship suggests that a condition or a configuration of conditions is sufficient for a particular outcome. A condition (e.g., X_1) is sufficient for an outcome (e.g., Y_1) if Y_1 always occurs when X_1 is present. However, other conditions (e.g., X_2) or combinations of conditions (e.g., $X_2 * X_3$) can also lead to Y_1. A reasonably well-established consistency benchmark for sufficiency analysis is at least 0.80 (Greckhamer et al., 2018).

Step 4: Evaluation of results

The evaluation serves to assess the consistency of the set-theoretical relationships with the underlying data. We performed consistency and coverage measurements as fitting parameters (Ragin, 2006). Consistency measures the degree to which a relation between a causal condition (or combination of conditions) and a particular outcome is met within a given data set. In sufficiency relations, the consistency parameter indicates the proportion of cases with a particular condition (e.g., X_1) or configuration of conditions (e.g., $X_1 {}^*X_2$) that have a result (e.g., Y_1) relative to all cases with X_1 (or $X_1 {}^*X_2$). The higher the consistency value of X_1 (or $X_1 {}^*X_2$), the closer X_1 (or $X_1 {}^*X_2$) is to being a consistently sufficient condition (or combination of conditions) for Y_1. If the consistency value is 1, then X_1 (or $X_1 {}^*X_2$) can be interpreted as absolutely sufficient for Y_1.

The coverage values empirically indicate the relevance of the relationship between a condition (or combination of conditions) and an outcome (Ragin, 2006). We created two coverage measures, for both high and low death rates. First, raw coverage of each trace, that is, the number of cases with a particular condition (or configuration of conditions) that also have a specific outcome (including cases covered by multiple configurations). Second, the unique coverage of each track, that is the proportion of cases with a particular outcome exclusively covered by a given track (no other tracks cover those cases) (Andrews, Beynon and McDermott, 2016).

We also measured the consistency and coverage of the solution or combination of the tracks for each outcome, i.e., high and low death rates. While solution consistency indicates the combined consistency of the causal conditions or combinations of conditions, solution coverage expresses the proportion of cases covered by all the tracks (Andrews, Beynon and McDermott, 2016). A high consistency score (>0.75; see Ragin, 2006) indicates that a causal condition or combination of conditions is necessary for a particular outcome to occur. If consistency or coverage values for the solution are low (<0.75), this indicates a poorly specified set.

The csQCA and its Findings

The csQCA resulted in a set of data presenting the configurations of societal and government conditions and death rates in each province (as presented in the truth table), which became the basis for further analysis. The number of logically possible configurations in the truth table is automatically determined by the formula '2^k', where *k* is the number of conditions (Grofman and Schneider, 2009). In this study, *k* represents the number of societal and government conditions assessed. Thus, the truth table here consists of 2^5, or 32, logically possible configurations, i.e., including the 19 configurations identified from the observed cases (Table 2). Out of 19 logically possible combinations identified from the observed cases, eight are associated with high death rates (rows 1–8) and 11 others with linked to low death rates (rows 9–19). The truth table shows that not all logically possible combinations are empirically observed, termed "the logical remainders" (Rihoux and Mour, 2009), i.e., the 13 configurations listed in rows 20–32.

Table 2

Truth Table

Row	Conditions					Outcome		Cases
	Vulnerability (V)	Obedience (O)	Responsiveness (R)	Control (C)	Treatment (T)	Death (D)	n	
1	0	0	0	0	0	0	5	JK, KS, SU, SS, MU
2	0	0	0	0	1	0	1	KT
3	0	0	1	0	0	0	1	KI
4	1	0	0	0	0	0	3	JT, JB, SA
5	1	0	0	0	1	0	3	JI, SN, BT
6	1	0	1	0	0	0	1	NB
7	1	0	1	0	1	0	1	GO
8	1	1	1	0	1	0	1	BA
9	0	0	0	1	0	1	1	KR
10	0	0	0	1	1	1	1	KU
11	0	0	1	1	0	1	3	MA, BE, JA
12	0	0	1	1	1	1	2	PB, BB
13	0	1	1	0	0	1	1	PA
14	0	1	1	1	0	1	1	RI
15	0	1	1	1	1	1	2	SG, KB
16	1	0	0	1	1	1	3	SB, ST, LA
17	1	0	1	1	1	1	1	NT
18	1	1	1	1	0	1	2	AC, SR
19	1	1	1	1	1	1	1	YO
20	0	0	1	0	1	r	0	–
21	0	1	0	0	0	r	0	–
22	0	1	0	0	1	r	0	–
23	0	1	1	0	1	r	0	–
24	0	1	0	1	0	r	0	–
25	0	1	0	1	1	r	0	–
26	1	0	0	1	0	r	0	–
27	1	0	1	1	0	r	0	–
28	1	1	0	0	0	r	0	–
29	1	1	0	0	1	r	0	–

Row	Conditions					Outcome		Cases
	Vulnerability (V)	Obedience (O)	Responsiveness (R)	Control (C)	Treatment (T)	Death (D)	n	
30	1	1	0	1	0	r	0	–
31	1	1	0	1	1	r	0	–
32	1	1	1	0	0	r	0	–
Notes:								
V_1	The level of vulnerability was higher than the national average (>10.50%)							
V_0	The level of vulnerability was lower than the national average (<10.50%)							
O_1	The level of community compliance with the mobility restriction policy was relatively high (the difference in reduction in the number of people going to the office and visiting shopping venues <30%)							
O_0	The level of compliance with the mobility restriction policy was relatively low (the difference in the reduction in the number of people going to the office and visiting shopping venues> 30%)							
R_1	Local government responsiveness was high (the adoption of the PSBB/social restriction policy started in less than ten days as the number of cases increased, or the death rate in the first three months <5%)							
R_0	Local government responsiveness was low (the adoption of the PSBB/social restriction policy started in more than ten days as the number of cases increased, or the death rate in the first three months >5%)							
C_1	The ability of local government to control the spread of COVID-19 was high (total positive cases <1%)							
C_0	The ability of local government to control the spread of COVID-19 was low (total positive cases > 1%)							
T_1	The ability of healthcare facilities and medical personnel to cure infected patients was high (the number of recovered patients >65,86%)							
T_0	The ability of healthcare facilities and medical personnel to cure infected patients was low (the number of recovered patients <65,86%)							
D_1	Low death rate (<33,5)							
D_0	High death rate (>33,5)							
r	The logical remainders or non-observed cases							

Sources: developed further by the authors based on the result of the Tosmana software.

Necessity analysis

This first step of the analysis is particularly aimed to identify the existence of necessary conditions. The analysis of necessity reveals that the government's high ability to control the spread of COVID-19 (symbolized as C_1) is individually necessary for a low death rate, while its opposite condition (i.e., the low ability of government, coded as C_0) and the low compliance with the call to reduce activities outside the home (coded as O_0) are separately necessary for a high death rate (Table 3). However, as shown in Table 3, the coverage value of C_0 is much higher than that of O_0, which means that the occurrence of a high death rate is (almost) not possible if the local government is unable to control the spread of COVID-19. The opposite condition is required for high death rates.

In addition, the results of the necessity test also indicate important conditions (those with a high consistency value but under 0.9), i.e., a high responsiveness (R_1) that is important for a low death rate, and the opposite condition (R_0) for a high death rate. A sufficiency test is needed to know whether the necessary conditions are also sufficient to enable the outcomes.

Table 3

The measure of consistency

Conditions	Consistency for high death rate	Consistency for low death rate
V_1	9/16=0.56	7/18=0.38
O_1	1/16=0.06	7/18=0.38
R_1	4/16=0.25	13/18=0.72
C_1	0/16=0	**17/18=0.94** (coverage: 1)
T_1	6/16=0.37	10/18=0.55
V_0	7/16=0.43	11/18=0.61
O_0	**15/16=0.93** (coverage: 0.57)	11/18=0.61
R_0	12/16=0.75	5/18=0.27
C_0	**16/16=1** (coverage: 0.94)	1/18=0.05
T_0	10/16=0.62	8/18=0.44

Note: The letter codes followed by a '1' indicate the high level of the condition; codes with '0' indicate the low level of the condition.

Sources: the authors' analysis.

What combination of conditions is sufficient for a high death rate?

The csQCA generated three paths indicating the condition or configuration of conditions associated with a high death rate (Table 4). The analysis clearly shows that all three configurations include the low ability of the local government to control the spread of COVID-19 (C_0). It indicates that the low ability of the local government to control the spread of COVID-19 (C_0) is necessary but insufficient to lead to a high death rate. This condition requires other conditions to cause high mortality.

Track 1 exhibits that the combination of the high level of community vulnerability and the low ability of local government to control the spread of COVID-19 (V_1*C_0) led to a high death rate. Nine provinces with such a configuration were found. Track 2 includes provinces that have a combination of a low level of community compliance with mobility restrictions and the low ability of the local government to control the spread of COVID-19 (O_0*C_0).

This configuration was confirmed in 15 provinces. Track 3 covers only six provinces, where the combination of the low ability of the local government to control the spread of the virus and the high capacity of healthcare facilities and medical personnel in curing infected patients was found (C_0*T_1).

Table 4

Configurations of conditions for high death rate

	Track 1	Track 2	Track 3
Condition or configuration of conditions identified through Tosmana	$V_1 {}^* C_0$	$O_0 {}^* C_0$	$C_0 {}^* T_1$
Code of cases explained	Nine provinces: JI, SN, BT, JT, JB, SA, BA, NB, and GO.	15 provinces: JI, SN, BT, JK, KS, SU, SS, MU, JT, JB, SA, NB, KT, KI, and GO.	Six provinces: JI, SN, BT, BA, KT, and GO.
Code of cases explained uniquely (by each track)	–	Six provinces: JK, KS, SU, SS, MU, and KI	–
Consistency	9/9=1	15/15=1	6/6=1
Raw coverage	9/16=0.56	15/16=0.93	6/16=0.37
Unique coverage	0	6/16 = 0.37	0
Solution consistency	1.00		
Solution coverage	16/16=1.00		

Sources: the authors' analysis.

The consistency and coverage values of the solution are both high (>0.75), indicating that the solution (consisting of the three paths) is a fitting model. Furthermore, each track also has a perfect consistency value, meaning that each of these three configurations was sufficient for a high death rate. However, as shown in Table 4, the second track ($O_0 {}^* C_0$) covered many more empirical cases, i.e., 15 provinces (the raw coverage: 0.93). The second track includes eight (of nine) provinces covered by the first path's formula and five (of six) representative provinces of the third track. This indicates that the low level of both society's obedience to mobility restriction policy and the ability of local government to control the spread of the disease is a sufficient configuration of conditions for a high death rate supported by most empirical cases. Provinces that had a combination of these two conditions tended to have high mortality rate.

A high mortality rate due to COVID-19 can be avoided if efforts are focused on the necessary condition, that is, effective and consistent efforts to suppress the increase in new positive cases. As found, people's reluctance to reduce their mobility is the most empirically confirmed pair of the necessary conditions that consistently enable a high mortality rate. A low capacity of healthcare facilities and medical personnel or a high level of community vulnerability can also lead to high mortality rates. However, the relatively high capacity of medical staff to treat and cure COVID-19 patients will be meaningless when local governments fail to control the spread of COVID-19 (as reflected in Track 3). The configuration identified as Track 3 serves as a cautionary note to regional authorities who might perceive their COVID-19 response as successful, based on high recovery rates despite a significant number of cases. It underscores the futility of having an adept medical workforce if local governments do not effectively curb the virus's transmission.

Evaluating the effectiveness of COVID-19 response efforts requires careful consideration of death rates, which are influenced by the ability to manage the rise in new infections within the area. Hospitals tend to collapse when the increase in the number of infected patients gets out of control and exceeds the capacity of healthcare facilities. This condition makes it impossible to treat patients properly, which can potentially increase the number of deaths.

The local government's inability to control the spread of COVID-19 could also result in high death cases when community vulnerability in the area is relatively high. The national COVID-19 task force's website shows that death cases are dominated by elderly patients and those with chronic diseases. This fact confirms the study's finding regarding one of the configurations of minimal conditions required for a high mortality rate (Track 1).

What combination of conditions is sufficient for a low death rate?

A separate sufficiency analysis was conducted to identify a condition or configuration of conditions that enable low death rates (Table 5). The Tosmana program reveals three tracks. The first track covers most of the low-death rate cases (17 provinces), while the other two were only found in four provinces. The cases under Track 1 all show a high ability of local government to restrain the spread of the virus (C_1). Papua was the only low-death rate and a low ability of the local government to control the spread of COVID-19. Of the 17 provinces, only a few provinces adopted PSBB (a large-scale social restriction), i.e., West Sumatra, Riau, North Kalimantan, and Central Sulawesi. Some other provinces, such as Yogyakarta and Aceh, preferred to establish a conventional emergency response status arranged by the local government and encourage 'local lockdowns' at the community level (i.e., village or *gampong*). In these two provinces, restriction, tracing, isolation, and social assistance were carried out by the local governments with great support from communities that already have social capital and local wisdom, i.e., the tradition of *gotong royong* (cooperation among citizens) (Lestari and Astuti, 2020; Utomo, 2020).

The second configuration comprises the combination of a low level of community vulnerability and a high level of community obedience to the mobility restriction policy (V_0*O_1). This combination applies to Papua, South East Sulawesi, West Kalimantan, and Riau. Similar to the second combination, the third one combines a high level of community obedience to the mobility restriction policy with a low level of healthcare facilities and the ability of medical personnel to cure infected patients (O_1*T_0). This combination applies to Papua, Aceh, West Sulawesi, and Riau.

As shown in Table 5, the second and third configurations include high community compliance with the mobility restriction policy. Except for Papua, the provinces with these last two configurations have the same condition: the relatively high ability of the local government to control the virus spread. Dominated by mountains and wilderness, Papua is a province with the largest area and low population density but a strong tradition of living in groups. Given these characteristics, it is understandable that the local government had difficulties controlling the spread of the virus.

Table 5

Configurations for low death rate

	Track 1	Track 2	Track 3
Condition or configuration of conditions identified through Tosmana	C_1	$V_0{}^*O_1$	$O_1{}^*T_0$
Cases explained	17 provinces: MA, BE, JA, SB, ST, LA, SG, KB, YO, AC, SR, RI, KR, PB, BB, KU, and NT.	4 Provinces: PA, SG, KB, and RI.	4 Provinces: PA, AC, SR, and RI.
Cases explained uniquely	12 provinces: MA, BE, JA, SB, ST, LA, YO, KR, PB, BB, KU, and NT.	–	–
Consistency	17/17=1.00	4/4=1.00	4/4=1.00
Raw coverage	17/18=0.94	4/18=0.22	4/18=0.22
Unique coverage	12/18=0.66	0/18=0	0/18=0
Solution consistency	1.00		
Solution coverage	18/18=1.00		

Sources: the authors' analysis.

Table 5 shows that both solution consistency and coverage are perfect, i.e., 1.00, meaning the sets containing three tracks ($C_1+V_0{}^*O_1+O_1{}^*T_0$àD$_1$) are absolutely consistent and consistently supported by the empirical cases. The consistency value for each track indicates that each recipe was sufficient condition(s) for a low death rate. Similar to the sets produced by Tosmana for the high death rate, one track covers much more empirical cases, including those represented by two other tracks. With high values of the raw and unique coverage, the first track includes the following condition: the high ability of the local governmentto prevent the spread of COVID-19. This dominant track is characterized by the local government's effective ability to halt the spread of COVID-19, leading to the conclusion that the initial path (C_1) serves as both a necessary and sufficient factor for reducing death rates, backed by a substantial amount of empirical data. The key factor is not the quickness of the response but the effectiveness and consistency of measures to curb the rise of new cases. As found, the response speed was neither a necessary condition nor a part of sufficient combinations of conditions for a low death rate.

The other two tracks are configurations, that both involve high community compliance with restrictive policies. These configurations confirm that the condition is necessary for a low death rate. Track 3 highlights the importance of community compliance, which is particularly needed when the capacity of hospitals and medical personnel in the regions is insufficient to cure COVID-19 patients. If public compliance with the restriction policy is high, the spread of COVID-19 can be controlled so that the existing healthcare facilities and personnel can handle a small number of infected patients. The configuration of Track 2 describes the other situation: obedience to restriction policies is not enough; a low fatality rate can only be achieved when community vulnerability is also low.

Discussion and conclusion

Greckhamer et al. (2018, p. 492) suggest that 'configurational theorizing should be the foundation of any QCA analysis to avoid the mechanistic deployment of its technique.' We agree with that and, for the same reasons, it is important to add that QCA users need to demonstrate both theoretical contributions and practical implications that highlight configurational theories based on their QCA. Therefore, this section recalls what we have learned from the QCA and its findings to specify the theoretical contributions and practical implications of the study.

This research study made theoretical contributions by assessing the role of mixed conditions, i.e., government-societal sides and the outcome-action levels. Government conditions studied include responsiveness, the ability to control the spread of the disease, and the capacity to cure infected people, while the societal conditions observed include community vulnerability and compliance. In the face of a pandemic crisis, both government and societal conditions must be considered together. QCA is an appropriate approach to assess such causal configurations. Regarding varied levels of conditions, this work studied a combination of outcome-level (when assessing the government ability to control the virus transmission, the capacity of healthcare facilities and personnel to cure infected people, community vulnerability, and public compliance with mobility restriction policy) and action-level (when observing government responsiveness). The use of outcome-level indicators allows the examination of results (rather than efforts), which is more relevant and convincing when examining the effectiveness of public policies or services. However, further in-depth studies are then required in particular cases to find out what efforts have been made.

The first essential finding shows conjunctural or configurational causation (for further explanation, see Fiss, Marx and Cambre´, 2013; Thomann, van Engen and Tummers, 2018): the condition or configuration of conditions that lead to either high or low COVID-19 death rate. Many studies have shown that speed of response is key to the success of some countries in dealing with pandemics (Kim, 2020), but the present research reveals that consistent efforts are more effective to avoid high mortality rates. The necessity analysis confirms the individual factors that determine the COVID-19 death rate as found in previous studies: the government's ability to control the spread of the disease (Migone, 2020) and the community obedience to public health policies (Bloukh et al., 2020). However, the present study clearly shows that each of these individual conditions is not automatically sufficient to enable a high or low death rate. A high government's ability to prevent the increased number of infected people was found to be a single condition necessary and sufficient for a low fatality. Despite their lower coverage values (indicating a more limited empirical support), two alternative paths consistently lead to a low COVID-19 death rate: high community obedience combined with either a low vulnerability or a low capacity of medical facilities and personnel.

Three alternative configurations of conditions are also mentioned as causes of a high death rate. Although a low ability of the government to control the increase in positive cases is necessary for a high COVID-19 death rate, this condition alone is insufficient to enable a negative outcome and must be combined with

either high community vulnerability or low community obedience. In addition, the low ability of the government to control the spread of the disease remains a critical part of the cause of high mortality, despite the high capacity of medical facilities and personnel in a region. The necessity analysis also reveals that response speed is neither necessary nor sufficient for a high or low death rate. The findings mostly show the ways in which certain conditions interact to produce an outcome (either a high or a low death rate), rather than how a single variable affects a dependent variable. This has important practical implications, as efforts to achieve a low COVID-19 death rate should not focus on the necessary factors as single conditions, but rather as configurations.

The second point that is essential to emphasize is equifinality (for further explanation, see: Marx, Cambre´ and Rihoux, 2013; Thomann, van Engen and Tummers, 2018), i.e., different configurations can enable a specific fatality rate (either high or low). By performing the sufficiency analysis, we can identify the causal pathways reflecting the set-relations between the condition, or combination of conditions, and the COVID-19 death rates in Indonesia.

As mentioned, there are three possible alternative tracks for a high mortality rate. In some regions, a high fatality rate can be caused by one configuration, while in other regions it can be enabled by an alternative configuration. Similarly, three alternative configurations potentially lead to a low mortality rate. Despite the difference in coverage values, each alternative path is sufficient to enable either a high or a low mortality rate. A region can have two sufficient configurations that lead to a particular outcome. Equifinality has practical implications: by managing the sufficient condition and configurations of conditions, there are opportunities to avoid high death rates or maintain a low death rate.

The last important finding is asymmetric causality (for further explanation, see: Fiss, Marx and Cambre´, 2013), i.e., that the conditions explaining the occurrence of an outcome are irreversible and do not have the same and opposite effects to enable a contrary outcome. This asymmetrical connection is different from traditional correlational approaches that commonly assume symmetrical relations–that each independent variable's influence is equal to the opposite effect of the contrary one. As can be concluded from this study, a high government's ability to control the spread of the virus is necessary and sufficient for the low fatality rate. However, the opposite condition is only the necessary but not sufficient to cause a high death rate. The condition can only lead to high fatality rates when combined with other particular conditions. A low level of community compliance with restrictive policies is the most likely pair (compared to two other alternatives). Therefore, it is necessary to pay extra attention to those sets in dealing with the COVID-19 pandemic.

Changes in conditions, especially the necessary and sufficient ones, have implications for changes in mortality rates. In Indonesia, provinces like Yogyakarta, Aceh, Lampung, NTB, and Riau, which had low mortality rates during the initial COVID-19 wave, experienced a shift to high mortality in the second wave (July-August 2021). This shift was due to changes in local conditions that became both necessary and sufficient for an increase in the death rate. The first four provinces mentioned were categorized as provinces with a high level of vulnerability due

to the number of elderly and sick populations. A drastic increase in COVID-19 deaths in those provinces during the second wave was inevitable because the ability of local government to control the spread of the disease had declined (https://covid19.go.id/).

This condition combined with the decreasing level of citizen compliance with health protocols, as this study found based on the first wave cases, has become an alternative track to a high death rate in these provinces, including Riau. This does not indicate a weakness in the QCA results, but confirms the theories (that emerged from the analysis) in predicting set relations, including the occurrence of changes in outcomes due to changes in condition configuration.

By considering the most critical sets, we highlight two practical implications for Indonesia and other countries to deal with the long COVID-19 pandemic or similar disasters in the future. First, governments must develop sound public healthcare policies to control the spread of the disease. To be effective, a sound policy should be clear, consistently targeted through adaptive efforts in implementation, and continuously evaluated to make adjustments to the policy based on current evidence. Furthermore, such restriction measures and public health policies must influence people's perceptions and shape their behaviors to learn, adapt, and survive in the crisis triggered by the pandemic. To suppress the increase in new positive cases, the government needs to institutionalize 'new living traditions' through regulatory, structural, and coercive mechanisms. To achieve community compliance, it is not enough to simply enact regulations; it must be complemented by a system of rewards and punishments. Sound policies can be an effective instrument for such institutional measures.

Second, when such sound policies are absent, the level of obedience of the community is the key to a high or low fatality rate, which can be avoided if the community had a high level of awareness and willingness to limit mobility, minimize activities in public places, and apply health protocols in a disciplined manner. Although their existence is very crucial, the lack of a sound policy will not lead to a high mortality rate if their essential role in shaping positive behaviors of the community to coexist with the pandemic can be handled by other institutional actors, such as higher education institutions, faith-based organizations or community organizers.

The "normal" perceptions, habits, routines and behaviors to live in a pandemic world can be institutionalized not only through regulatory mechanisms (e.g., rules or laws), but also through normative and cultural-cognitive mechanisms, such as collective actions and positive framings (Scott, 2014). Through formal and informal education, both government and non-governmental actors should consistently promote healthy and productive ways of living during the pandemic. Such collective actions can instill cognitive awareness so that the wider community can culturally accept and practice the new habits.

However, the research has its limitations. First, given the policies adopted, the QCA results can only generally apply to Indonesian regions or countries that follow a similar approach, balancing public health and economic safety. In the case of Indonesia, such an approach is manifested in the role of the central government, which allows or prohibits local governments to carry out tighter restrictions. Sec-

ond, observation conducted by this research study focuses on the provincial level and therefore tends to ignore variations in each district of the provinces. Therefore, future studies could be conducted at the district level representing urban and rural areas in each province. Alternatively, further studies could add a condition reflecting a regional characteristic such as population density. Third, the study was conducted in the early phase of the pandemic when vaccines were still unavailable.

As there is a high degree of variations between the regions, it would be useful to include vaccination coverage as an additional condition in the configurational analysis conducted in relation to the subsequent waves unfolding throughout the course of the pandemic.

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DOES CYBERLOAFING AFFECT WORK PERFORMANCE OF THE CIVIL SERVANTS?

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Abstract. The COVID-19 pandemic has reshaped the operations of public sectors worldwide, compelling governments to impose nationwide lockdowns. This crisis prompted an immediate shift to Work from Home (WFH) policies for civil servants. Under this policy, work activities predominantly rely on information and communications technology (ICT). While ICTs have a positive impact on the efficiency of public service delivery, the use of technology and the internet has also introduced various adverse effects, such as cyberloafing and destructive behaviors. These negative influences on performance can ultimately impact service delivery. Against this background, this study aims to analyze the influence of cyberloafing on the work performance of civil servants during the WFH policy implementation. The study, for which 272 civil servants from diverse backgrounds were interviewed, reveals that development behavior significantly influences task performance and adaptive performance, while deviant behavior has a notable impact on all dimensions of work performance. These findings contribute to theoretical understanding, offer practical implications, and suggest directions for future research.

Keywords: cyberloafing, cyberloafing behaviour, Malaysia, work from home (WFH), work performance.

Introduction

The concept of work from home (WFH) has evolved into a prominent working arrangement, wherein employees fulfill their essential responsibilities remotely. This paradigm shift, also known as telework or remote work, involves leveraging information and communications technology (ICT) to connect, communicate, and submit results of the work . While introduced in the late 1970s, WFH was initially deemed impractical for densely populated cities (Vyas and Butakhieo, 2020) and considered unfeasible for public sectors with mass daily interactions (Williamson et al., 2020a). However, the landscape changed abruptly in 2020, driven by the global outbreak of the coronavirus (COVID-19) pandemic.

The pandemic wreaked havoc on the global economic, social, and health sectors, prompting numerous countries to enforce nationwide lockdowns (Rahman, 2021). As a result, governments swiftly implemented WFH policies for large segments of the public sector workforce. The shift was not without challenges, but it ushered in a unique opportunity for organizations to explore hybrid workplace elements, especially with the adoption of Flexible Working Arrangements (FWA) (Cook et al., 2021).

Recent studies indicate a positive trend in productivity and efficiency among employees and managers working from home. The Organization for Economic Co-operation and Development (OECD) reported a consistent increase in productivity, with employees maintaining or even improving their performance, especially on individual tasks. This trend extends to the public sector, as evidenced by a survey conducted by the NSW Innovation & Productivity Council (2020), where 82 percent of public servants felt more productive working from home.

Moreover, the phenomenon of cyberloafing, the diversion to non-work-related activities during working hours, has garnered attention in the context of WFH. Zhong et al. (2022) found that informational cyberloafing is positively correlated with employees' innovation performance, suggesting that certain forms of cyberloafing can have unexpected positive outcomes. Additionally, the study by Reizer et al. (2022) highlighted the role of cyberloafing in helping government employees manage stress and depletion while working from home during the pandemic.

The adoption of WFH and the exploration of FWA have been more pronounced in the private sector, while the public sector has been somewhat hesitant to fully embrace these flexible working arrangements. Notably, countries like Malaysia have introduced the Flexible Working Arrangements Policy, effective from January 1, 2023. However, there is limited research on the impact of this policy, especially in the context of Asian countries influenced by conventional work systems.

Despite the positive aspects of WFH and FWA, the phenomenon of cyberloafing poses a challenge. Cyberloafing involves accessing personal matters and non-work-related activities during working hours, such as browsing e-sports, entertainment, online shopping, and other activities. This behavior can lead to decreased involvement in work-related matters, lower efficiency, and diminished overall productivity. Managing technology and internet exploitation in the work-

place becomes crucial, particularly during the pandemic when monitoring employees' activities becomes more challenging due to WFH setups.

The Malaysian government has been at the forefront of the global use of technology in the public sector, consistently improving its electronic government system. Efforts in this direction are embedded in past and existing policies, such as the National Key Areas of the Economic Transformation Program. However, the increasing reliance on ICT has presented various adverse impacts, with cyberloafing becoming a notable concern.

Studies have highlighted the prevalence of cyberloafing among Malaysian civil servants, with significant percentages engaging in non-work-related internet activities during office hours. Koay et al. (2017) reported that a considerable percentage of employees were consistently involved in cyberloafing, which affected their work performance. A substantial portion of Malaysian civil servants are engaged in cyberloafing, that is why the Malaysian Administrative Modernisation and Management Planning Unit (MAMPU) issued the guidelines to regulate access to social networking websites during office hours.

These issues gain further significance when considering their impact on the efficiency of public sector service delivery. Reports published by the World Bank have indicated a decline in Malaysia's civil service efficiency since 2014. The country ranks below the average among OECD countries in responsibility, detachment, integrity, and accessibility metrics.

In light of these challenges, this study aims to analyze the influence of cyberloafing on work performance of civil servants in the public sector during the pandemic. This focus is particularly relevant as the majority of public servants, excluding frontline workers, were instructed to work from home. The presumption is that public servants may face work-life balance conflicts during this period, warranting a comprehensive investigation into the dynamics of WFH, FWA, and cyberloafing in the public sector.

Literature review

Cyberloafing, defined as engaging in non-work-related internet activities during working hours, often associated with goldbricking, is a challenge in organizational settings. It is viewed as a misuse of the internet by employees, potentially undermining organizational performance, particularly in the public sector (Bernard et al., 2019). This behavior can lead to poor performance and substandard service delivery, eliciting client resentment and mistrust, hindering the sector's development. Despite being considered a significant challenge, cyberloafing is often disregarded and undisclosed in public sector settings (Koay et al., 2017).

Previous studies suggest that cyberloafing can contribute to mental recovery, stimulate fresh ideas, and alleviate workplace pressure and burnout, enhancing employees' concentration and work-life balance (Anandarajan and Simmers, 2005). It is claimed that moderate internet use for non-work-related activities positively impacts job satisfaction and performance (Mohammad et al., 2019). Advocates argue that allowing reasonable time for online recreation, provided ethical values are upheld, benefits both employees and organizations (Sao et al., 2020).

However, the advent of smartphones and high-speed internet connections poses a threat to work-life balance and may lead to higher costs for the public sector to meet demands for better performance. Despite the evidence of the negative consequences of cyberloafing on work performance, there is limited research, especially in the context of the public sector from various countries, including Malaysia.

Work Performance

Performance serves as the driving force for a new approach to public sector administration, necessitating a shift from entrepreneurial government (Osborne and Gaebler, 1993). Work performance, indicating an individual's achievement in tasks, embodies the culmination of effort, a supportive work environment, and an engaged profile. Recognized as a significant predictor of organizational performance, work performance is a multifaceted concept and encompasses various dimensions such as output timing, quantity and quality, presence and participation, efficiency and effectiveness. It is evaluated through competencies, that reflect a range of behaviors crucial for organizational success.

The model for evaluating employee performance has evolved over the decades. Campbell's (1990) influential model identifies eight major dimensions, including job-specific and non-job-specific competencies, communication skills, effort, discipline, teamwork, supervision, and administration. Besides that, Motowidlo, Borman and Schmidt (1997) proposed the Theory of Individual Differences, which integrates task performance and contextual performance dimensions. In line with this, Pradhan and Jena (2017) further delineated three factors: task performance, adaptive performance, and contextual performance.

Task performance involves employees executing assigned job responsibilities to achieve organizational goals, encompassing formal tasks outlined in the job descriptions, such as quantity and quality of work, job skills, and knowledge. Adaptive performance reflects an individual's ability to adapt to changes in work roles or environments, demonstrating flexibility and support for organizational changes. Contextual performance extends beyond formal obligations and encompasses voluntary behaviors that contribute to the social, organizational, and psychological environment. This includes activities such as mentoring colleagues, strengthening social networks, and making additional efforts that, though not within the formal job scope, implicitly enhance organizational performance. High-performing individuals, exhibiting competency across these dimensions, are pivotal to organizational success, emphasizing the importance of assessing and fostering employees' multifaceted work performance.

Cyberloafing Activities

Cyberloafing, often associated with social media, involves employees engaging in non-work-related activities on popular social networking sites such as Twitter, YouTube, and Facebook during working hours – a practice known as Non-Work-Related Computing (NWRC). This discretionary act utilizes employers' Internet access for purposes unrelated to their job. Li and Chung (2006) categorize cyberloafing into three functions: (1) social function, connecting

with friends (social loafing); (2) informational function, acquiring knowledge (informational loafing); and (3) leisure function, seeking entertainment (leisure loafing).

Cyberloafing Behaviour

Previous research has highlighted the significant consequences of cyberloafing and identified contributing to such behavior factors. Individuals who feel helpless in their work environment are more likely to engage in such digital forms of cyberloafing, as playing games. Conversely, job satisfaction and perceptions of organizational fairness act as inhibiting factors for cyberloafing. The behavior can be categorized into minor and serious forms. Minor cyberloafing involves sending personal emails and browsing non-work-related websites, while serious cyberloafing entails accessing unsecured websites potentially harmful to the organization's system. Cyberloafing has been associated with positive outcomes, such as reduced burnout and lower levels of anxiety and stress (Anandarajan and Simmers, 2005).

The advent of easily accessible technology has raised concerns among employers regarding personal internet use during work hours, as such activities can shift employees from productive to non-productive tasks. However, limited internet use, of up to one hour, has been associated with a three-fold increase in employee productivity. Cyberloafing is viewed as a recreational activity, offering additional benefits for informal learning and serves as a means to alleviate workplace pressure and achieve work-life balance. It can be seen as a form of psychological withdrawal, providing a cognitive refuge from the work environment (Lim and Teo, 2005).

Van Doorn (2011) introduced recovery, development, and deviant behavior as constructs for understanding cyberloafing. Recovery behavior focuses on health considerations and assesses the employees' well-being in this study. Developmental behavior explores cyberloafing as a potential source of learning, while deviant behavior refers to actions contrary to instructions or efforts to evade assigned tasks.

Hypotheses development

Previous research discussed nuanced perspectives on the relationship between cyberloafing and work performance. While Koay et al.'s (2017) study found no significant correlation between cyberloafing and work performance, Andreassen et al. (2014) reported that cyberloafing could influence performance. Negative impacts have been identified, with cyberloafing being associated with decreased task performance due to prolonged internet use and a lack of commitment to productivity. Incomplete tasks resulting from cyberloafing have been associated with decreased overall work productivity, with an estimated 30 to 40 percent reduction in employee productivity in the USA, equating to approximately $750 million annually (Henle et al., 2009).

Contrary to the negative findings, several studies emphasize the positive impact of cyberloafing on work performance. Cyberloafing is posited as a means

for employees to take a temporary break from work during working hours, ultimately stimulating productivity upon their return. Sao et al. (2020) suggest that increasing internet usage to one hour can triple employee productivity and encourage the generation of new ideas and innovations (Koay and Soh, 2017). Coker (2011) even identifies a positive correlation between cyberloafing, or workplace internet leisure browsing (WILB), and productivity, with higher productivity grades observed in individuals who engage in WILB compared to those who do not. Additionally, cyberloafing is associated with reduced burnout, anxiety, and stress (Anandarajan and Simmers, 2005). Based on these findings, this study proposes the hypothesis:

H1: Cyberloafing (social, informational, and leisure) has a significant influence on work performance (task, contextual, and adaptive performance).

To gain a comprehensive understanding of the impact of cyberloafing on work performance, the study considers the role of cyberloafing behavior, examining three perspectives: recovery, development, and deviant behavior. Cyberloafing is viewed as a form of psychological withdrawal, providing a cognitive refuge from the work environment (Lim and Teo, 2005). Employees who feel helpless in their work environment may engage in cyberloafing, such as playing online games, as a part of the recovery process. Cyberloafing is recognized to assist in mental recovery, stimulate fresh ideas (Ivarsson and Larsson, 2011), reduce depression, burnout, and anxiety (Anandarajan and Simmers, 2005), which help to restore employee concentration, and facilitate work-life balance.

Furthermore, the study acknowledges that cyberloafing behavior of public servants poses a significant challenge in the public sector (Sze et al., 2019). Investigation into the deviant factors influencing public servants' engagement in cyberloafing reveals relational attributes such as gender, age, organizational justice, and conscientiousness (Ahmad and Jamaluddin, 2009). Male employees are more engaged in cyberloafing, which is caused by a lack of self-control. Social networking platforms such as Facebook and Twitter contribute to deviant behavior online and have a negative impact on employee work performance (Santos et al., 2020). Based on these considerations, the study proposes the hypothesis:

H2: Cyberloafing behavior (recovery, development, and deviant behavior) has a significant influence on work performance (task, contextual, and adaptive performance).

Research methods

This study aims to explore the relationships between key constructs, focusing on civil servants in Putrajaya, the federal administrative center of the Government of Malaysia. The Malaysian public sector heavily relies on information and communication technology (ICT) in its daily tasks and administration, which was introduced in the 1980s with the adoption of an electronic government system. The modernization efforts were aimed to enhance the efficiency

and effectiveness of public service delivery. Despite the positive advancements, the public sector in Malaysia faces challenges, notably cyberloafing. To delve deeper into this phenomenon, a quantitative approach was employed and a survey was conducted.

The survey was aimed at civil servants who were divided into categorized under two service groups: Support Group (grades 1 to 40) and Management and Professional groups (grades 41 to 54). A total of 272 respondents participated in the survey, whose detailed characteristics are provided in Table 1. The sample size was determined using various techniques, including Krejcie and Morgan's (1970) sample size for confined populations, the rules of thumb for minimum sample size by VanVoorhis and Morgan (2007), and the equation proposed by Green (1991). Approval from relevant agencies was secured before data collection, and an online survey linked to Likert-based questions was distributed among civil servants in public organizations. Prior to the actual data collection, a pretest of the survey questions was conducted to identify and address any potential problems that could arise with understanding the questions and answers, ensuring the validity and reliability of the data. The choice of an online survey aligns with Western practices and has been utilized since the 1980s, leveraging email as a data collection method. The decision to employ online surveys was reinforced by the ongoing pandemic situation, which led to the enforcement of work-from-home policies and limited in-person interactions within government agencies.

Table 1

Demographic characteristics of the sample

Variable	N	%
Gender		
Male	58	21.3
Female	214	78.7
Age (years)		
25–30	56	20.6
31–35	61	22.4
36–40	82	30.1
Above 40	73	26.8
Race		
Malay	258	94.9
Chinese	2	0.7
Indian	4	1.5
Others	8	2.9

Variable	N	%
Marital status		
Single	61	22.4
Married	198	72.8
Divorced	11	4.0
Widowed	2	0.7
Working experience		
Less than 2 years	24	8.8
2–5 years	40	14.7
More than 5 years	208	76.5
Level of education		
Malaysian Certificate of Education	96	35.3
Diploma	92	33.8
Bachelor's degree	59	21.7
Master's degree	21	7.7
PhD	4	1.5
Current position (Grade)		
Grade 1–40	231	84.9
Grade 41–54	41	15.1

Sources: Created by the author.

Measures

The development of the research instrument is crucial in the survey process, which aims to provide unbiased and well-structured questions. The questionnaire comprises four sections: (1) Respondent background; (2) Work Performance (adapted from Pradhan and Jena (2016)); (3) Cyberloafing Activities (adapted from Van Doorn (2011)); and (4) Cyberloafing Behaviour (adapted from Weatherbee (2010)). Using a 5-point Likert scale, respondents rated the items from (1) never to (5) usually. The instrument is designed for clear understanding, internal coherence, and meaningful data analysis.

Results

This study assesses the measurement model by examining the outer model (measurement model) to test factor loadings, validity, and reliability. Additionally, the inner model (structural model) is evaluated using bootstrapping (5000 resampling) to determine the significance of the path coefficients for hy-

potheses testing. Confirmatory factor analysis is employed to evaluate factor loadings, validity, and composite reliability of the constructs. The PLS algorithm is used for the measurement model, and bootstrapping is applied to the structural model to analyze the impact of cyberloafing activities and behavior on work performance.

Measurement Model

This model produced satisfactory results, with all factor loadings surpassing the benchmark value of 0.70. No significant cross-loadings were observed between the items (Figure 1). The model exhibits good data fit, as indicated by a root mean square residual value of 0.056 and a normed fit index of 0.789. Convergent validity tests (Table 2) confirm the validity of the constructs. Values above 0.50 indicate sufficient average variance extracted by the items. Discriminant validity is also within an acceptable range, exceeding 0.70 as recommended by Hair et al. (2014). Furthermore, Cronbach's α and composite reliability (Table 2) are in the acceptable range, exceeding 0.70, as suggested by Nunnally and Bernstein (1994).

Table 2

Validity and reliability

Variable	Construct	Item	Factor Loading	Cronbach's Alpha	Composite Reliability (CR)	Average Variance Extracted (AVE)
Cyberloafing activities	Social loafing	SL1	0.978	0.949	0.963	0.896
		SL2	0.924			
		SL3	0.938			
	Informational loafing	IL1	0.958	0.902	0.953	0.911
		IL2	0.950			
	Leisure loafing	LL1	0.811	0.836	0.899	0.748
		LL2	0.902			
		LL3	0.880			
Cyberloafing behaviour	Recovery behavior	RB1	0.975	0.933	0.967	0.936
		RB2	0.960			
	Development behavior	DB1	0.956	0.955	0.970	0.916
		DB2	0.955			
		DB3	0.960			
	Deviant behavior	EB1	0.924	0.923	0.950	0.865
		EB2	0.918			
		EB3	0.947			

Variable	Construct	Item	Factor Loading	Cronbach's Alpha	Composite Reliability (CR)	Average Variance Extracted (AVE)
Work performance	Task performance	TP1	0.850	0.886	0.913	0.637
		TP2	0.801			
		TP3	0.766			
		TP4	0.837			
		TP5	0.777			
		TP6	0.755			
	Contextual performance	CP1	0.741	0.948	0.956	0.684
		CP2	0.706			
		CP3	0.862			
		CP4	0.837			
		CP5	0.832			
		CP6	0.849			
		CP7	0.837			
		CP8	0.898			
		CP9	0.824			
		CP10	0.868			
	Adjective performance	AP1	0.854	0.920	0.937	0.714
		AP2	0.807			
		AP3	0.850			
		AP4	0.819			
		AP5	0.893			
		AP6	0.844			

Sources: Created by the author.

Regarding the HTMT criterion, the HTMT value must remain below 0.90. An HTMT value surpassing 0.90 indicates a potential lack of discriminant validity. Table 3 reveals that all HTMT values are below the suggested threshold of 0.90.

This outcome shows that discriminant validity is not a significant concern in this study. In summary, the results confirm the reliability and validity of the constructs employed in this study for measuring the intended variables.
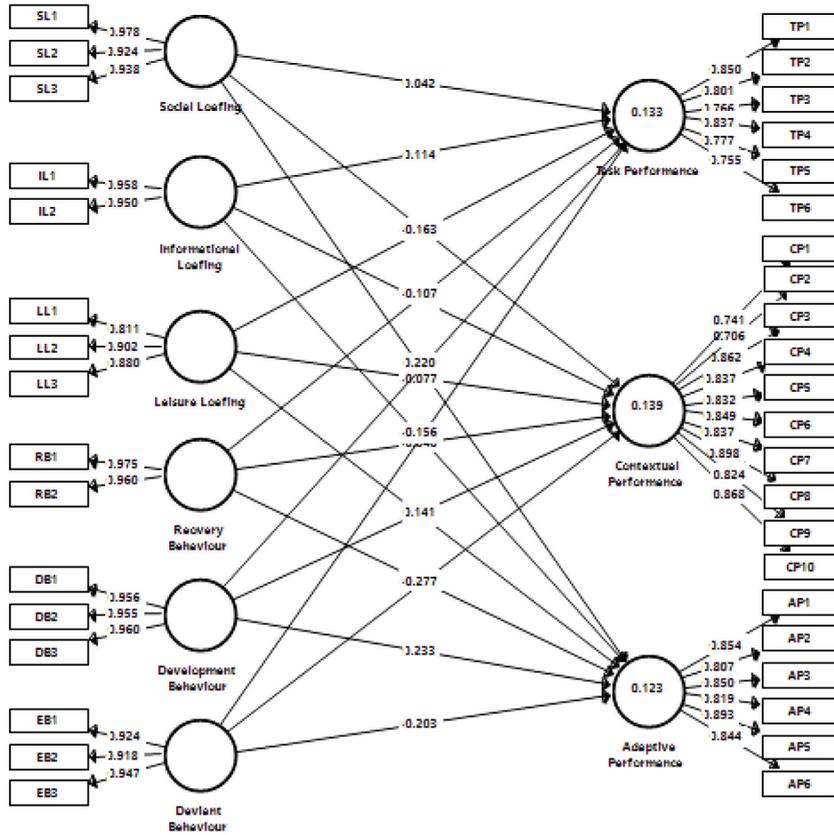
Figure 1: **Measurement Model.**

Sources: Created by the author.

HTMT Criterion

Variable	SL	IL	LL	RB	DB	EB	TP	CP	AP
SL									
IL	0.663								
LL	0.637	0.410							
RB	0.560	0.390	0.832						
DB	0.698	0.733	0.562	0.577					
EB	0.439	0.072	0.679	0.612	0.303				
TP	0.077	0.201	0.193	0.145	0.146	0.247			
CP	0.071	0.227	0.133	0.092	0.144	0.273	0.812		
AP	0.107	0.222	0.089	0.079	0.197	0.202	0.857	0.888	

Notes: SL=Social loafing; IL=Informational loafing; LL=Leisure loafing; RB=Recovery behaviour; DB=Development behaviour; EB=Deviant behaviour; TP=Task performance; CP=Contextual performance; AP=Adaptive performance.

Correlation

The correlation values provide preliminary support for the proposed hypotheses. Table 4 reveals a positive relationship between task performance and social loafing (r = .052), informational loafing (r = .189), and development behaviour (r = .144). Conversely, it demonstrates a negative relationship with leisure loafing (r = -.167), recovery behaviour (r = -.130), and deviant behaviour (r = -.231). Regarding contextual performance, the analysis shows a positive correlation with social loafing (r = .084), informational loafing (r = .216), and development behaviour (r = .144), but a negative correlation with leisure loafing (r = -.118), recovery behaviour (r = -.085), and deviant behaviour (r = -.265). Lastly, adaptive performance shows a positive correlation with social loafing (r = .116), informational loafing (r = .209), and development behaviour (r = .190), while a negative correlation is found with leisure loafing (r = -.081), recovery behaviour (r = .076), and deviant behaviour (r = -.198).

Table 4

Correlation

Variable	SL	IL	LL	RB	DB	EB	TP	CP	AP
SL	1								
IL	0.629	1							
LL	0.548	0.331	1						
RB	0.527	0.356	0.730	1					
DB	0.664	0.677	0.490	0.546	1				
EB	0.402	0.056	0.614	0.562	0.280	1			
TP	0.052	0.189	-0.167	-0.130	0.144	-0.231	1		
CP	0.084	0.216	-0.118	-0.085	0.144	-0.265	0.743	1	
AP	0.116	0.209	-0.081	-0.076	0.190	-0.198	0.771	0.831	1

Notes: SL=Social loafing; IL=Informational loafing; LL=Leisure loafing; RB=Recovery behaviour; DB=Development behaviour; EB=Deviant behaviour; TP=Task performance; CP=Contextual performance; AP=Adaptive performance.

Common method variance

To address the issue of Common Method Variance (CMV) in survey-based studies, especially when data are collected from the same respondents for both independent and dependent variables using the same method at the same point in time, the study employs procedural remedies recommended by Podsakoff et al. (2012). These include sending a well-written cover letter, ensuring respondent confidentiality, avoiding confusing or complex questions, and providing clear instructions. Additionally, the researchers conducted statistical tests to assess the severity of CMV.

First, the correlation analysis, presented in Table 5, indicated that none of the correlations exceed 0.9, alleviating concerns about CMV. Second, a collinearity test was performed. As shown in Table 5, all values of the variance inflation factor

are below 3.3, providing evidence that the risk of CMV in this study is negligible (Hair et al., 2014). This also suggests that there is no multicollinearity, as the values of the variance inflation factor are below 3.

Table 5

Collinearity test

Variable	Variance inflation factor (VIF)
SL	2.442
IL	2.303
LL	2.632
RB	2.517
DB	2.505
EB	1.886

Notes: SL=Social loafing; IL=Informational loafing; LL=Leisure loafing; RB=Recovery behaviour; DB=Development behaviour; EB=Deviant behaviour; TP=Task performance; CP=Contextual performance; AP=Adaptive performance.

Structural Model

The statistical significance of each path coefficient is assessed through t-tests using bootstrapping. The outcomes of this analysis are presented in Table 6 and Figure 2. The hypotheses were tested using a bootstrapping method with 5000 resampling. It was found that that development behavior had a significant effect on task performance (β = .220, t = 2.391) and adaptive performance (β = .233, t = 2.144). Furthermore, deviant behavior significantly influenced task performance (β = -.156, t = 2.117), contextual performance (β = -.277, t = 4.015), and adaptive performance (β = -.203, t = 2.767).

Table 6

Structural Model

Construct	Beta	Standard Error	T-Statistics	P-value	Decision
SL → TP	0.042	0.112	0.378	0.706	Not supported
SL → CP	0.090	0.118	0.767	0.443	Not supported
SL → AP	0.097	0.125	0.778	0.437	Not supported
IL → TP	0.114	0.101	1.125	0.261	Not supported
IL → CP	0.119	0.095	1.255	0.210	Not supported
IL → AP	0.064	0.106	0.601	0.548	Not supported
LL → TP	-0.163	0.094	1.728	0.084	Not supported
LL → CP	-0.077	0.091	0.846	0.398	Not supported

Construct	Beta	Standard Error	T-Statistics	P-value	Decision
LL → AP	-0.055	0.093	0.595	0.552	Not supported
RB → TP	-0.107	0.085	1.266	0.205	Not supported
RB → CP	-0.040	0.089	0.453	0.651	Not supported
RB → AP	-0.123	0.102	1.206	0.228	Not supported
DB → TP	0.220	0.094	2.352	0.019	Supported
DB → CP	0.141	0.100	1.410	0.159	Not supported
DB → AP	0.233	0.109	2.144	0.032	Supported
EB → TP	-0.156	0.074	2.117	0.034	Supported
EB → CP	-0.277	0.069	4.015	0.000	Supported
EB → AP	-0.203	0.073	2.767	0.006	Supported

Notes: SL=Social loafing; IL=Informational loafing; LL=Leisure loafing; RB=Recovery behaviour; DB=Development behaviour; EB=Deviant behaviour; TP=Task performance; CP=Contextual performance; AP=Adaptive performance. Significant level, $p < 0.05$.
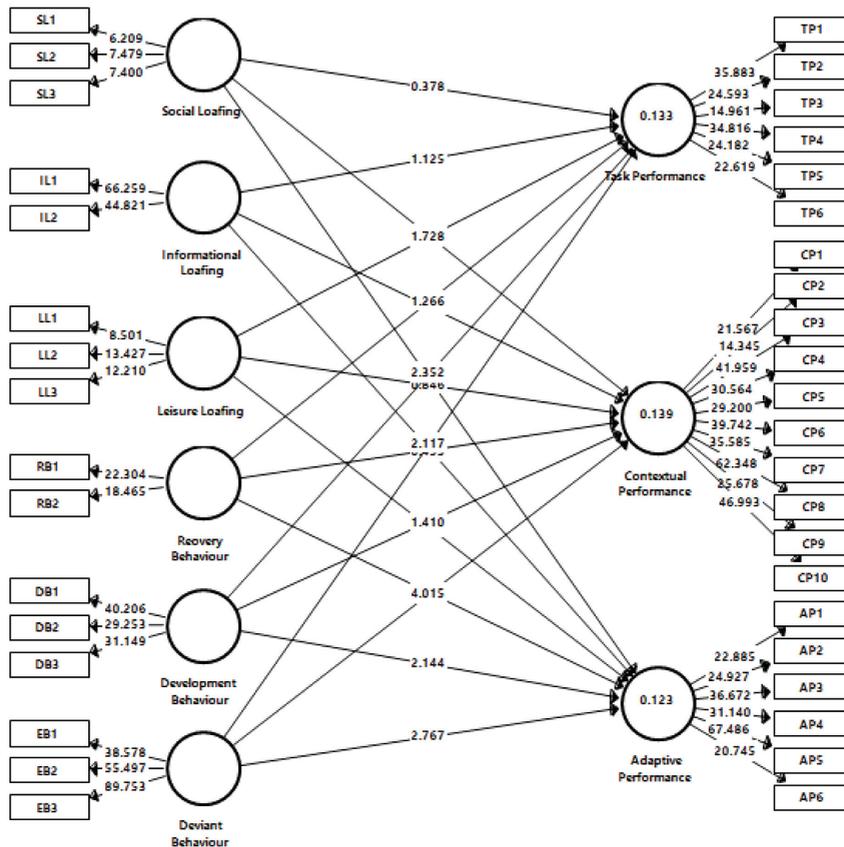
Figure 2: **Structural Model**

In this study, the structural model is evaluated using the coefficient of determination (R2), the effect size (F2) and the predictive relevance (Q2). Table 7 presents the results of the structural model. To evaluate the fit of the model in the sample, the R2 is calculated based on Hair et al. (2013) study. R2 values of 0.75, 0.50 or 0.25 for endogenous latent variables are described as substantial, moderate and weak, respectively. In this study, the R2 values for all endogenous variables are weak, explaining only 13.3%, 13.9%, and 12.3% of the variance in task performance, contextual performance, and adaptive performance, respectively.

Additionally, F2 is analyzed using Cohen's (1988) suggestion. Effect size values of 0.02, 0.15 and 0.35 indicate small, medium and large effects respectively. The F2 values in this study indicate a small to medium effect size. Finally, the predictive relevance of the model is examined. Cohen (1988) suggested that if the Q2 values are 0.02, 0.15 or 0.35, it indicates that the respective exogenous construct has a small, medium or large predictive relevance for the model. Table 7 shows that all Q2 predictive values are above zero, indicating that the model has predictive relevance, which is small.

Table 7

Effect size on the endogenous variable

Endogenous Variable	Exogenous Variable	R^2	F^2	Q^2
TP	SL	0.133	0.001	0.076
	IL		0.007	
	LL		0.012	
	RB		0.005	
	DB		0.022	
	EB		0.015	
CP	SL	0.139	0.004	0.091
	IL		0.007	
	LL		0.003	
	RB		0.001	
	DB		0.009	
	EB		0.047	
AP	SL	0.123	0.004	0.080
	IL		0.002	
	LL		0.001	
	RB		0.007	
	DB		0.025	
	EB		0.025	

Notes: SL=Social loafing; IL=Informational loafing; LL=Leisure loafing; RB=Recovery behaviour; DB=Development behaviour; EB=Deviant behaviour; TP=Task performance; CP=Contextual performance; AP=Adaptive performance. Significant level, $p < 0.05$.

Discussion

The findings of the study reveal that development behaviour significantly influenced task performance and adaptive performance, while deviant behavior is confirmed to have a significant impact on all three types of performance. This contribution is particularly valuable for public sector organizations, especially amidst the ongoing pandemic when a considerable number of civil servants worked from home (WFH).

During this period, minimal supervision from superiors is prevalent, placing civil servants in a position where autonomous decision-making about their work activities becomes crucial.

In accordance with the hypotheses put forward by Ajzen and Fishbein (1980) within the framework of the Theory of Planned Behavior (TPB), individuals are expected to make rational decisions regarding specific behaviors. In the context of this study, it is assumed that civil servants choose work-related activities over non-work-related activities during working hours. This is consistent with Skinner's (1965) proposition that human behavior can be controlled through various methods, such as deadlines, frequent meetings, remote log-ins and log-outs, online seminars or training, and task completion. Consequently, this evidence-based assumption justifies why development behavior can influence task performance and adaptive performance. Civil servants can choose to participate in activities beneficial for their career development, ultimately enhancing organizational performance.

However, the TPB also introduces the notion that a person's behavior is not entirely voluntary and cannot always be controlled. This leads to the second evidence-based assumption of the study, highlighting that decisions made by civil servants may go unnoticed by their superiors. This creates opportunities for Deviant Behavior, such as cyberloafing, which involves non-work-related activities such as personal engagement in social media, surfing the internet or online shopping. Such behavior could be detrimental to individuals (e.g. incomplete tasks), to others (e.g. delayed processing of customer requests) and to the organization (e.g. inefficiency that tarnishes the image of public sector).

Contrary to significant relationships, findings also echo previous studies (Van Doorn, 2011), indicating that certain relationships do not significantly influence work performance. The non-significant impact of cyberloafing on employees' work performance may be attributed to the multitasking capabilities enabled by Information and Communication Technology (ICT). Employees can multi-task by using the internet for personal purposes without significantly affecting their performance. This aligns with past studies, which found no significant effect of cyberloafing on bank employees' performance. This argument is consistent with studies indicating that employees may use breaks for cyberloafing, which has not been empirically proven to significantly affect performance.

Additionally, the insignificant relationship between cyberloafing and work performance may be due to the fact that employees could cyberloaf after completing their tasks and assignments (Ivarsson and Larsson, 2011).

The organizational Code of Ethics underscores the importance of employees adhering to specific work standards, emphasizing the need to prioritize these standards over engaging in non-work-related activities. Consequently, this focus on maintaining high work standards mitigates the influence of cyberloafing on employee performance. Sao et al.'s (2020) study further supports this finding by revealing that cyberloafing had no significant impact on various work-related factors.

While the use of the internet facilitates work and communication platforms and entices employees to use online platforms for their daily activities, Vitak et al. (2011) have found that employees are more prone to cyberloafing compared to jobs that do not require internet use. Moreover, the frequent shifts in attention between work-related tasks and personal matters during working hours can lead to errors and a loss of focus and concentration.

The study concludes that development behavior and deviant behavior significantly influence task and adaptive performance, with only deviant behavior significantly influencing contextual performance. These findings contribute to the theoretical discussion in two ways.

First, the study demonstrates the positive influence of development behavior on work performance, suggesting that personal improvement efforts positively affect organizational performance. This is consistent with the theory of planned behavior, which assumes that individual decisions have a positive impact on organizations. Development behavior is conceptualized as a hypothetical proposition measuring personal inclination, intention, and its effect on others. Second, the study highlights the value of the Self-control theory in understanding cyberloafing behavior and its role as psychological detachment. As work from home increases stress and anxiety, self-control theory postulates that individuals regulate their behavior, using cyberloafing as a coping mechanism for psychological and psychosocial effects.

In light of these findings, the study recommends that public sector organizations revise existing policies and procedures related to internet usage. While controlling civil servants from inappropriate internet use during working hours, especially when teleworking, is challenging, the study advises against strict actions. Restricting the use of the internet may be perceived as a lack of trust, potentially diminishing work motivation and affecting performance. Caution is recommended in considering any policy adjustments and improvements, given the potential colossal impact on civil servants and the public sector, particularly in Malaysia with a significant civil servant population.

Overall, this study deepens the understanding of the influence of cyberloafing and behaviors on work performance and fills existing gaps in the literature pertaining to empirical evidence, theoretical discussions, and practical implications. The study acknowledges several limitations that warrant further investigation. Firstly, while the focus on understanding cyberloafing in the public sector is valuable, future research should also explore its occurrence in the private sector. Secondly, comparing various public sectors worldwide implementing work-from-home (WFH) policies during the pandemic could yield insights into how cyberloafing affects civil servants' performance, especially in serving the general

population via virtual platforms. Lastly, future research should explore the relationships among cyberloafing, work performance, and psychological effects, offering solutions for the challenges associated with WFH policies in both the short and long term.

Conclusion

This study provides a comprehensive analysis of the impact of cyberloafing on the performance of civil servants. The literature review highlights that the influence of cyberloafing on civil servants' performance is still under-researched, particularly in the context of the current global pandemic, when governments worldwide have implemented WFH policies to curb the spread of the COVID-19 virus.

Consequently, an in-depth investigation was conducted to elucidate this relationship. The established theoretical framework found the empirical support, providing both theoretical and empirical contributions to improve existing cyberloafing and WFH policies.

Additionally, the study posits that cyberloafing can be considered as a form of psychological detachment, contributing to the well-being of civil servants. It advocates for the strengthening of existing WFH policies, not only to address pandemic-related challenges, but also as a viable mechanism for the effective operation of public organizations. The adoption of a WFH model or a hybrid model that offers the flexibility of on-site and WFH options, is recommended. These alternatives can be tailored to civil servants, based on the nature of their work.

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EXPLORING EMPLOYEE ENGAGEMENT IN THE PUBLIC SECTOR: ANTECEDENTS, CONSEQUENCES AND STRATEGIES

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Abstract. In the contemporary public sector, administrators seek innovative approaches to boost productivity, elevate service quality, and optimize resource allocation. Employee engagement (EE) stands out as a pivotal catalyst driving these transformative endeavors. Engaged employees approach their responsibilities with greater dedication and motivation, invest more energy and effort, demonstrate a higher level of performance and contribute to the achievement of exceptional organizational outcomes. Therefore, to establish an effective framework for public administration, administrators must not only comprehend the factors influencing EE in the public sector and its outcomes but also proactively develop strategies to foster engagement among their workforce. This study aims to identify the fundamental antecedents and consequences of EE in the public sector while evaluating this concept from a strategic perspective. To achieve this aim, an extensive literature review is conducted, involving the systematic examination of existing studies published in the Web of Science (WoS) and Scopus databases on EE within the public sector. The original aspect of the study is to introduce a conceptual model that integrates the antecedents influencing EE, its resulting outcomes and potential strategies for cultivating EE. It is expected that the research findings will both stimulate academic interest and provide insights for practitioners in the realm of public administration.

Keywords: Employee engagement, human resource, public sector, strategy.

Introduction

Public administrations, which play a significant role in the governance of a country's economic, social, and political activities, confront various challenges in today's complex world. Globalization, rapid technological advancements, societal changes, and the diversification of values are some of the factors compelling public administrations to adapt to the evolving needs of society. These challenges are further intensified when coupled with measures such as post-economic crisis austerity policies and downsizing within the public sector. In light of these circumstances, public administrators should meet the expectations of their stakeholders, continuously improve quality, enhance efficiency, and generate innovative solutions.

In a service-oriented management approach, human resources are a key determinant of success. The success of a company is closely related to the presence of highly motivated and engaged employees. Engaged employees are essential for effectively managing change, enhancing service delivery effectiveness, and ensuring customer satisfaction in public sector institutions. Therefore, public administrators should develop competitive strategies to attract engaged talents and retain them in the long term (OECD, 2015). When public institutions proactively implement strategies to improve EE, it results in the establishment of an engaged workforce within the organizational framework, consequently fostering a positive work environment (Shuck and Wollard, 2010).

To achieve the aim of understanding the key determinants and outcomes of EE in public institutions and to strategically evaluate this concept, the study explores the following research questions:
–   What are the antecedents that influence EE in the public sector?
–   What are the consequences associated with EE in the public sector?
–   What are the potential strategies to enhance EE in the public sector?

To address the research questions, the reminder of the study is structured as follows: firstly, it examines the concept of EE and the role of EE in the public sector. Next, the methodology employed in the study is introduced. This is followed by the antecedents and consequences of EE in the public sector, along with strategies for promoting and sustaining EE. Thereafter, the study develops a new conceptual model proposal based on the findings. Finally, this study concludes by discussing implications for public administration research, addressing limitations, and proposing research topics for future investigations.

Literature review

The Concept of EE

In the highly competitive business landscape, organizations recognize that the engagement and performance of employees are crucial for success. Therefore, by integrating human resource strategies with overall business goals, they aim to foster high levels of EE, resulting in strong interpersonal relationships, innovation, and excellent customer service, which are essential for achieving success in this challenging market.

In the literature, the concept of EE is defined in various ways. According to Kahn (1990), EE involves individuals' alignment with their work roles in terms of physical, cognitive, and emotional aspects. Likewise, Shuck and Wollard (2010) define EE as comprising cognitive, emotional, and behavioral elements, all motivated by the employee's aspiration to attain desired organizational results. Robinson, Perryman and Hayday (2004) describe EE as a positive attitude displayed by employees towards the organization and its principles. Engaged employees collaborate with their colleagues to enhance job performance for the organization's benefit. Furthermore, engagement can be characterized as a mental state linked to vigor, dedication, and absorption in the workplace (Schaufeli et al., 2002).

EE is not only seen as a way for employees to find personal fulfillment but also as a method for organizations to enhance their profitability (Tioumagneng and Njifen, 2020). EE leads to favorable results, such as job satisfaction, heightened organizational commitment, and long-term retention. Engaged employees are typically devoted and proud of their affiliation with the organization. These individuals make a direct impact on the organization's financial performance, and their commitment is evident in the service they provide. Engaged employees actively contribute to the organization's achievement of objectives by drawing in additional customers and cultivating customer loyalty. The degree of EE is shaped by the individual attributes of employees and their workplace environment (Chiwawa, 2022).

The Role of EE in the Public Sector

The public sector plays a significant role as an integral component of any government structure. It serves as a platform through which a government can contribute to the progress and welfare of its citizens, thereby the development of the country as a whole. Therefore, public organizations should prioritize investments in human resources to improve delivery of public services and ensure sustainable growth of the sector (George, Okon and Akaighe, 2023).

The increasing global discourse regarding the function of public administrations in economic systems has sparked remarkable interest among practitioners and researchers in EE (De Simone et al., 2016), which is considered a relatively new concept in the public administration literature (Jin and McDonald, 2017). Public organizations require employees who feel dedicated and energized towards the work, both physically and mentally (Vigoda-Gadot, Eldor and Schohat, 2013). However, motivating employees in public sector institutions can be more challenging compared to the private sector. This can be associated with such factors as frequent and sudden changes in leadership and the inability to provide performance incentives (Jin and McDonald, 2017; Chiwawa, 2022).

Moreover, modern public institutions expect their employees to demonstrate proactivity, entrepreneurial mindset, accountability, and a commitment to upholding high-performance criteria (Vigoda-Gadot, Eldor and Schohat, 2013). Engaged public service employees exhibit higher levels of commitment and job satisfaction in their organizations (Gargantini et al., 2022). The engagement of public service employees is shaped by their emotional connection to public service employment and their commitment to public organizations. Closer alignment between employ-

ees' values and the organizational mission can serve as a catalyst for a more efficient public sector (Chiwawa, 2022). In this regard, EE is seen as a potential contributor to an efficient and citizen-centric public service system, consequently bolstering citizens' trust in government entities (Vigoda-Gadot, Eldor and Schohat, 2013).

Methodology

The methodology for this study involved conducting a systematic literature review to explore antecedents, consequences, and strategies related to EE in the public sector. A comprehensive analysis covered studies published in the WoS and Scopus databases up to September 20, 2023. The selected timeframe ensured the inclusion of relevant and up-to-date scholarly publications, allowing for a thorough examination of the topic. Table 1 provides the search queries employed in the WoS and Scopus databases.

Table 1

The Search Queries

Databases	Search Queries
WoS	TITLE "employee engagement" or "work engagement" or "organizational engagement" or "job engagement" and TITLE "public sector" or "public service" or "public employees" or "public organizations" and ALL FIELDS "antecedents" or "consequences" or "outcomes" or "strategy" or "strategies"
Scopus	TITLE "employee engagement" or "work engagement" or "organizational engagement" or "job engagement" and TITLE "public sector" or "public service" or "public employees" or "public organizations" and TITLE-ABS-KEY "antecedents" or "consequences" or "outcomes" or "strategy" or "strategies"

Sources: Created by the author.

The systematic review adhered to the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) framework, which includes the identification, screening, eligibility and inclusion phases (Moher et al., 2009). In the identification phase of the process, a systematic literature search was carried out on the WoS and Scopus databases aiming to comprehensively explore relevant research materials. This search used search queries generated from the keywords listed in Table 1. As a result, 28 publications were retrieved from WoS and 20 publications from Scopus. In the screening phase, the databases were cross checked to ensure data integrity and to eliminate duplicate studies. 16 publications were excluded. The eligibility phase then began. In this phase, the titles of the studies, the abstracts and the most important content were examined to assess their adherence to the inclusion criteria. As the full texts of 2 publications were not accessible, it could not be clearly determined whether they addressed the antecedents, consequences or strategies of EE in the public sector. These publications were excluded from the analysis. In the inclusion phase, a total of 30 publications that met the specified criteria were considered. Finally, a comprehensive analysis was initiated for this dataset.

Results and discussion

The systematic review was conducted for 30 publications on EE in the public sector. Appendix 1 presents a descriptive analysis of these studies with information on authors, countries, research methods and sample data. According to the information contained within this dataset, the United States had the most publications (4), followed by India (3), Brazil (2), and Zimbabwe (2). These studies employed various research methods, encompassing survey research, focus groups, interviews, explanatory-sequential mixed methods, meta-analytic approaches, and systematic reviews. Studies predominantly focused on diverse sample groups, including employees, civil servants, supervisors, managers, and inspectors.

The research findings are organized into several sections, covering the factors influencing EE within the public sector, the consequences of EE, potential approaches to improve EE, and the development of a novel conceptual model for EE in the public sector.

Antecedents of EE in the Public Sector

The literature emphasizes various factors that have been identified as antecedents for EE. These factors can be divided into two main categories: individual factors and organizational factors. By addressing both the individual and organizational aspects, public administrators can create an environment that is conducive to EE and empower their employees to achieve their maximum potential.

Individual Factors

Positive psychological state: EE is influenced by factors that trigger an employee's psychological presence. When employees experience psychological presence, they become fully engaged and attentive to their tasks, demonstrating a heightened level of awareness and involvement (Chiwawa, 2022). Several attributes such as psychological capital, relational identification, psychological ownership, work meaningfulness, and work ethic have all shown a positive correlation with work engagement in the public sector (Zahari and Kaliannan, 2022). Moreover, workplace spirituality promotes positive emotions, a sense of belonging, and higher work engagement by nurturing employees' inner values and a sense of purpose (Alqhaiwi and Luu, 2023). Psychological capital, which reflects an individual's positive psychological development, plays a crucial role in fostering employees' positive engagement with their work. When employees maintain a positive attitude toward their work, they are more likely to be deeply engaged and dedicated to their tasks. Additionally, psychological capital is closely linked to the promotion of positive emotions among in employees. Those who possess an optimistic mindset, resilience and self-efficacy tend to have a greater ability to understand and effectively regulate their own emotions and demonstrate empathy for the emotional state of others (George, Okon and Akaighe, 2023).

On the other hand, relational identification plays a mediated role in activating positive emotions and fostering EE (Malik and Khan, 2019). This psychological connection and a sense of belonging that individuals develop with their group, organization, or team significantly impact their levels of engagement. Similarly,

psychological ownership, which involves the subjective sense of possession and attachment towards work or the organization, is a significant construct that enhances employee satisfaction, commitment, extra-role performance, and overall engagement (Buriro et al., 2008). Furthermore, Ding and Wang (2023) highlight pleasure, value, and meaning derived from work, as key influencers of work engagement, especially for civil servants. This emphasizes the importance of intrinsic motivation in driving engagement. Additionally, empirical evidence provided by Khusanova, Kang and Choi (2021) support the positive correlation between the meaningfulness of work and engagement, further emphasizing the significance of finding meaning in work. Mohapatra and Sharma (2010) ensure a comprehensive examination of EE predictors by incorporating work ethic as an assessment of individual characteristics, alongside demographic variables such as age, work experience, educational qualification, and gender.

Public service motivation (PSM): PSM is widely recognized as an individual resource that inspires employees to selflessly contribute to the betterment of society (Cooke, Brant and Woods, 2019). When individuals driven by a commitment to public service are provided with chances have the opportunity to contribute beyond their job duties, it results in a heightened sense of identification with the organization (Hammon, Gillis and Icenogle, 2022). PSM motivates individuals in the public service sector to develop a stronger sense of purpose, responsibility, and willingness to sacrifice, while enhancing their feelings of recognition and self-esteem for their contributions. Individuals who possess a stronger sense of PSM also generally show a higher level of engagement in their work. The connection between PSM and engagement at work becomes more pronounced when individuals perceive organizational support. This perception creates a reciprocal dynamic in which employees tend to exhibit higher levels of performance and demonstrate a greater willingness to contribute to the organization (Ding and Wang, 2023). Public servants who possess strong PSM perceive their work as meaningful. They are more inclined to dedicate their resources to public service and exhibit strong job performance (Alamri, 2023).

Organizational Factors

Human resource management (HRM) practices: The happiness and satisfaction of employees within an organization are crucial for accomplishing organizational objectives. Therefore, in the volatile and ever-changing business climate, public administrators must prioritize the satisfaction of individuals who contribute significantly to achieving the organization's goals. They must pay greater attention to identifying the factors that contribute to employee job satisfaction and enhance their productivity. Research indicates that EE plays a mediating role in the link between HRM practices and job satisfaction. Specifically, HRM practices that focus on EE are expected to increase employees' energy levels, resulting in higher morale, motivation, and overall satisfaction (Pradhan, Dash and Jena, 2019). Furthermore, HRM practices encompass various components, which include practices that enhance abilities (such as recruitment, selection, training, and development), practices that boost motivation (such as performance appraisal, compensation, and rewards), and practices that create opportunities (such as autonomy and employee participa-

tion). These practices strongly influence EE (Mohapatra and Sharma, 2010). When HRM practices are properly implemented, employees develop a positive perception of their organization, resulting in increased job engagement and a more positive outlook towards the overall organization (Tensay and Singh, 2020).

Leadership quality: Leadership quality, which shapes the levels of PSM in individuals (Ugaddan and Park, 2017), is one of the key factors influencing EE within the public sector (Wushe and Shenje, 2019). In addition, effective leadership is known as a multifaceted force that cultivates awareness, promotes open communication and information handling, encourages social inclusivity, and upholds ethical values (Chiwawa, 2022). These qualities contribute significantly to enhancing EE in the public sector. Cultivating trust is an essential step in developing an effective EE strategy as it helps to eliminate any doubts or suspicions regarding the intentions of leaders within the organization (Ohemeng, Obuobisa Darko and Amoako-Asiedu, 2020). Trusted leaders have a positive impact on multiple facets of organizational dynamics and individual outcomes. They contribute to higher levels of job satisfaction, improved performance at both the individual and organizational levels, enhanced organizational commitment, and the development of employees' discretionary skills (Ugaddan and Park, 2017). Notably, ethical leaders are widely recognized for their fairness and tend to garner a high degree of trust among their employees. This trust, along with the perception of fairness, contributes to an enhanced sense of meaning in employees' work, ultimately resulting in higher levels of engagement at work (Mostafa and Abed El-Motalib, 2020). Moreover, transformational leaders have a significant impact on EE by directing their cognitive, behavioral, and emotional efforts toward advancing the organization. By leveraging their promotion focus, these leaders can foster engagement behaviors among employees, particularly by encouraging them to prioritize public service tasks (Alamri, 2023).

Perceived organizational support: Perceived organizational support significantly contributes to the cultivation of EE (Zahari and Kaliannan, 2022). In this context, top management support is identified as one of the foremost crucial job resources (Ludviga and Kalvina, 2023). Specifically, the level of work engagement is positively linked to how employees perceive the support of their supervisors (Ghosh, Rai and Sinha, 2014). The support received from supervisors directly or indirectly impacts EE. When employees have strong and positive perceptions of supervisor support, they are more likely to cultivate enhanced perceptions of organizational support, which ultimately results in heightened work engagement (Jin and McDonald, 2017). Additionally, practices that promote work-life balance are closely linked to the concept of perceived organizational support. When organizations prioritize work-life balance, employees perceive stronger support from the organization, resulting in increased engagement. Work-life balance practices have positive impacts on EE, leading to higher levels of commitment and satisfaction (Mohapatra and Sharma, 2010). Furthermore, these practices serve as a catalyst for fostering individual and organizational effectiveness (Shankar and Bhatnagar, 2010).

Perceived organizational justice: The way employees perceive organizational justice influences their level of engagement. In evaluating work and organizational engagement, distributive justice emerges as the most crucial factor, closely followed by procedural and interactional justice. Employees who perceive organizational jus-

tice positively and believe that they are treated fairly tend to respond by elevating their level of engagement (Ghosh, Rai and Sinha, 2014). This phenomenon finds its most robust theoretical underpinning in Social Exchange Theory (SET). According to SET, EE is influenced by reciprocal exchanges rooted in the concept of justice. Essentially, individuals seek to maximize benefits and minimize costs within their organizational relationships. When they perceive fair rewards and support, their engagement tends to soar (Ohemeng, Obuobisa Darko and Amoako-Asiedu, 2020; Zahari and Kaliannan, 2022). Therefore, organizations can demonstrate their commitment to creating a supportive work environment by implementing HRM strategies that address the organizational political climate. These strategies may include transparent communication, fair decision-making processes, and equitable treatment of employees. Such practices reinforce employees' beliefs that the organization genuinely values their well-being (Kidron and Vinarski, 2018).

Perceived organizational agility: Various factors contribute to the organizational agility of public sector entities, including organizational learning, leadership, and clarity of goals. When employees perceive their organization as agile, capable of promptly sensing and adapting to environmental shifts, a sense of security and engagement in their work is nurtured. As a result, perceived organizational agility significantly influences EE (Ludviga and Kalvina, 2023). In organizations that exhibit agility, employees experience greater autonomy, responsibility, and opportunities. Empowering employees by involving them in decision-making processes, encouraging their input, and providing feedback on organizational operations is an effective approach to cultivating EE. This sense of responsibility and ownership empowers employees, resulting in increased levels of engagement (Tensay and Singh, 2020).

Consequences of EE in the Public Sector

The studies within the sample have examined the consequences of EE in the public sector, revealing a range of potential effects. These consequences include increased employee well-being and job satisfaction, strengthened organizational citizenship behavior, fostering innovation and creativity, better organizational performance, and improved public service delivery.

Increased employee well-being and job satisfaction: EE, which plays a central role in shaping individuals' behavior within the organization, significantly benefits both employee well-being and job satisfaction (Mohapatra and Sharma, 2010). Positive emotions and experiences, such as EE, are indeed believed to lay the foundation for favorable job outcomes, encompassing employee well-being and job satisfaction. When employees exhibit higher levels of engagement, they often find more fulfillment and contentment in their roles. This sense of enthusiasm, dedication, and connection to their work, fostered through engagement, contributes to a more rewarding work experience (Pradhan, Dash and Jena, 2019). It is worth emphasizing that engagement can be seen as the initial stage that sets the groundwork for job satisfaction (Nguyen et al., 2018). In simpler terms, when individuals are deeply engaged in their tasks and responsibilities, they create a solid foundation for them to achieve higher levels of job satisfaction. This heightened satisfaction can lead to improved morale and overall well-being. Furthermore, individu-

als who experience greater job satisfaction tend to be more actively involved and engaged in their job tasks (De Simone et al., 2016). This dynamic creates a positive feedback loop, where job satisfaction fosters increased dedication and enthusiasm towards their work responsibilities.

Strengthened organizational citizenship behavior: EE offers substantial benefits to organizations, and one of these advantages is the improvement of organizational citizenship behavior (Ugaddan and Park, 2017). Research consistently establishes a positive correlation between work engagement and the manifestation of organizational citizenship behavior (Khusanova, Kang and Choi, 2021). Importantly, public sector employees who display high levels of engagement are more inclined to participate in service-oriented organizational citizenship behavior, which goes beyond their formal job duties, including heightened attentiveness to citizens' concerns and taking the initiative to resolve them (Alqhaiwi and Luu, 2023). They willingly contribute to enhancing the overall effectiveness of the organization and the quality of public service delivery (Alamri, 2023). Essentially, engaged public sector employees demonstrate a stronger sense of commitment and civic responsibility, driving them to go the extra mile in serving the community and contributing to the success of their organization.

Fostered creativity and innovation: Cultivating creativity and fostering the creation of innovative services hinges on EE (De Simone et al., 2016). Notably, in the public sector, a highly engaged workforce is pivotal for driving innovation (Wushe, 2019). Public sector organizations, having highly engaged employees, must prioritize the establishment of a culture of continuous learning at all levels (Ludviga and Kalvina, 2023). Furthermore, transformational leaders play a significant role in enhancing employee work engagement. They achieve this by championing novel ideas, offering individualized attention to each employee, and assisting employees in coping with the challenges posed by negative life events (Alamri, 2023; Weibmüller et al., 2023). These actions lead to improved learning outcomes and an increased capacity for innovation in service delivery and the workplace (Knox and Marin-Cadavid, 2022). Consequently, by promoting a culture of learning and embracing transformational leadership, public sector organizations empower their workforce to unleash its full potential, ultimately driving improved creativity and innovation outcomes.

Better organizational performance: Engaged employees typically experience heightened levels of satisfaction, commitment, and immersion in their roles (Tensay and Singh, 2020). They actively seek opportunities to improve organizational performance (Hammon, Gillis and Icenogle, 2022). This pursuit results in a positive boost in their individual productivity, ultimately leading to improved organizational efficiency and effectiveness (Reis de Souza Camoes and Oliveira Gomes, 2021; Gargantini et al., 2022). In essence, EE, as a key driver of business success, exhibits a noteworthy correlation with performance-related outcomes (Khusanova, Kang and Choi, 2021; Ohemeng, Obuobisa Darko and Amoako-Asiedu, 2020). A motivated workforce, characterized by strong engagement, has the potential to greatly enhance organizational performance (Tensay and Singh, 2020). Therefore, prioritizing the development of engaged employees offers substantial advantages to organizations, including enhanced performance, productivity, ef-

ficiency, and effectiveness, as well as the optimization of organizational resources and a competitive edge (Chiwawa, 2022).

Improved public service delivery: EE is crucial factor for improving service delivery and overall public services (Reis de Souza Camoes and Oliveira Gomes, 2021; Zahari and Kaliannan, 2022). It significantly influences productivity, loyalty, and stakeholder value, as noted by Wushe and Shenje (2019). Public servants who demonstrate a strong and enduring commitment to public service not only perceive their work as essential and purposeful but also have a strong inclination to allocate their resources to public service efforts. Consequently, they are actively engaged in their work (Alamri, 2023). Full engagement of employees in their work often leads to effective collaboration within work teams. Therefore, engaged employees are widely acknowledged as the driving force behind the delivery of high-quality and dedicated service (Mohapatra and Sharma, 2010). Their sense of responsibility and commitment can lead to improved service quality and a more responsive approach to citizens' needs. In contrast, disengaged employees within the public administration place a significant financial burden for the public sector, while also obstructing the efficient delivery of essential services (Mostafa and Abed El-Motalib, 2020). Their negative impact manifests itself in more frequent absences, increased turnover, lower productivity, and ongoing training expenses (Wushe and Shenje, 2019).

Potential Strategies for Enhancing EE in the Public Sector

Based on research findings, specific strategies have been identified to enhance EE in the public sector.

Cultivating PSM: Public organizations could adopt innovative approaches to attract, select, and retain employees with high levels of PSM. By prioritizing the attraction, selection, and retention of individuals with strong PSM, these organizations can enhance their workforce and further their mission to serve the public interest (Alamri, 2023). Recruiting civil servants with a strong PSM is essential for public organizations, as these individuals exhibit higher levels of dedication, potentially resulting in increased performance and administrative efficiency in the public sector (Ding and Wang, 2023). To potentially enhance employee performance and engagement at work, government organizations should conduct training aimed at improving public sector employees' emotional intelligence. This training encompasses components such as empathy, interpersonal skills, self-awareness, and self-regulation (George, Okon and Akaighe, 2023). Moreover, transformational leaders can enhance PSM by motivating employees and fostering greater commitment to public service. They can help employees better understand the significance of their work to society. They can promote more transformational behaviors in the workplace by effectively communicating a compelling vision, creating an environment that encourages new ideas, and offering individualized attention to each employee (Alamri, 2023).

Creating supportive work environments: Fostering supportive work environment is crucial to enhance EE in the public sector. This entails establishing an environment where employees feel confident and actively participate in their tasks (Khusanova, Kang, and Choi, 2021). In such an environment, employees can freely share their ideas, concerns, and feedback without fearing adverse repercussions,

ultimately leading to a more supportive and productive workplace (Brennan et al., 2023). Public organizations should also encourage the cultivation of a friendly atmosphere that promotes mutual support among their employees (Wushe and Shenje, 2019). To achieve this, administrators in the public sector should prioritize the cultivation of strong leader-worker relationships. This can be accomplished through methods such as employee satisfaction surveys, focus groups, and personalized meetings (Jin and McDonald, 2017). Additionally, public sector organizations can mitigate the adverse impacts of workplace changes by reducing job demands and enhancing job resources. These strategies not only minimize cynicism towards change but also contribute to improved work engagement (Nguyen et al., 2018). In summary, enhancing work engagement in the public sector requires a multifaceted approach that prioritizes building positive relationships, cultivating trust, and effectively managing organizational change.

Fostering a culture of continuous learning and development: Public administrators should undergo specialized training focused on fostering a strategic orientation toward employee development, emphasizing ideals and aspirations over mere duties and responsibilities (Alamri, 2023). Moreover, to foster a culture of learning and development while enhancing EE in public organizations, they should implement a multifaceted strategy. This strategy should encompass the enhancement of training and development programs, the provision of mentoring opportunities, and the organization of social events (Zahari and Kaliannan, 2022). In alignment with these endeavors, Nissinen et al. (2022) emphasize the importance of prioritizing job crafting intervention programs and involving employees actively in systematic training initiatives in the public sector. These initiatives are crucial for allowing public sector employees to customize their job roles, ultimately resulting in increased job satisfaction and improved performance outcomes.

Furthermore, fostering a culture of continuous learning within the organization, and providing training opportunities that go beyond core tasks, is seen as a key driver for increased work engagement (Jin and McDonald, 2017). Additionally, it is essential to establish feedback mechanisms that foster employee learning (Gargantini et al., 2022) and reinforce successes (Alamri, 2023). By investing in the development, training, and well-being of their employees, public institutions can enhance the skills, competencies, and motivation of their staff. This, in turn, leads to improvements in service quality, increased productivity, and ultimately, more favorable overall outcomes for the constituents they serve. Such investments also contribute to fostering a positive workplace atmosphere, elevating employee morale, and enhancing employee retention, all of which are fundamental factors that contribute to the success of organizations (George, Okon and Akaighe, 2023).

Investing in leadership development: It is essential for public administrators to prioritize effective leadership approaches, such as ethical and transformational leadership, when filling senior roles within organizations to boost EE (Zahari and Kaliannan, 2022). For example, ethical leadership is important to improve organizational engagement by aligning leaders' efforts with ethical principles (Svensson, Wood, and Callaghan, 2009). To achieve this, actively recruiting ethical leaders known for their integrity and strong ethical values is vital. Additionally, implementing ethics training programs to enhance their ethical decision-making skills

and promote ethical behavior throughout the organization carries significant importance (Mostafa and Abed El-Motalib, 2020). By emphasizing the cultivation of ethical leadership, public sector organizations can create a culture that embodies integrity, fosters trust, and encourages accountability.

In today's dynamic business environment, leaders should adopt a resilient and adaptable approach to their roles, particularly in times of crisis. When employees are supported by leaders who can recognize changes, make timely decisions, and adapt flexibly, this leads to increased work engagement, and has a positive impact on employee well-being and overall corporate performance (Ludviga and Kalvina, 2023). Furthermore, public administrators can implement training and development programs on leadership to improve transformational leadership qualities. By investing in these programs, organizations can cultivate a culture that prioritizes effective leadership and facilitates the advancement of their leaders (Alamri, 2023). Organizations can also enhance EE by creating training programs that focus on developing skills related to inclusive leadership and promoting a supportive workplace culture (Ly, 2023).

Public sector organizations can foster an environment that boosts EE, job satisfaction, and overall organizational effectiveness by implementing these strategies. Public sector leaders and administrators must give priority to these approaches and customize them to their organizational settings to optimize EE and achieve the desired results.

A New Conceptual Model for EE in the Public Sector

This study introduces a new conceptual model that takes into account various antecedents, consequences, and potential strategies of EE in the public sector. The aim of this model is to offer a comprehensive framework for understanding and promoting EE in public organizations. The components of the model are illustrated in Figure 1.

Figure 1

A Model for EE in Public Sector
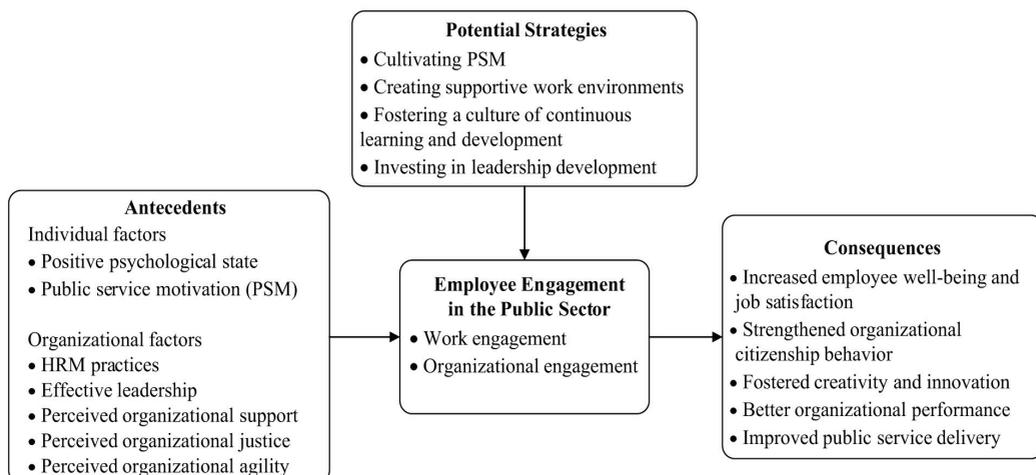
Source: Constructed by the author.

Within this model, the significance of both individual and organizational factors in influencing EE is acknowledged. At an individual level, the importance of positive psychological states is emphasized, with positive emotions and mental well-being linked to higher levels of active engagement at work. Positive psychological states, such as work motivation, a sense of meaningfulness, and strong work ethic, contribute significantly to improving the performance of public sector employees (Zahari and Kaliannan, 2022). Additionally, PSM plays a critical role, as employees driven by a sense of duty to serve the public interest often exhibit higher levels of engagement (Ding and Wang, 2023). At the organizational level, the role of HRM practices in aligning individual skills and aspirations with organizational objectives is highlighted. Effective leadership is identified as another crucial element, as employees are inspired and guided by leaders. Perceived organizational support and perceived organizational justice are recognized as critical factors in fostering trust and commitment. Additionally, perceived organizational agility is deemed vital in today's dynamic environment, as it encourages active employee engagement in adapting to change.

Enhanced EE is expected to yield several positive outcomes. Engaged employees often experience increased well-being and job satisfaction, contributing to their overall happiness and performance (Mohapatra and Sharma, 2010). Furthermore, they tend to exhibit strengthened organizational citizenship behavior, going beyond their job descriptions to support their colleagues and the organization as a whole (Alqhaiwi and Luu, 2023). Engagement also fosters creativity and innovation, and enhance an organization's ability to adapt and improve. This, in turn, leads to better organizational performance in various dimensions, ultimately resulting in improved public service delivery that aligns with citizens' needs and expectations.

Organizations can employ several key strategies to enhance EE. First and foremost, they should cultivate PSM by fostering employee engagement in public service. Creating supportive work environments is essential for employees to feel valued and empowered. Organizations should also focus on cultivating a culture that prioritizes continuous learning and development through training programs designed to enhance skills and knowledge. Lastly, investing in leadership development is crucial for identifying and nurturing effective leaders within the organization.

In summary, this comprehensive model provides a holistic perspective of EE in the public sector, highlighting the importance of individual and organizational factors in achieving positive outcomes. Implementing the suggested strategies can empower public service organizations to promote increased EE, ultimately resulting in improved service delivery and organizational performance.

Conclusion

Technological advancements, the increasing complexities in business operations, and the shortage of essential skills pose global challenges when it comes to acquiring, retaining, and effectively utilizing talent within organizations. In today's rapidly evolving business environment, there is a growing acknowledgment that empowering the workforce as creators of valuable assets can provide organizations with a sustainable competitive advantage. This acknowledgment underscores

the vital importance of EE for effective HRM. Engaged employees play a central role in delivering exceptional service quality and building high-performing teams that consistently achieving outstanding results (Mohapatra and Sharma, 2010).

EE has become a potent driver of business success, gaining prominence in service delivery, especially in the public sector (Wushe and Shenje, 2019). In an ever-evolving global business landscape shaped by technological advancements and changing customer demands, employees are increasingly responsible for service delivery. In this complex context, EE, characterized by employee commitment to their tasks and their demonstration of extra-role performance that aligns with the organization's goals, is crucial. This underscores the significance of engagement within organizations.

While studies on EE in the public sector have proliferated in recent years (Vigoda-Gadot, Eldor and Schohat, 2013; Jin and McDonald, 2017; Hameduddin, 2021), to the best of our knowledge, there is no available study that comprehensively examines this topic in the context of antecedents, consequences, and strategies. This study intends to fill this gap by providing a comprehensive understanding of EE in the public sector, considering the interplay of various antecedents, consequences, and strategies. Antecedents encompass individual factors such as positive psychological states and PSM, as well as organizational factors like HRM practices, effective leadership, perceived organizational support, justice, and agility. When effectively leveraged, these antecedents result in notable consequences, including increased employee well-being, heightened job satisfaction, strengthened organizational citizenship behavior, stimulated creativity and innovation, enhanced overall organizational performance, and ultimately, improved public service delivery. Strategically implementing approaches such as cultivating PSM, creating supportive work environments, fostering a culture of continuous learning and development, and investing in leadership development are paramount to achieving the desired outcomes and fostering EE.

This study has important implications for both researchers and practitioners. Firstly, it contributes to the theoretical understanding of EE in the public sector by introducing a new conceptual model. Secondly, it offers insights for administrators who aim to gain an understanding of the factors influencing EE within the public sector. Lastly, the study provides practical recommendations for administrators, offering strategies to enhance EE in their organizations. This study is expected to provide guidance to decision-makers to promote EE and facilitate the delivery of high-quality public services in the public sector.

It is crucial to discuss these findings while acknowledging their limitations, which can provide insights for future studies. Firstly, the dataset is limited to studies retrieved from the WoS and Scopus databases. Future research could include studies from other databases to conduct more comprehensive investigations. Secondly, this study developed a new model focused on the antecedents, consequences, and strategies of EE in the public sector. Further research should extend this model and explore additional factors on EE. Thirdly, the cultural and sectoral dimensions were not thoroughly evaluated in this study. In future studies on EE in the public sector, it is essential to place greater emphasis on these dimensions, as variations might exist among diverse cultures and sub-sectors.

Studies on EE in Public Sector

Authors	Countries	Methods	Samples
Alamri, 2023	Saudi Arabia	Survey research	316 employees
Alqhaiwi and Luu, 2023	Jordan	Survey research	426 employees and their managers
Brennan et al., 2023	Ireland	Survey research	279 employees, 46 supervisors, and 156 teaching staff
Chiwawa, 2022	Zimbabwe	Survey research	248 civil servants
Cooke, Brant and Woods, 2019	United States	Survey research	388 supervisors and managers
De Simone et al., 2016	Italy	Survey research and focus group	137 inspectors and 61 inspectors
Ding and Wang, 2023	10 countries	Meta-analytic approach	31 studies
Gargantini et al., 2022	Brazil	Survey research	7,682 employees
George, Okon and Akaighe, 2023	Nigeria	Survey research	557 employees
Ghosh, Rai and Sinha, 2014	India	Survey research	210 employees
Hammon, Gillis and Icenogle, 2022	United States	Survey research	268 employees
Jin and McDonald, 2017	United States	Survey research	1,251 employees
Kidron and Vinarski, 2018	Israel	Explanatory-sequential mixed methods	217 managers and employees
Khusanova, Kang and Choi, 2021	Uzbekistan	Survey research	183 employees and 47 supervisors
Knox and Marin-Cadavid, 2022	Scotland	Semi-structured interview	36 informants
Ludviga and Kalvina, 2023	Latvia	Survey research	5,469 employees
Ly, 2023	Cambodia	Survey research	282 employees
Mohapatra and Sharma, 2010	India	Survey research	84 managerial employees
Mostafa and Abed El-Motalib, 2020	Egypt	Survey research	197 nurses
Nguyen et al., 2018	Australia	Survey research	220 nurses
Nissinen et al., 2022	Finland	Survey research	213 civil servants
Ohemeng, Obuobisa Darko and Amoako-Asiedu, 2020	Ghana	Interview and survey research	10 senior officials and 308 officials from HRM
Pradhan, Dash and Jena, 2019	India	Survey research	393 employees

Authors	Countries	Methods	Samples
Reis de Souza Camoes and Oliveira Gomes, 2021	Brazil	Systematic review	27 studies
Svensson, Wood and Callaghan, 2009	Sweden	Survey research	27 public sector entities
Ugaddan and Park, 2017	United States	Survey research	13,051 employees
Tensay and Singh, 2020	Ethiopia	Survey research	340 employees
Weibmüller et al., 2023	Switzerland	Survey research	496 civil servants
Wushe and Shenje, 2019	Zimbabwe	Survey research	260 employees and managers
Zahari and Kaliannan, 2022	26 countries	Systematic review	48 articles

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CHANGE LEADERSHIP AND EMPLOYEE ATTITUDES TOWARDS PLANNED ORGANIZATIONAL CHANGE IN DELTA STATE MINISTRY OF EDUCATION, ASABA, NIGERIA

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Abstract. This study examines the influence of change leadership on employee support for an intentional organizational change in the Delta State Ministry of Education Asaba, Nigeria. The study employed a cross-sectional research methodology and a self-administered Likert-type questionnaire. Data for the study were obtained from employees who were undergoing through significant upheaval. The data collected was evaluated using structural equation model. The study found that essential change leadership qualities including communication and involvement aid in building employee support for change initiatives. The cognitive and behavioral reactions of the employees to the planned change was influenced by change leadership. Employees' cognitive assessments of and emotional reactions to the planned change event served as a mediating factor in the relationship between change leadership and behavioral intentions to support the planned change. When assessing planned organizational transformation efforts, leaders frequently pay more attention to how employees respond to the change than to the causes of those reactions. The significance of addressing employee attitudes as the first step toward desired change activities was emphasized by this study. This study adopted a multidimensional approach to attitudes and examined their hierarchy of impacts in order to more accurately describe the influence of change leadership on employee support for change. The study makes a number of suggestions, one of which is that leaders should boost employee morale prior to initiating change projects in order to increase the likelihood of success. In a world of rapid change and cultivation of adaptable mindsets, change leadership is essential.

Introduction

Based on a leader's personality and leadership style, research has examined the extent to which employees will support change initiatives in the past few decades. These results are consistent with leadership theory, which maintains that leadership is largely a process of influence in which leaders train their subordinates with the right behaviors while setting organizational standards. The continuing changes in the corporate environment have an impact on the long-term profitability and survival of today's organizations. On the other hand, corporations may find it challenging to improve when organizations are unable to develop continuously adaptive systems and when their expectations do not align with the demands of the environment; planned organizational transformation is necessary to adjust to environmental changes (Burke, 2017). According to previous research on the subject, few intentional organizational changes have been successfully implemented (Hughes and Ford, 2016).

Numerous variables, such as lack of cooperation between organizational members, employee uncertainty, and concern about potential hazards from suggested changes, contribute to the failure of many organizational change efforts (Bailey and Raelin, 2015). In order to foster employee collaboration and support for deliberate organizational change, it is critical to address these change-related concerns, as members' actions have a significant impact on organizational change. Facilitating employee support is one of the most crucial duties for leaders during organizational change. Leadership is crucial for an organizational transformation to be successful and to gain employee support for change initiatives (Burke, 2017; Stouten et al., 2018).

Although many studies suggest that leaders may influence how their teams react to change, it is currently unknown whether the ways that change drivers could modify the way their groups assist with specific organizational change (Hughes and Ford, 2016; Oreg and Berson, 2019). Various situations must be considered in order to completely comprehend how and when the concept of change leadership behaviors, based on standard transformation models, influences staff enthusiasm for change.

This study greatly advanced our understanding of organizational change and leadership by demonstrating a causal relationship between change leadership and staff enthusiasm for change and by elaborating on the hierarchy of effects among

employee attitudes that account for that support. Change leaders are those who hold positions of authority within an organization, such as senior managers and directors of departments, divisions, and units. Planned organizational change occurs when a change program is initiated at the top levels of an organization with the goal of achieving particular change objectives (Wiatr, 2022). This study therefore examines the influence of change leadership on employee support for an intentional organizational change in the Delta State Ministry of Education Asaba, Nigeria.

Review of related literature

Change leadership

During organizational transformation, leadership focused heavily on leader characteristics (such as personality and demography) and how they relate to strategic decisions and behavior. The attitudes and opinions of followers, including whether they are in favor of or against the change, are influenced by the actions and decisions of the leader on the change initiatives. Oreg and Berson (2019) claim that the majority of research on the implementation of change is conducted under the implicit assumption that change leaders are fully aware of and in favor of the changes they are implementing.

This common misconception stems from earlier studies and ignores the complex tasks that leaders perform during organizational change. Compared to transformational leadership, less research has been done on the functions and conduct of change leaders (Higgs and Rowland, 2011). The effective execution of top-down intended reforms requires change leadership. The term "change leadership" was first used by Herold et al. (2008). The process that examines the actions change agents take to achieve a specific intended change is usually referred to as change leadership.

Most studies on the change process focus on the leadership functions played by managers and change agents in the process and how they might impact the way a change is put into practice and develop step-by-step. However, the attention shift from process-oriented to leadership-oriented with the realization that successful change implementation requires a complex, responsive process rather than through a linear or step-by-step implementation process, making facilitative and engaging models of leadership more preferable (Dumas and Beinecke, 2018). The literature on the change process includes recommendations from experts on leadership tactics that encourage transformation.

Putting together a group of people who will support the change is one of them; convincing others to be part of change process, creating a brief and clear change vision, demonstrating compassion for those who struggle with the change, offering support for it, evaluating how it is implemented and consolidating its success are very important for any organization (Herold et al., 2008; Battilana et al., 2010). People in positions of change leadership coordinate the aforementioned initiatives (Kotter, 2011).

Kurt Lewin's force-field theory of change states that how a change occurs within an organization is determined by two opposing sets of forces (Lewin, 1947).

When the two distinct kinds of forces are in balance, the organization is in a condition of equilibrium and remains unchanged. Organizations need to figure out how to either strengthen the forces that propel organizational change, weaken the forces that support resistance to change, or do both at once.

Kurt Lewin also said that before leaders can begin implementing changes, they need to determine the different barriers the organization will encounter (Lewin, 1947). According to Deviana and Hendarsjah (2023), these barriers can be found at the individual, group, and organizational levels. Organizational change will encounter resistance from these diverse barriers. The second step in the process of implementing the change is to decide who will be responsible for carrying out the change and overseeing the change process.

This function can be performed by people who have authority and influence within the organization. These individuals may also come from outside the management structure of the organization and perform the functions of an agent of organizational change.

Employees' support for change

Successful change implementation requires employee support. Academics have long emphasized attitudinal characteristics to explain why workers embrace or reject change (Choi, 2011; Oreg and Berson, 2019). These attitude-related categories take into account the behavioral, emotional, and cognitive objectives of employees in relation to change. Research has focused on employee appraisal and assessment of the essence and value of change, as well as employee beliefs or opinions about the appropriateness, support, and value of a desired change (Herscovitch and Meyer, 2002).

Previous studies examined how much workers resist change, how tense and nervous it made them feel (Smollan, 2015). Deviana and Hendarsjah (2023) have also investigated the behavior of employees in response to change, including their readiness to support the change and their behavioral decision to approve or disapprove the change in question.

The idea of the learning model of behavior modification states that people's thoughts, attitudes, and intentions have an impact on their outer conduct (Smollan, 2015). Similar ordering of the attitude components may be seen in the learning model of behavior modification created by Valente et al. (1998), with cognition coming before emotion and emotion influencing conduct.

The fundamental principle of these ideas is that people experience change after becoming aware of it; based on these two emotions, they choose through their behaviors whether or not to accept the change. These findings are in favor of a comprehensive approach to measuring and understanding employee support for change.

Managing organizational change

Prior to attitudinal reactions to change, leadership decisions were made during change events, which are known to have significant emotional impact (Herold et al., 2008; Choi, 2011; Oreg and Berson, 2019). When examining the importance of leadership in the context of organizational change, some studies focus on more

stable and transcendent leader characteristics, including transformational leadership, while others examine situational leadership behaviors (Herold et al., 2008; Hughes and Ford, 2016). Despite the parallels and distinctions between the two concepts, each leadership approach can influence how people react to change in different ways (Oreg and Berson, 2019). According to Herold et al. (2008), change leadership is tactical and focuses on leadership practices to implement specific organizational changes.

Transformative leadership has long-term strategic implications that go beyond a specific situation. It encourages the development of a long-term relationship between leaders and followers through a variety of contacts in order to foster strong universal identification with change visions. The notion of change leadership states that some leaders are more equipped than others to handle change. On the other hand, change leadership makes the supposition that any leader may convince people to embrace a planned change by engaging in specific change-related behaviors that produce beneficial results (Hughes and Ford, 2016).

The presence of a leader has an impact on how people relate to each other within the organization when it comes to change. Research has shown that leaders are essential in fostering positive employee reactions to change (Higgs and Rowland, 2011). According to Astuty and Udin (2020), employees' affective commitment and performance may be influenced by transformational leadership. They have also demonstrated how transformative leaders can envision the future and motivate people to strive for it.

When implementing changes, transformative leaders take into account the needs of each employee, involve them in the process, and clearly illustrate and communicate the changes so that employees are aware of them, which can foster employee support for the change. Moreover, transformational leaders use the tactics of validating preferred perspectives, highlighting favorable consequences, giving significance to the change, and promoting optimistic thinking about the change (Carter et al., 2012).

Leadership support and employee attitudes for change

Change implementation resistance refers to the effects of the change after it has been implemented. More abstract attitudes, which relate to the content of the change, convey the normative consequences and basic values of the change. The premise that leaders may affect followers' attitudes and promote change by involving them serves as the theoretical foundation for the most of research on change processes (Higgsand and Rowland, 2011; Oreg and Berson, 2019). Although leadership expertise in managing change is positively associated with effectiveness, stress and mistrust among change beneficiaries (Stouten et al., 2018). Haroon et at. (2017) argue that emphasizing the benefits of planned change, demonstrating its necessity, encouraging employees' participation in decision-making, fostering collaboration between top management and employees will lead to more positive attitudes toward planned change.

According to Luo et al. (2016), workers' relationships with a change leader during the process of change have an impact on their emotional attachment

to the change, which reduces their concern about it. Participating in a change decision-making process allows staff members to evaluate the change effects and think about how they could support the change project (Oreg and Berson, 2019). One of the most important factors shaping how employees view the encouragement of their organization is the degree of leadership assistance they receive from their supervisor, who they believe values their efforts and is concerned about their physical and mental health.

Leaders support their employees by fostering a culture of trust and a psychologically safe workplace that promotes and secures their participation and commitment. Employees who are more engaged, motivated and enthusiastic are better equipped to handle their work responsibilities because they are often supported by their superiors (Aitken and Von-Treuer, 2020).

Due to the fact that positive support encourages employees to view the change more favorably and better equip individuals to carry out the change's tasks, in the setting of organizational change, these effects continue.

Managers can better understand the essential components of management support required during organizational transition by focusing on the traits that influence workers' responses to change. The foundation of managerial support is establishing a partnership based on mutual respect, where employees feel that their needs are recognized and met. Furthermore, such assistance can improve communication and the implementation of planned changes (Henricks et al., 2020). Leaders serve as role models during transition, and lack of leadership can be detrimental.

Change leaders are more likely to be trusted because of their capacity to identify the particular needs of followers as a result of their change leadership tactics and employee trust in management during organizational transition increases. Employee commitment to change and leader trust may increase when staff members develop confidence in change management techniques (Peng et al., 2020).

Employee identification with change visions during transition appears to be aided by leaders' effective communication skills, particularly their attention to the kind and frequency of communication that fosters a committed workforce that thrives on shared objectives and aspirations. Therefore, for organizational transformation efficient internal communication is required. Lack of information and communication significantly affects employee uncertainty and anxiety, which limits their ability to accept change (Henricks et al., 2020). Informational accuracy, timeliness, and relevance are all positively connected with employee attitudes to changes, as psychological contract fulfillment is the degree of trust, and perceived urgency of the change. Leaders who value employee inclusion provide employees with the knowledge they need and pay attention to them so that they make decisions that are advantageous for the organization (Yahaya, 2020).

Due to the greater emphasis on participatory and horizontal communication, which enables people to be heard and to be listened to, employees will support planned change. Finally, this encourages social empowerment and participation. Organizations that routinely go through difficult transitions must allow

their employees the freedom to participate in implementing change in the most effective way to deal with the challenges they face. Based on previous studies, the following characteristics of change leadership are hypothesized to affect employees' views on planned change in this study:

1. H1a: Employee cognitive evaluation of change is not statistically influenced by change leadership activities during a planned change.
2. H1b: Employee emotional reaction to a planned change is not statistically influenced by change leadership practices.
3. H1c: Employee behavioral intentions to support change during a planned transition is not statistically influenced by change leadership practices during the change.

Regardless of how followers feel about the content of the change or whether they disagree with the way it is implemented, leaders have the power to influence followers through their actions, both consciously and unconsciously.

By encouraging followers to participate in decision-making and communicating effectively, leaders can affect how followers react to organizational change (Oreg and Berson, 2019). It is challenging to imagine how change leadership can produce supportive change-related behaviors of employees if their cognitive assessments and emotional reactions to the change are negative, as previous research has suggested some form of causality exists between various dimensions of attitude to change (Oreg et al., 2018). To successfully implement change, change leaders must evaluate crucial factors that influence employee behavioral support of change. Armenakis et al. (2007) have identified the perspective of the recipients as an important precondition for action. They further claim that leaders must monitor employee behavioral support for change to determine the success of transformation efforts.

The staff members' collaboration and enthusiasm for change increase with a positive attitude towards planned shift (Herscovitch and Meyer, 2002). Additionally, Huy (2002) found that how employees feel and experience change is a direct indicator of how they will behave in response to change initiatives. It is not unexpected that changing employees' perceptions and sentiments regarding the change event is essential to gaining employee support for change, given that behaviors are intellectually and emotionally motivated. In light of the above, this study also suggests a relationship-based ordering of attitudes:

H_2: Employee cognition and emotion to change serve as serial mediators in the interaction between change leadership and behavioral goals for a scheduled change.

Research Methods

A cross-sectional design was used to collect data for this study from the staff of the Head Office of the Delta State Ministry of Education in Asaba, Nigeria. The headquarters housed 1067 senior personnel. This group was selected for the study because their efforts have a direct impact on how the ministry's policies are implemented and because the ministry's organizational change workshop included monitoring and evaluation.

To ensure that the demographic requirements were met, we enlisted the help of a Deputy Director of the ministry who provided access and support for the study. All respondents took part in the survey on a voluntary basis. The Taro Yamane formula (1967) is used to determine sample sizes in research methodology.

$$n = \frac{N}{1 + N\,(e)^2}$$

Where:
n = sample size
N = 1067
e = error unit
1 = constant

A sample size of 291 was generated from the formula as shown below.

$$n = \frac{1067}{1 + 1067\,(0.0025)}$$

n = 290.93
n = 291 App.

After screening the questionnaires, 26 respondents were excluded because more than 20% of the values were missing, leaving 247 participants' complete and legitimate respondents. Of the 247 respondents, 87% were members of the principal staff and 13% were members of the support staff.

This study was intended to improve access and the standard of education while also supporting educational systems in Delta State and Nigeria at large. Effective change is expected to take six years to be implemented and plans to support or oppose a change should be clear at the early stage of change process. The Herold et al. (2008) change leadership scale was used to assess change leadership. Three dependent variables were used to operationalize employee support for change, and a five-point Likert scale was used to rate employee attitudes towards leadership activities.

This scale consisted of three parts that addressed the steps taken by leaders (cognitive appraisal, emotional response, and behavioral intentions) to successfully execute a particular change. They were measured by modifying Zimbelachew et al. (2022) change scale.

This study only employed questions with positive wording that accurately conveyed the respondent's appraisal of their thoughts about the anticipated improvement because some of the categories overlapped. On a five-point scale, respondents were asked to rate how much they agreed with each statement. Structural equation modeling was the method of analysis employed in this investigation.

Research results

Using the data collected, the measures were initially tested against the demographics of the respondents as indicated in Table 1 below. Table 1 shows that 153 respondents (61.9%) are male employees and 94 respondents (38.1%) are female employees. This indicates that males, who predominate in the workforce, are more concerned about leadership change in the workplace and behavioral motives toward a planned change than females.

In terms of age, 107 respondents (43.3%) are between the ages of 41 and 50, and 97 respondents (39.3%) are over the age of 50. 17.3% of the respondents, or 43 staff, are younger than 40 years. In light of the fact that the majority of respondents are between the ages of 41 and 50, 233 people (94. %) reported being married, 4 (1.7%) divorced, and 10 (4.0%) widowed. This implies that the majority of the staff was married. 155 staff (62.7%) had master's or doctoral degrees, while 18 (7.3%) had professional degrees like the ACAN, CIPM, ACCA, CIPA, CIPD. In terms of years on the job, 109 staff (44.1%) had twenty one to twenty-five, 93 people (37.3%) had sixteen to twenty-five, and 45 people (18.2%) had more than twenty-five years work experiences. This suggests that the majority of respondents had been working at their current positions for between 21 and 25 years.

Table 1

Respondents Demographic Results

Items	N	%	Cumulative, %
Gender			
Male	153	61.9	61.9
Female	94	38.1	100
Total	247	100	
Age range			
31–40 years	43	17.4	17.4
41–50years	107	43.3	60.7
Above 50 years	97	39.3	100
Total	247	100	
Marital Status			
Married	233	94.3	94.3
Divorced	4	1.7	96.0
Widowed	10	4.0	100
Total	247	100	
Qualification			
Undergraduate Degree	74	30.0	30.0
Postgraduate Degree	155	62.7	92.7
Professional Degree	18	7.3	100
Total	247	100	
Work Experience			
16–20 years	93	23.1	69.9
21–25 years	109	20.8	90.7
Above 25 years	45	9.3	100
Total	247	100	

Source: Field Survey, 2022.

To assess the data-model fit, reliability, and validity of variables, confirmatory factor analysis was displayed in Table 2.

Table 2

Validity, Reliability and Latent Factor Correlations

Variables	CR	AVE	MSV	MaxR(H)	COG	CLB	BEH	EMO
COG	0.901	0.707	0.439	0.946	0.861			
CLB	0.875	0.574	0.394	0.833	0.671***	0.757		
BEH	0.869	0.590	0.388	0.820	0.459***	0.438***	0.759	
EMO	0.943	0.951	0.410	0.980	0.651***	0.469***	0.617***	0.911

Notes: Change Leadership Behaviors (CLB), Cognitive Appraisals (COG), Emotional Response (EMO), Behavioral Intentions (BEH), Composite Reliability (CR), Average Variance Extracted (AVE), Maximum shared variance (MSV), Maximum reliability (MaxR(H)).

*** $p < 0.001$. Statistics in bold represent square root of respective AVEs.

Source: Authors' Computation, 2022 (-hereinafter, unless otherwise noted).

The composite dependability results for the four factors, range from 0.869 to 0.943 as shown in Table 2.

It can be considered that all of the constructions are reliable because the values of the composite coefficients are above the cut-off value of 0.70 (Hair et al., 2017).

The reliability results are validated by the Average Variance Extract (AVE) discriminant validity, which are also above the threshold value of 0.50 (Hair et al., 2017). A close look at the absolute and incremental fit indices demonstrated that the model can fit the data.

Finally, we tested the CFA for common bias using the latent method factor test developed by Podsakoff et al. (2003). A comparison of the standardized regression rates of the CFA model with and without a typical latent factor (CLF) revealed that none of the regression weights were significantly influenced by the CFA (the differences were all less than 0.1), demonstrating that the results were unaffected by common bias.

Testing the hypotheses

The coefficients and p-values of each between-component regression line were calculated to test Hypothesis 1. Only two of the three expected direct effects of change leadership on employees' attitudes toward change were proven. Change leadership has a statistically significant impact on employees' cognitive assessment and behavioral intentions. However, the influence of change leadership on the emotional response of employees to change (H1b) was not proven in this study.

Table 3

Summary of hypothesized direct effects

Variables	Direct effects	Coefficients	S.E	CR	P	Conclusion
H1a	Change leadership —> Cognitive appraisal	0.602	0.135	8.614	0.001	Supported
H1b	Change leadership —> Emotional response	0.131	0.140	1.590	0.112	Rejected
H1c	Change leadership —> Behavioral intentions	0.524	0.119	7.439	0.003	Supported

Table 4

Summary of hypothesized mediation

Variables	Serial Mediation	Indirect effect	Upper limit	Lower limit	Conclusion
H2	Change leadership —>	0.343	0.356	0.178	Supported (Serial mediation)
	Cognitive appraisal —>				
	Emotional response —>				
	Behavioral intentions				

We also examined the unintentional effects change leadership has on staff members' support for planned change. The results showed that employee desires to support planned change and change leadership were related serially, with employee cognitive and emotional responses to change acting as a mediator. This mediation test was statistically significant, as "0" lies outside the lower limit (0.178) and the upper limit (0.356) of the confidence interval. Table 4 summarizes the results of the mediation.

Discussion of findings

The main objective of the study was to analyze the effect of change leadership strategies on employees' attitudes toward change and to characterize the overall process by which employees learn to support meaningful organizational changes. To achieve the goal, we used change leadership strategies and modification model to project employee attitudes toward planned change. This study produced two notable findings: first, the data analysis supports Hypothesis 1a, which states that the main goal of change-related leadership actions during planned change is to alter participants' opinions of the proposed change. This has a significant impact on how employees respond to the change by highlighting its importance. The result is consistent with previous studies that have found a significant correlation between change leadership activities and affective commitment to change (Herold et al., 2008; Liu, 2010; Oreg and Berson, 2019).

The direct impact of change leadership on employee cognitive appraisal lends support to the notion that change recipients are motivated by reason and will adopt

a change provided that the change is rationally justified to them (Zimbelachew et al., 2022). Contrary to expectations, Hypothesis 1b was not supported by the study results. According to our study, this is due to the fact that change leadership is primarily a process of advocacy and persuasion through which change agents deepen their comprehension of a change event. Leaders establish a framework for understanding change in the vast majority of change leadership activities, often known as enabling behaviors (Higgs and Rowland, 2011). The evidence also lends credence to hypothesis 1c. This may help to explain why behavioral goals are more directly impacted by change leadership than emotional ones.

Studies also show that task- and people-oriented behaviors are necessary for successful change management (Battilana et al., 2010; Stouten et al., 2018; Oreg and Berson, 2019). It was evident from the study's examination of change leadership behaviors that these actions frequently had a task-oriented focus and were largely motivated by the practical effects of the change. To evoke positive responses that go beyond intelligence may require a significant number of people-focused activities, such as responding to the emotional needs of subordinates and encouraging them to express a wider range of emotions (Huy, 2002).

In light of the above, we posit that the establishment of such relationships could be more successfully accomplished by a thorough selection of change leadership activities. Second, this study has illustrated how employees' cognitive assessments of change are influenced by change leadership, which in turn affects other facets of their attitudes toward change. This study also identified the multidimensional attitudinal construct of employee support for change and the process by which change leadership eventually persuades people to support deliberate change. This aspect of attitude is considered significant as it accurately predicts how people will act or behave in response to change (Oreg and Berson, 2019).

Conclusion and recommendations

This study investigated the effects of change leadership strategies on employees' attitudes toward change. Change implementation is most successful when leaders support the change initiatives. This study sheds light on previous consequences of change leadership activities on employees' attitudes toward change in the workplace. Because they have a significant influence on the attitudes and behaviors of change beneficiaries, leaders play a critical role in assisting employees to embrace organizational change.

Organizational transformation requires the support of leaders, and even a small increase in perceived support can have a significant impact on workers' attitudes and actions. In less developed countries such as Nigeria, there are not many studies on this subject, but recently there has been a rise in interest in studies on leadership role in change and employees' behavioral intentions toward a planned change. This study fills this knowledge gap regarding how change leadership influences employees' behavioral intentions toward a planned change in developing countries.

The results of this study demonstrated that cognitive assessment and emotional response among employees mediate the sequential relationship between change leadership and employees' intentions to support planned change. Therefore,

change leadership has an influence on how employees perceived and understood the planned change. Emotional responses to the change ultimately determined whether or not employees would accept or reject planned change. Emotional findings are consistent with change leadership literature, which holds that an individual's affective and behavioral reactions to a change are influenced by the conditions and techniques they use to evaluate the change events. The findings of this study suggest that:

1. Leaders of Delta State Ministry of Education and related organizations should offer assistance to employees before launching initiatives for change to increase the chances of success. This is because change leadership is essential to fostering flexible attitudes in a world of constant change.
2. Leaders of Delta State Ministry of Education should emphasize fair procedures while enhancing the perception of justice to increase support for change.

Practical implications

By looking at the attitudinal aspects of employee support for change, we were able to pinpoint the exact connection between change leadership and the desire to support change through behavioral intent. This relationship reinforces the prediction of explicit workers' behavior towards change. Additionally, our study demonstrated that it is possible to thoroughly examine how individuals interact with change in research by combining numerous discrete attitudinal changes. This lends support to the standard approach models of change leadership and the theories of change leadership developed by scholars. Consequently, organizational leadership can use the results of this research to gather vital data for creating, executing, and authorizing an effective change process.

This study also emphasizes how important it is for executives, practitioners, and change facilitators to understand how employees' attitudes affect their readiness to accept a change, particularly how they perceive it cognitively.

Thus, in order for the implementation of productive change to be feasible, staff grievances must be addressed, as organizations cannot be capable of making the necessary changes without their employee' participation and support.

When assessing organizational efforts to implement a planned change, leadership should typically focus on employee behaviors towards the change rather than the conditions that support those behaviors. The study findings suggest that change agents should focus on workers' attitudes as a possible early indicator of desired change behavior.

Limitations and recommendations for further research work

This study was conducted within a single organization; there may be concerns about the validity and applicability of the findings (with several divisions). We believe that our results may be influenced, in particular, by the research population's distinctive cultural traits. More research on this subject involving different groups would be beneficial. The study employed a cross-sectional design because it focused on the attitudes of employees at a specific point in the change implementation process. Since employee openness to change may change over time,

tracking its evolution may yield valuable insights for more effective management of change initiatives. Future research can evaluate employee support for change at different stages of the implementation process by using a longitudinal study design. The variable that predicted employee support for change may not have been all-inclusive, and the observed hierarchy of influence may oversimplify the extremely complex nature of employee attitude toward change given that attitudes can be developed in a variety of ways. Future studies should combine change leadership with other leadership theories, such as transformational leadership, to fully analyze the impact of change leadership on employee attitudes toward change.

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DRIVERS OF ONLINE TRUST IN COMMUNICATION WITH REGIONAL GOVERNMENT: EVIDENCE FROM ST. PETERSBURG

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Abstract. Regional governments commonly use e-government technologies when setting out to deliver value to the public. While the use of technology has become a standard of modern public management, risks and limitations associated with its use, such as lack of trust from constituents, need to be carefully examined in light of city experiences, an endeavor that is still scarcely undertaken in the context of smart city initiatives. This paper examines trust regarding online platform usage in St. Petersburg, Russia. The research questionnaire was based on a set of variables that characterize the experience of using information technologies in different areas and in terms of attitudes towards them. A survey of 800 St. Petersburg residents was conducted (the sampling error does not exceed 4%, the confidence level is 95%) and statistical methods (correlation analysis, multiple regression, principal component analysis) were applied. Findings suggest that online trust is multidimensional and influenced by factors related to positive perceptions of institutions, political efficacy of online initiatives, and satisfactory past experience. The implications of these findings and future directions are presented in the context of the e-government research agenda.

Highlights

- Factors influencing levels of trust in information use through e-government technology in St. Petersburg do not point to a single direction.
- Higher levels of institutional trust increase the perceived trustworthiness of citizens-government relations online.
- Higher levels of online political efficacy are associated with higher levels of online presence of citizens towards government.
- Positive user experience of using C2G tools makes citizens more likely to trust interaction with the government online.
- Multifactor models of trust offer directions on potential leveraging points for building trust in socio-technical systems, but the results suggest that they shall not be used prescriptively.

Introduction

Trust is usually considered to be an important factor of digital government construction, either a desired outcome of digitalization or an enabler of such initiatives (Vidiasova and Kabanov, 2020). Citizens' perceived trustworthiness of the innovations they encounter seems to be crucial for the success of policy efforts, thus, it is both theoretically and practically relevant not only to study citizens' trust towards new technologies but also to examine the factors underlying their perceptions.

Many studies emphasize the complexity, multidimensionality, and dynamics associated with the concept of trust, especially in ICTs (Li et al., 2012). While scholars actively conceptualize trust in various spheres such as e-commerce (McKnight et al., 2002) and e-government and e-participation (Kabanov and Chugunov, 2017), there is still a need for more comprehensive approaches to encompass multiple domains of online communication, particularly in the context of public administration and management, in which main discussions revolve around e-government and digital government technologies (Gil-Garcia et al., 2018).

Providing there is a link between trust in government and the quality of government (Mansoor, 2021), it can be assumed that trust has a positive impact on urban governance and the quality of the urban environment, which are principles of the commonly referred to smart city agenda.

In this paper, we aim to uncover the factors that may determine the levels of citizens' trust towards interacting with government online – the concept we refer to as C2G online trust (Kabanov and Vidiasova, 2020), which is meant to be an important driver of e-government use. In particular, we test the significance of the predictors usually found in the literature (efficacy, institutional trust, user experience, and others) in the case of a local government in St. Petersburg, Russia.

The city of choice is the second largest city in Russia and demonstrates relatively high levels of IT development, ranking 4th in the Russian rating of smart cities and the 73rd place in the Smart City Index by the Institute for Management Development (IMD). The city authorities are known to be active in implementing smart city governance projects (Vidiasova and Cronemberger, 2020), including participatory ones (Kabanov and Chugunov, 2017). Our data for analysis come from the public survey conducted in 2020.

The paper is structured as follows. First, a literature review gives context to the study of trust in information technology in the public sector, shedding light on digital government and electronic literature in particular. Second, data collection and research methods are outlined. Third, we present the findings and, in the sequence, discuss them in terms of research contributions . The conclusion highlights the relevance of ongoing research on the topic, outlines the limitations of this study, and proposes future directions.

Literature review

Trust in ICT is a long-standing topic in technology research. From established technology acceptance models (Venkatesh et al., 2016) to its numerous adaptations (Ayyash et al., 2012), research on adoption has examined trust as one of its most concerning constructs across a variety of realms and technological contexts, like e-commerce (Ha and Stoel, 2009), infrastructure (Akbari et al., 2020) or urban mobility, as well as e-government and smart city (Habib et al., 2020).

In public administration and management, trust is also a recurring topic (Gil-Garcia et al., 2018;), often discussed through stakeholder theory lenses (Bryson et al., 2016) or governance arrangements enabling collaboration and information sharing to support technologies' adoption and use (Sayogo et al., 2017). Stakeholders and technology also intersect in studies focusing on citizen involvement and participation in technology policy implementations (Kabanov and Chugunov, 2017).

Trust may impact the development of e-government technologies in many ways, which is intensified and complicated by the "multidimensionality" of the concept (Nulhusna et al., 2017). Research considering trust as an independent variable can address both the direct influence of trust on governments' endeavors or its role as a mediator (Sayogo et al., 2017). For the latter, other factors may enhance trust prior to catalyzing certain positive effects in technology adoption and use (Abu-Shanab, 2014), for instance, previous positive experience (Parent et al., 2005). While several studies have relativized the role of the artifact in en-

hancing levels of trust (Abu-Shanab, 2014), some find that the quality of those as boundary objects may account for effective information sharing and use (Cronemberger et al., 2017). Conversely, research has also found that engagement with e-government technologies and trust may go in opposite directions (Porumbescu, 2017).

In line with the constructs established in technology acceptance models (Wang and Lu, 2010) and e-government research, levels of trust in technology are also affected by external factors, which makes it necessary to consider trust as a dependent variable. The literature offers a variety of variables, including prior knowledge and experience with e-government technologies (Morgeson et al., 2011), perceptions of the risk (Bélanger and Carter, 2008), quality of information being delivered (Lee and Huang, 2014), citizens' value and posture towards the technology and responsiveness (Smith, 2010), willingness to use such technologies, demographic, cultural and geographic determinants (Alshawi and Alalwany, 2009), perceived ease of use (Bélanger and Carter, 2008), levels of personalization (Venkatesh et al., 2016), perceived levels of transparency (Grimmelikhuijsen et al., 2013) and openness (Park and Gil-Garcia, 2022), as well as material availability of resources, such as perceived levels of investment in technological initiatives. Other constructs such as "civic mindedness" and the levels of engagement in social media have also been scrutinized (Mergel, 2013), often in the context of multi-factor analyses (Nam, 2014).

In general, research has been prolific in mapping success factors, while also acknowledging that many context-specific elements may influence the relationship between trust and information technology. Several contributions have been made through citizen-centric approaches, with studies identifying trust divides that may be due to lack of participation and engagement opportunities with e-government technologies or due to different perceptions citizens hold on technology-oriented initiatives (Vidiasova and Cronemberger, 2020). The frameworks used in those research approaches are expected to enrich the body of knowledge by balancing findings that can be excessively contextual or sensitive to individual and social experiences with the information being delivered (Venkatesh et al., 2016).

This balance can also be found in studies that look at the adoption of government technology through the lens of policy and governance (Pérez-Morote et al., 2020), a perspective that does not assume a direct relationship between determinants such as financial investments and positive outcomes in terms of trust. Rather, a more holistic systemic approach has identified feedback loops such as the quality of service experience to circumstantially reinforce or decrease the willingness to use certain technologies (Lee et al., 2011).

The multitude of perspectives, dimensions, and theoretical lenses presented to study trust in technology in citizen-government interactions suggests that the topic is vast. Empirical research has pointed to several directions that are consensual, but at times findings were found to be diverse or contradictory. The inherent contextual nature of the topic should not consider findings to be exhaustive, further justifying empirical studies such as the present one and welcoming similar studies in the future.

Research framework and theoretical propositions

In summary, research on trust in e-government has to deal with two major challenges. First, given the multidimensionality of the concept, one should carefully operationalize the concept under study. Our conceptualization of trust is concentrated not on a particular technology perceived as trustworthy, but rather on the process of online communication with the government. The concept we refer to as C2G online trust can be understood as the perceived trustworthiness of interaction with public authorities on the Internet in general. In some way, such conceptualization simplifies reality, which, as previous models suggest, may involve extra dimensions.

Yet, we argue that it grasps the essentials: whether or not citizens use the technologies provided by the government, heavily depends on their willingness to communicate with the public authorities, in the first place (Kabanov and Vidiasova, 2020). The second challenge pertains to the quest for factors that may influence trust. As shown above, researchers have found many variables that shape the attitude of citizens towards technologies. Our study concentrates on three key factors that were found to be important across various dimensions of ICT usage.

In light of those challenges, we start by considering the level of institutional trust, i.e., trust towards authorities and public institutions, in general. There is a plethora of research on how institutional trust and e-government are connected. On the one hand, e-government use may positively impact trust in government (Song and Lee, 2015). On the other hand, this link may be hypothesized as reversed, when higher trust in government is associated with trust in e-government or e-participation technologies, as well as with the intention to use them (Abu-Shanab, 2014). It is henceforth not easy to establish the direction of causality at once, yet, we assume that *higher levels of institutional trust may increase the perceived trustworthiness of citizens-government relations online (H1)*. When people trust their government in general, they are more likely to trust online communication with the government .

Secondly, another important variable is political efficacy, which is one of the traditional correlates of trust in public policy research (Craig et al., 1990). Political efficacy may be internal, i.e., "beliefs about one's own competence to understand and to participate effectively in politics" (Craig et al., 1990, p. 290) and external, i.e., "beliefs about the responsiveness of governmental authorities and institutions to citizen demands" (Craig et al., 1990, p. 290).

In some cases, the external efficacy is equated to the perceived government responsiveness, however, unlike the latter, responsiveness is usually related to more specific actions of decision-makers and the evaluation of the government performance under public demands. Many scholars have studied the relationship between institutional trust, perceived responsiveness, types of efficacies and e-government (e-participation), though, again, it is hard to define a one-sided direction of causality (Lee and Huang, 2014). Some scholars argue that political efficacy might have different manifestations online and offline, nonetheless. For instance, Sasaki (2016) has proposed the notion of online political

efficacy (OPE), that is, "one's perception of how much one can affect politics by using the Internet" (Sasaki, 2016). We therefore hypothesize that *higher levels of online political efficacy are associated with higher levels of online citizens' trust towards government (H2).*

Thirdly, another important variable is the experience citizens have with e-government technologies. User experience is usually analyzed in the context of user satisfaction of skillfulness (Irani et al., 2012). In this paper, we treat experience as both the exposure to the relevant Internet resources (namely, e-services and e-complaints), and the subjective perception of this experience as positive. We then hypothesize that i*f respondents used the online tools and evaluate this experience as positive, they are more likely to trust the interaction with the government online (H3).*

C2G online trust in St. Petersburg: Empirical analysis

Case, Methods, and Data. The empirical analysis is based on the survey conducted in St. Petersburg, Russia. The questionnaire was based on a set of variables that characterized the experience of using information technologies in different areas and attitudes towards them.

St. Petersburg is the second largest city in Russia, and demonstrably shows a high level of IT development in the country. It stands at 4th place in the Russian rating of smart cities by the Ministry of Construction and Housing and Communal Services of the Russian Federation and at the 73rd place in the world rating of smart cities developed by IMD. St. Petersburg has a long history of implementing state policy in the area of administration and carrying out administrative reform. Being at the forefront of the introduction of technologies, the city is known to be active in implementing smart city governance projects (Vidiasova and Cronemberger, 2020), including participatory ones (Kabanov and Chugunov, 2017).

Our data for analysis come from the public survey conducted in 2020. The data were collected online via the Anketolog service. The system has an anonymous database of respondents. However, users may register only upon authentication with the passport data. The database consists of more than 230 thousand respondents, 25% of whom actively participate in the polls.

Respondents who met the sampling requirements were sent an invitation to participate in the survey via the platform.

Then they were redirected by the link to the website for filling out the electronic form of the questionnaire. This ensures the representativeness of the sample, which was calculated based on the size of the urban population, gender, and age composition.

The sampling error does not exceed 4%, the confidence level is 95%. A total of 800 respondents took part in the survey: 54% of women and 46% of men. The age structure of the respondents is divided into 5 age groups as follows: 18–30 years old (22%), 31–40 years old (29%), 41–50 years old (29%), 51–64 years old (17%) and 65 years old and older (3%). Most of the respondents are employees / specialists (51%), businessmen, top / middle managers (14%), as well as workers, security guards and drivers (11%).

The questionnaire includes statements about the perceived trustworthiness of various IT services, from e-government and e-health to online education, e-banking, and platform services, as well as other statements reflecting personal experiences of using such services. The Likert scale was used to grade the answer options (1 – strongly disagree, 5 – completely agree). The major method of analysis we used in the paper is correlation analysis and multiple regression (OLS). To construct certain variables out of several questions, we also used the principal component analysis (PCA).

Variables. The dependent variable of this study is C2G online trust, which is operationalized in the survey by the following statement: In general, I trust online communication with the government when I use e-services or file e-complaints. As suggested, the question mainly deals with e-government issues and, to a certain extent, with e-participation when it comes to submitting e-complaints.

Our first independent variable is the level of institutional trust, i.e., trust towards the regional and municipal authorities of St. Petersburg. To measure the level of institutional trust, we have asked respondents to express their levels of agreement with the following statement : In general, I trust the regional and municipal authorities of St. Petersburg.

The second independent variable is intended to measure the level of online political efficacy. Respondents expressed their levels of agreement using Sasaki's approach to OPE, as well as on other statements on political efficacy and responsiveness (Sasaki, 2016) (Table 1). As they appear to be highly correlated, we extracted a single variable (OPE) using the PCA. The single principal component extracted explains about 69 percent of the variance, with all questions having very high loadings on this component.

Table 1

Component Matrix (Unrotated) for Online Political Efficacy (OPE)

Question	Variable Name	Component 1 (OPE)
The Internet helps people like me to be better informed about the activities of public authorities	Awareness	.754
The Internet helps people like me to better understand management decisions of public authorities	Knowledge	.832
As the Internet spreads, people like me have more real opportunities to influence management decisions.	Influence	.853
Due to the Internet, politicians and civil servants are becoming more attentive to the problems of citizens, responsive to the opinions of citizens	Responsiveness	.844
Due to the Internet, public authorities really consider citizens' opinions when making administrative decisions	Real Feedback	.858

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

Third, another set of independent variables (Table 2) reflects the experience citizens' report on using government online platforms for e-services and e-complaints (or other address forms). To operationalize this variable, we asked several questions (Table 3), and as the answers correlate strongly with each other, the same PCA method was used to minimize the number of variables and calculate a single experience ( ) that covers about 73% of the variance (Table 3).

Table 2

Component Matrix (Unrotated) for Use Experience (Experience)

Question	Variable Name	Component 1
I actively use the Internet to receive state and municipal services (for example, through the portal of public services)	Active_Gosuslugi	.836
I actively use the Internet to contact authorities (via e-mail, specialized portals, etc.)	Active_Complaints	.825
I rate my experience of receiving state and municipal services via the Internet as a positive / I positively evaluate my experience of receiving state and municipal services via the Internet	Gossuslugi_Exp_Positive	.868
I assess my experience of contacting state and municipal authorities via the Internet as a positive / I positively evaluate my experience of contacting state and municipal authorities via the Internet	Complaints_Positive	.887

As control variables, we first use those that indicate the extent to which citizens use online technologies and whether they consider themselves to be active users of the Internet in general and social media in particular. Secondly, we test for gender and age differences.

The preliminary analysis of the variables was conducted using Pearson's correlation analysis, the results are presented in Table 3. It was not possible to draw any conclusions about causality at this point, other than the fact that C2G online trust is indeed positively and significantly associated with all the independent variables: people with higher levels of online political efficacy, a more active and positive user experience, and higher levels of institutional trust tend to have higher levels of online trust in communications with government. C2G online trust is also positively and significantly (though not very strongly) related to internet use and social media use in particular. At the same time, no significant relationship is found between respondents' gender and age characteristics, although, as expected, senior citizens are less active users of the Internet and social media and women are less active on social media than men.

The independent variables used in this study are often correlated with each other. For instance, higher levels of online political efficacy are associated with higher levels of institutional trust and user experience. Although the correlation

analysis does not assume causality, it may assume the fact that the more people use the services with positive outcomes, the more likely they tend to believe that the authorities can be trusted and that citizen participation is meaningful to them. Although correlation analysis does not confirm the existence of a connection.

Table 3

Correlation Analysis

	C2G Trust	Institutional Trust	OPE	Experience	Active Internet User	Active Social Media User	Gender	Age
C2G Trust		.541**	.737**	.612**	.150**	170**	-.022	-.043
Institutional Trust	.541**		.553**	.374**	.058	.143**	-.047	-.045
OPE	.737**	.553**		.568**	.186**	.231**	.009	-.025
Experience	.612**	.374**	.568**		.293**	.211**	-.085*	.014
Active Internet User	.150**	.058	.186**	.293**		.335**	.006	-.115**
Active Social Media User	.170**	.143**	.231**	.211**	.335**		-.149**	-.221**
Gender	-.022	-.047	.009	-.085*	.006	-.149**		.003
Age	-.043	-.045	-.025	.014	-.115**	-.221**	.003	

Note: ** – correlation is significant at .001 level.

The next step of our study is the regression analysis, the results of which are presented in Table 4. The model is significant and has a good explanatory power: the adjusted R-square is .617, which means that the model explains about 62 per cent of the variance. Despite the fact that the independent variables correlate, as we showed previously, it does not seem to affect the validity of the model: the variance inflation factor (VIF) shows no multicollinearity problem (VIF is less than 2 in all cases).

Institutional trust, OPE and user experience are all significant and positive predictors of C2G online trust when controlling for level of the Internet and social media use and gender and age characteristics (all control variables are not significant in the model).

The highest coefficient is for OPE, which means that this is the strongest predictor of online trust in government interaction: people who believe that the Internet has a positive impact on their knowledge, awareness and relevance to public policy, as well as on government responsiveness, tend to trust the government more when they communicate online. At the same time, user experience emerged as being important which adds supporting evidence to the hy-

pothesis that active exposure to online tools, as well as positive feelings about this exposure, may prime users to higher trust towards these technologies. Finally, institutional trust appears to matter: if people generally trust the authorities, they are more likely to trust them online as well. Thus, all our three hypotheses have been confirmed.

Table 4

**Regression Analysis
(Dependent Variable – C2G Online Trust)**

Variables	Std. Beta-Coefficients (Significance)	VIF
Institutional Trust	.166 (.000)	1.468
OPE	.495 (.000)	1.892
Experience	.283 (.000)	1.604
Active Internet User	-.030 (.208)	1.216
Active Social Media User	-.025 (.298)	1.248
Gender	.087 (.931)	1.043
Age	-.036 (.110)	1.063
R-Square	*.620*	–
Adj. R-Square	*.617*	–
Std. Error	*.779*	–

Discussion

The *first research hypothesis* was confirmed: higher levels of institutional trust increase the perceived trustworthiness of citizens-government relations online.

The *second hypothesis* was confirmed: people with higher levels of online political efficacy tend to have higher rates of online trust in government communications.

The *third hypothesis* was also confirmed: positive experience of using online tools may prime users to higher trust of interaction with the government online.

In the chapter "Research framework and theoretical propositions" the hypotheses are as follows:

Higher levels of institutional trust may increase the perceived trustworthiness of citizens-government relations online (H1).

Higher levels of online political efficacy are associated with higher levels of online citizens' trust towards government (H2).

If respondents used the online tools and evaluate this experience as positive, they are more likely to trust the interaction with the government online (H3).

The findings of our research support the theoretical propositions outlined in the literature review and expand the knowledge about trust and ICT on a few

fronts. Results showed that in the context of citizens' experience with government online technologies in St. Petersburg, their perceived trustworthiness of such interactions significantly correlates with the use experience they have had, including both the intensity and positivity of encounters with government portals, which is in line with previous studies (Li et al., 2014). Exchange of positive experiences between residents on common resources (portals, chat rooms, forums, etc.) could create positive reinforcement and increase the likelihood of widespread adoption of e-government technologies. Our findings appear to relativize the role of exposure to social media platforms, a factor that has been outlined as a predictor of trust in e-government efficacy (Porumbescu, 2017). Social and demographic factors also proved to be irrelevant, a result that contrasts with the previous studies (Alshawi and Alalwany, 2009).

These findings likely reiterate the importance of institutional trust and direct trust towards power structures, the third largest significance according to our study. The level of citizen-to-government trust appears to coexist with the level of political efficacy online, reflecting results of previous research (Morgeson et al, 2011; Abu-Shanab, 2014;). This finding suggests that trust in citizen-government relationships could be optimized through strategies that take into account the interrelationships between these factors. Such multidimensionality could benefit from careful examination of what factors are taken into account in the context of ongoing local government policies. That could allow for more calibrated investments in one type of initiatives such as enhancing political efficacy, instead of artifact-centric one, such as solely focusing on C2G online trust. With global trends of a decrease in government confidence and the global pandemic throwing new challenges at governments across many countries, constituents who trust government actions and waves of protest against policy decisions shape a highly fragmented public landscape. These trends suggest that it is important to closely monitor trust ratings for federal, regional and local authorities as a basic measure to improve the quality of urban management and policy receptiveness.

A more nuanced finding points out to perceptions or estimated political effectiveness in the online environment, that could be found in previous research (Vidiasova and Cronemberger, 2020). According to the survey, positive assessments of the potential of the Internet use and the perception that the voice of citizens will be taken into account in policy increase the level of trust in online interaction with government officials. The "being heard" factor echoes a somewhat tacit demand from citizens and suggests that proactive behavior and expectations should also be considered in policy design. That also implies that "civic-mindedness" and engagement with social media should not be considered exclusively in terms of pushing e-governments strategies, in which local governments elicit goals such as smart city development and citizens react to them. Rather, pulling e-government strategies, based on openness (Park and Gil-Garcia, 2021) and transparency (Grimmelikhuijsen et al., 2013), may encourage participation and increase trust in e-government technologies.

Findings generally suggest that the way how we define the public may impact the analysis of citizens' trust in e-government. This should be taken into account

in citizen-centric approaches to research and deployment of solutions for government. More specifically, however, certain segments of the public were found to be more adherent to certain modes of technology use. This perspective suggests that trust should not only be associated with artifacts, but with the underlying process in which the artifacts are embedded and the end goal they serve. Apart from the factors mapped in the literature review, this logic appears to agree with the principles of the technology enactment framework, in which the technology use is shaped by the interplay of structures and actors. On this point, findings resonate to some extent with the research of Morgeson et al. (2011), who distinguish confidence in the adoption of technology from the level of satisfaction, the quality of outcomes associated with the technology, or overarching trust in the institutions embracing these technologies. Nuanced perspectives on multifactor research are important for the careful evaluation of the hypotheses and relativization of linkages between levels of trust in government and the technology being used in the contexts of analysis. Another possibility for the role of structure interactions could be tied to knowledge-building skills and increasing levels of familiarity and trust in future engagement with pertaining technologies, a perspective that has been mapped in previous empirical research on technology engagement (Lee et al., 2011), but has not been extensively discussed in terms of organizational and institutional structures. This "co-evolution" or "emergence" (Luna-Reyes et al., 2005) of states in which technology is used suggests that the multifactor research is confined to snapshots of a dynamic process in which actors and structures warp the space in which technology is used, a phenomenon that circles back to notions of the social materiality of technology use in organizations. In this regard, statistical approaches hint at leverage points in trust-building initiatives aimed at increasing technology adoption, but cannot be prescriptive about the contextual experiences of cities. In the case of St. Petersburg, a city where different perspectives on technology and smart city initiatives have been observed (Vidiasova and Cronemberger, 2020), these leverage points deserve consideration and further scrutiny.

Lastly, there are certain limitations to the analysis. First of all, though the sample is representative of St. Petersburg, the results may depend heavily on the context and cannot be easily extrapolated to other cases. Further research is therefore needed to compare our findings with those of other cities. Secondly, there are certain limitations of statistical analysis, which are to be considered when interpreting the results. The use of the Likert-scale variables may cause complications, as some scholars treat them as ordinal and not suitable for linear regression analysis, even though they are usually analyzed as being interval (Wu and Leung, 2017). Finally, there is a problem of establishing the direction of causality, the challenge that many papers in this field face. This research deals with it empirically, assuming that user experience and prior feedback from the government influence the level of trust at the moment of survey and that institutional trust is something more stable than C2G online trust. At the same time, we admit the link can also go in the other direction, which makes it necessary to further develop a suitable theoretical model and consider other approaches and paradigms.

Conclusion

The findings of the study seem to corroborate the multidimensionality of trust in a socio-technical context, which entails St. Petersburg's evolving experience with e-government technologies. It is generally accepted that trust is fragile and sensitive to several aspects of human relations, passive of being compromised by actions or even incentives to action. In this study, we found that this type of trust is held by various pillars, with factors influencing levels of trust in information technologies on multiple fronts.

This complex view underlines the importance of taking into consideration the institutional nature of the organizations that provide new services, etc., as well as the content they use and the transactional mechanisms in place. Furthermore, the level of use of social media and networks (representing social ties) also provides some indication of the level of trust. The interactions and processes underlying the use of technology, rather than the qualitative definitions or attributes of artifacts, appeared to be particularly important for trust in this research.

Trust in e-government technologies, as examined in this study, is defined as multifunctional, then broader related concepts, such as social capital, shed light on the importance of studying hidden factors in the development of human capital to ensure sustainable social development. In the case of urban governance, this phenomenon can be used to build more competence for the actions of government organizations in the online environment, for highlighting positive experiences and advanced achievements likely helps to strengthen residents' confidence in government. The results obtained will be useful for cities and countries implementing new public digital services, as they take into account the categories of trust to institutions and technologies.

The current study found that, C2G online trust can be fostered by better previous experience, political efficacy and institutional trust. Thus, trust can be fostered through better provision of e-participation and e-government facilities, careful work with feedback to increase efficacy, and building trust in citizen-government relations beyond online domains.

Active dissemination of successful experiences in the field of digital services can also increase the trust and degree of involvement of residents in city life and resolving issues online. In addition, another important indicator that must be monitored quarterly is trust in government institutions and organizations at all levels. Monitoring can be carried out with the help of questionnaires using representative samples at the level of the municipality, the region and also federal structures.

Hence, the article calls for a complex view on e-government (e-participation) policies, which would consider not only the technical aspects (though the issues of user experience are important) but also the impacts of e-governance on trust-building, empowerment, and responsiveness.

Future research should focus on more pillars of social capital, examining its subconstructs as a means of identifying even more underlying factors, some of those not necessarily connected with trust. This calls for a closer examination

of social network structures, both in the context of e-government technologies (for example, the presence of local government in social networks) and, more broadly, interest groups and community voices outside the city hall. These studies, either as extensions of the present one or as empirical investigations of other cities and contexts, may reposition the socio-technical role of trust in social relationships in the processes of economic, global and digital world transformations in cities with a smart city agenda or in cities that are in the process of defining and enabling one.

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PUBLIC-PRIVATE PARTNERSHIP MODEL TO MANAGE COASTAL TOURISM IN INDONESIA: CAN IT IMPROVE THE COMMUNITY WELFARE?

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Abstract. The public-private partnership and local communities play an important role in the development of coastal tourism. The welfare of coastal communities depends on the synergy of the partnership built. The study aimed to determine (1) the management of coastal tourism by public-private partnerships and local communities, (2) the balance between the public-private partnerships and local communities in coastal tourism management, and (3) the contribution of coastal tourism management to community welfare. A mixed method approach was used in the research. Data were collected through in-depth interviews, observations, semi-open questionnaires, and documentation. The results showed that the management of coastal tourism developed through a public-private partnership between private institutions, regional governments, and community groups was properly implemented. The balance of partnerships between the Forest Village Community Organization (Lembaga Masyarakat Desa Hutan), Tourism Awareness Group (Kelompok Sadar Wisata or POKDARWIS), and local communities was well implemented in many community activities around the tourism area. The public-private partnership established with a mutually beneficial agreement was able to improve the community welfare.

Keywords: public-private partnership, tourism management, community welfare.

Introduction

Tourism is a very important economic sector to be developed, as it has an impact on various economic sectors in the community (Robertson, 2011). Tourism can be used to drive economic change and open up employment opportunities, increase income and improve the quality of life of local people (Jarvis et al., 2016; Katunian, 2019; Setiawan et al., 2012). One approach that can be used in the development and planning of tourism studies is the community-based approach model (Keyim, 2018). This approach is based on the partnership of the community to maintain their local culture and to improve welfare (Anszperger, 2017; Ardianto, 2012; Ernawati et al., 2017).

The concept can guarantee economic growth from which all parties benefit fairly and proportionally (Ibrahim and Hegazy, 2015). In order to achieve the objectives, the essential elements of the ICZM concept, Integrated Coastal Zone Management (ICZM) is an approach used to manage coastal areas by considering ecological, economic, and social sustainability. It involves activities such as natural resource management, development control, community welfare improvement, and marine environment conservation. Such as integration and coordination, must be used (Hou and Hou, 2020).

There are several forms of partnerships to develop community empowerment, including increasing marketing and accessibility, and improving the quality and service of human resources (Goodwin, 2002; Haywood, 1988; Pauliukevičiūtė, 2010; Timothy, 1999). Important things that must be considered in coastal management are partnerships between communities, private institutions and government (Dunayev et al., 2020; Vinogradov and Shadrina, 2018; Yoety, 1997).

In-depth studies on public-private partnerships have been widely discussed. These partnerships have been extensively debated in various contexts, including water management between countries and communities (Beisheim and Campe, 2012; Lemos et al., 2002), construction and sustainable development (Allard and Trabant, 2008; Caloffi et al., 2017), and improving the quality improvement of education (Latham, 2009; Untari, 2014). These studies also reveal that public-private partnerships help increase trust between partners and reduce work and project risks (Grimsey and Lewis, 2004; Robertson, 2011).

However, there has been limited in-depth research on public-private partnerships in coastal tourism management in Indonesia. Coastal tourism management involves various issues that impact the local community. These problems not only affect tourist visits but also have implications for income and welfare. Therefore, it is crucial to investigate the public-private partner-

ships in the management of coastal tourism in Indonesia and their contribution to community welfare.

Previous research findings indicate that public-private partnerships in various sectors have shown positive results. One contributing factor to the success of these partnerships is the existence of fixed-cost contracts with actual verification from one of the parties (Vinogradov and Shadrina, 2018). Hence, this study aims to examine the public-private partnership in coastal tourism management in Indonesia and its impact on community welfare.

Literature review

Public-Private Partnership

The public-private partnership that has evolved to manage coastal tourism aims to provide wealth for the community and protect the environment in a sustainable way (Caloffi et al., 2017; Ezreth, 2014). The benefits of the public-private partnerships include the ease of organizing the system (Yankholmes, 2018), public sector accountability (Thomas, 2007), efficiency and productivity, innovation and flexibility (Haywood, 1988), strengthening local networks and bringing in community experiences (Wahyuni, 2016), and increasing the ability to manage tourism (Latham, 2009; Menon and Edward, 2014).

The public-private partnerships are a collaboration between the government and the private sector to achieve their organizational goals. Public-private partnership arrangements can include a combination of public institutions, private organizations and non-governmental organizations (Lemos et al., 2002; Untari, 2014). The public-private partnerships also regulate institutions and finances (Khanom, 2010). The public-private partnerships provide an opportunity for collaboration between public and private partners using resources and competencies (Ezreth, 2014; Latham, 2009). The public-private partnerships are cooperative relationships between the government and private or non-governmental organizations in providing goods and services to citizens (Untari, 2014). Therefore, public-private partnerships also involve small community groups in their management (Ernawati et al., 2017).

The partnerships in this study are partnerships between the Tourism Board and PERHUTANI (a government-owned company that manages forests in Indonesia) as public institutions, the Tourism Awareness Group (Kelompok Sadar Wisata or POKDARWIS) and the Forest Villages Community Organisation (Lembaga Masyarakat Desa Hutan or LMHD) as private institutions and local communities.

The use of public-private partnerships is adjusted to the partnerships and management objects. One model of public-private partnerships emphasizes the responsibility of private contractors in designing and operating the project (Grimsey and Lewis, 2004). Other public-private partnerships models provide the opportunity to design and construct projects, while operations are managed by the government (Allard and Trabant, 2008). Also, there is a public-private partnership model where the government only buys services provided by private partners (Untari, 2014).

Coastal tourism management

The concept of Integrated Coastal Zone Management (ICZM) encompasses the holistic management of coastal areas, considering various aspects such as economic, social, environmental, and technological factors (Hou and Hou, 2020). Its primary objective is to achieve sustainable long-term economic growth. Any policy and strategy related to the use of coastal resources should be based on several key considerations. Firstly, a thorough understanding of natural processes (eco-hydrology) is crucial (Wahyuni, 2016). Secondly, the economic, socio-cultural, and political conditions of the local community must be taken into account (Jarvis et al., 2016). Lastly, the present and future needs of coastal areas should be considered (Purnomo et al., 2020). The implementation of ICZM requires the active involvement of government organizations, the private sector, and local communities.

The community welfare

Community welfare is the ultimate goal of public-private partnerships. Community welfare can be realized with collaboration between the government, the private sector, and local communities (Alexander et al., 1999; Jarvis et al., 2016). Development and resource utilization policies in coastal areas must be implemented to (a) increase community income and welfare, (b) enhance community participation, and (c) promote development to increase income (Anszperger, 2017; Argyo, 2009; Setiawan et al., 2012). Integrated strategic policies are needed to develop coastal areas. The policies include (a) economic policies, (b) natural resource policies, and (c) institutional development policies aimed to provide legal certainty (Khanom, 2010; Pemkab Malang, 2016). Therefore, community welfare highly depends on the performance of the partnership system that is built.

Research methods

The research design combined qualitative and quantitative methods (Johnson and Christensen, 2019). The study was conducted in Ungapan Beach, Gajahrejo Village, Gedangan District, Malang Regency, East Java. Qualitative methods were employed to examine the patterns of partnership between the Forest Village Community Organization (Lembaga Masyarakat Desa Hutan or LMDH), the Tourism Awareness Group (POKDARWIS), and the local community in managing Ungapan Beach, and to assess the equilibrium of partnerships between the parties involved. In-depth interviews were conducted with the management of LMDH, POKDARWIS, and several community members to gather qualitative data. The interview guide was designed based on the partnership between LMDH, POKDARWIS, and the community in the management of Ungapan Beach. Additionally, information about the landscapes and phenomena observed at the research site was collected through documentation. The location of Ungapan Beach Tourism is shown in Figure 1.

The qualitative method was utilized to collect data aimed at examining the changes of the local economy. The research population consisted of individuals residing in the vicinity of the Ungapan Beach tourism site. Quantitative data,was gathered through structured questionnaires composed of semi-open-ended ques-

tions, which were distributed and directly administered to the respondents. To analyze the qualitative data, an interactive analysis method developed by Huberman (2002) was employed. This analysis process involved three stages: (1) data reduction, which entailed selecting, simplifying, abstracting, and transforming the raw data obtained from the website; (2) organizing the data based on themes and subjects to facilitate interpretation by the researchers; and (3) drawing conclusions, as outlined by Creswell (2012). The researchers also ensured the verification and cross-checking of each collected data to ensure accurate conclusions were drawn based on the focus or problem of the study. Additionally, the researchers also conducted interviews with the government of Gajahrejo village, Gedangan District. In quantitative data analysis descriptive analysis techniques such as frequency and percentage calculations were used, following Johnson and Christensen (2019).
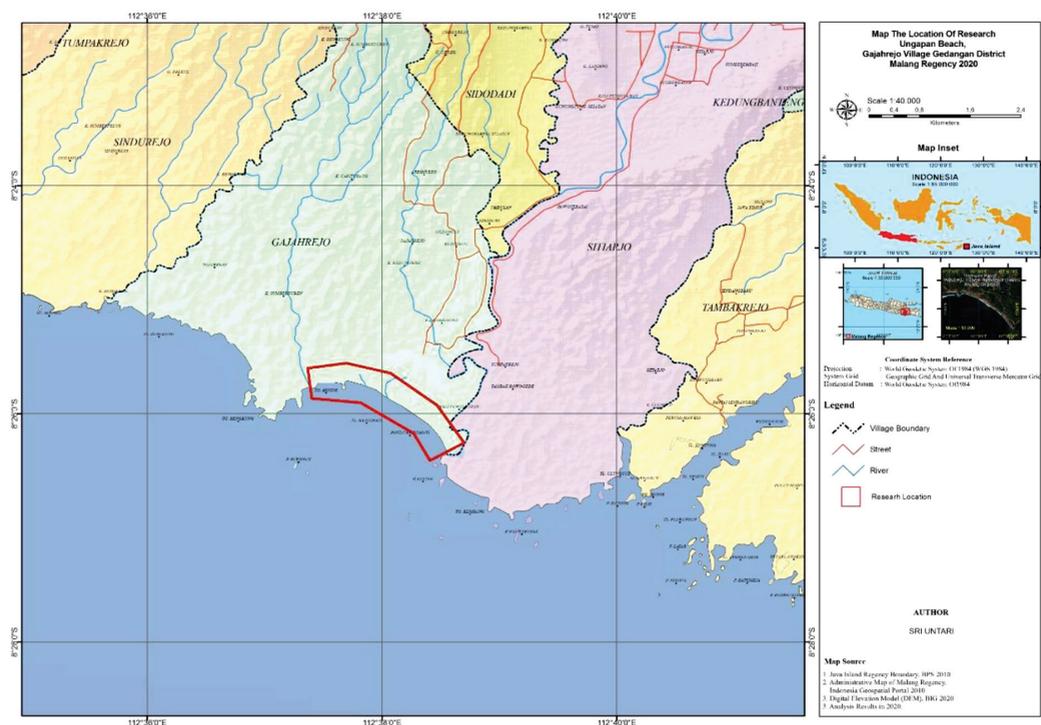

Figure 1. **The map of Gajahrejo village**

Source: Gajahrejo village office, Gedangan district, 2019.

Results and discussions

Based on the observations conducted along the southern coast of Malang district, there is a significant potential for the development of several beaches in the region. These include Lenggoksono Beach, Sendiki Beach, Ungapan Beach, Bajul Mati Beach, Batu Bengkung Beach, Religi Nganteb Beach, Selok Beach, Ngliyep Beach, Tambakasri Beach, Tamban Indah Beach, Karang Dowo Beach, Tanjung Sirap Beach, and Bantol Beach. The successful development of beaches depends

on various factors, including the presence of natural tourist attractions, local government policies, community participation, available facilities and infrastructure, and security measures. Other important factors encompass the organization of tourism spaces, effective promotion and marketing strategies, organizational capacity, management of attractions, and the establishment of partnerships between community groups and local governments.

LMDH, POKDARWIS and community partnership in tourism management

Ungapan Beach is situated in Gajahrejo Village, Gedangan District, Malang Regency, East Java, approximately 64 km from Malang City. The beach offers a breathtaking view from two different angles. Facing the ocean, the beach showcases its natural splendor, while on the landward side, the estuary of the Panguluran River adds to its beautiful tourism potential. The river estuary features calm waves and brackish water, even during the rainy season when the water volume remains relatively moderate. The riverbed depth reaches about 2 meters, and the estuary's width is less than 100 meters. The water in the estuary appears greenish, while the waters of Ungapan Beach have a blue hue. Notably, Ungapan Beach experiences significant wave activity, particularly in the mornings.

Partnerships in beach management by the community are a common thing. Indonesians have known partnerships or community services for centuries under such terms as *sambat sinambat*, *mapalus*, *mitra cai*, forest village community partners, and others. However, the understanding of partnership is broader than just a concept of cooperation that has several criteria, including implementation by more than one party, that has individual needs, but agrees to achieve the vision and goals to increase team capacity (Putra, 2013).

The partnership is not only a collaboration but has a strategic value in the implementation of modern management, including the development of tourism (Wahyuni, 2016). Community participation in the tourism system is closely related to 2 main institutions that play a significant role in the tourism areas in the South Malang Regency, which are PERHUTANI in Malang and the Malang District Tourism Office. Based on the results of the interviews with the Head of Promotion Services, PD Jasa Yasa, it is known that there is an agreement on management and tourism partnerships between the community and related parties. Some communities work together with the Government of Malang Regency through the LMDH. The Forest Village Community Organization (*Lembaga Masyarakat Desa Hutan or LMDH*) plays a bigger role in the management of Ungapan Beach, while POKDARWIS is involved in activities of the Malang Regency Tourism Office.

Along the South Malang coastal tourism corridor, there are several examples of community participation through partnerships between POKDARWIS, LMDH, and the community to develop the coast of South Malang. One of the fundamental strategies to build partnerships was to participate in POKDARWIS, LMDH and several other community groups. Some community groups such as the *Clungup* Mangroove Conservation (CMC) and the *Sendang Biru Bhakti Alam* Foundation manage the beaches in *Clungup* Beach, *Tiga Warna* Beach and *Gatra* Beach. Also, there are *Tani Maju* LMDH that manages *Ungapan* Beach, *Batu Bengkung* Beach and *Bajul Mati* Beach, *Wonoharjo* LMDH that manages *Goa Cina* Beach,

and *Wonodadi* LMDH that manages tourism at *Balekambang* beach. In general, community participation was divided into communities that participate in POK-DARWIS under the Malang District Tourism Office and communities in LMDH under PERHUTANI Malang (Ramanda et al., 2020).

The community also actively participates with suggestions and ideas and participates in tourism development forums. However, the community cannot act as a decision-maker in this forum. The community participates in management as a ticketing officer, parking guard, security guard, and guide for tourists. Community participation in Ungapan Beach is dominated by functional participations. The participation formed a community to jointly develop, advise and plan tourist destinations as an appreciation for the local community organizations (Katunian, 2019). However, the decision-makers in the planning of PERHUTANI destinations were dominated by parties outside the community, such as Perum Perhutani.

The balance of LMDH, POKDARWIS and community partnerships in tourism management

Based on the interview, it was concluded that the management of the South Coast tourist destination in Malang Regency is based on a partnership model. The partnership agreement explained the roles of management and distribution of revenues. The management of beach tourism was PERHUTANI and the Government of Malang Regency with the executor of the Malang Regency Tourism Office. PERHUTANI managed 16 beach tourism destinations (including *Ungapan* Beach) or about 90% of the beaches in Malang. While the Malang Regency Tourism Office manages only two beach tourism destinations, *Balekambang* Beach and *Ngliyep* Beach. The division of the results in tourism management is shown in Table 1.

Table 1

Distribution of the revenue

Stakeholders	Percentage %
PERHUTANI	20
Local Government of Malang Regency	35
LMDH	30

Managing Partners:
   Village Government
   Muspika
   POKDARWIS
	5
	5
	5

Sources: Completed by the authors.

Table 1 shows that 20% of the revenue from Perhutani goes to the Malang Regency Government as tax payments, 35% to Perum Perhutani, LMDH receives about 28%-30% and the rest goes to village government partners, such as sub-district leaders, who receive 2–5%, also for the benefit of the community.

From the interview with one of the employees in the Ministry of Tourism it is stated that tourism management in the East Java region is difficult to meet

an agreement. It is because PERHUTANI owns most of the tourist areas. According to the Malang Regency Government, beach tourism is the main object because the Malang Regency has great potential for beach tourism. The policy should be built through a transparent partnership with a memorandum of understanding (MoU) between the village government and PERHUTANI, so that the Malang Regency Government can support the development of tourism potentials such as improving road infrastructure and other supporting facilities. The partnership becomes a policy innovation to develop Malang coast tourism. The results of the study showed that contracts or agreements for joint operation must support partnerships between communities (Dunayev et al., 2020). The problems in the management of tourist areas were caused by the lack of creating partnerships that share work, capital, results and share risks (Pascariu and Gabriela, 2006; Vinogradov and Shadrina, 2018).

The management of Ungapan Beach tourism is currently managed by two organizations, LMDH and POKDARWIS. Both carry out the management in the work system agreed in the group. Therefore, the tourism office has to supervise the tourism management for adjusting to the tourism service standards. Various studies have shown that the government is unable to manage the tourism sector, and therefore requires partners whether private or community-based (Ezreth, 2014; Kurniawati et al., 2020; Menon and Edward, 2014; Thomas, 2007).

The partnership between organizations has not run optimally, so there are still things that could reduce income, such as illegal fees and parking. Facilities become essential to support tourism. Facilities are infrastructures that meet the needs of tourists when travelling, including restaurants, public toilets, lodging, parking lots and others (Yoety, 1997). The facilities at Ungapan Beach have still developed following the 4A standard in building a tourist destination that is attraction, amenities, accessibility, and ancillary services (Sunaryo, 2013).

Tourist destinations include attractive resources, with emphasis on those providing a comparative advantage, structured by attractiveness categories, competitive potential and target markets; specific infrastructure (transportation, accommodation, restoration, other facilities), general infrastructure (commercial, medical, communication, public services, banking systems); setting and environment (landscapes, weather, attitudes, behaviours); legal and political context (national tourism strategies and regional strategies, policies in complementary fields such as SME, transport, environment); public and private actors that are involved or could be involved; the existing market (identification of interesting resources for existing target segments and providing competitive advantages); vulnerable resources (Pascariu and Gabriela, 2006).

The Ungapan Beach management partnership is suitable for the development of tourism destinations. The partnership between LMDH, POKDARWIS and the local community aims to produce consensus and balance that leads to new opportunities and innovative solutions. In general, partnerships in Ungapan Beach tourism management have not met the standard elements of partnership. The critical elements of a tourism management partnership are (a) all stakeholders are interdependent, (b) solutions are made by constructively dealing with differences; (c) joint ownership of the decision involved, (d) stakeholders take collective re-

sponsibility for future direction, and (e) partnerships remain dynamic (Graci, 2013).Ungapan Beach tourism management is shown in Figue 2.
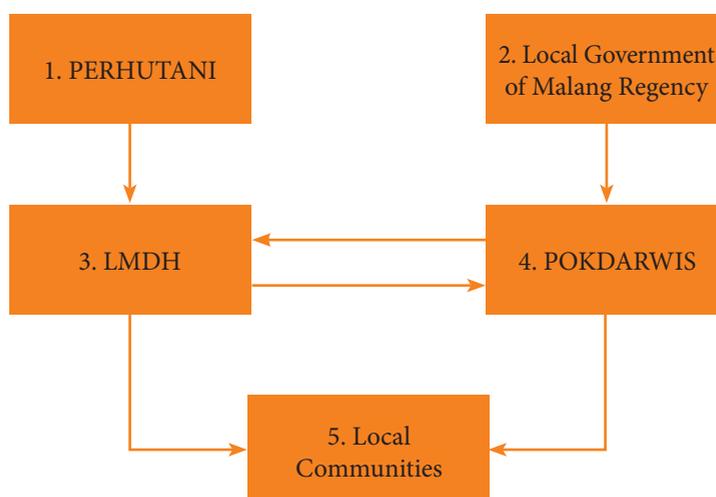

Figure 2. **Diagram of Ungapan Beach tourism management**

1.   PERHUTANI (a government-owned corporation that manages the forest in Indonesia)
2.   Local government of Malang Regency
3.   Village community organization (Lembaga Masyarakat Desa Hutan or LMDH)
4.   Tourism awareness group (*Kelompok Sadar Wisata or POKDARWIS*)
5.   Local communities

The balance partnerships between LMDH, POKDARWIS and local communities need to be improved through local government policy interventions. The strategy of promoting local community organizations needs to be developed continuously in tourist destination management (Grimsey and Lewis, 2004; Kurniawati et al., 2020). Partnerships between communities need to be developed as social resource network in the villages around the Ungapan Beach tourism area.

Contribution of partnership in tourism management to community welfare

The results showed that the Ungapan Beach destination is potentially suitable for development, due to such reasons as (a) the ecological environment of Ungapan Beach is suitable for beach recreation, (b) the availability of tourism facilities and infrastructure, (c) excellent regional support, (d) reasonably well-managed tourism management system collaborated with PERHUTANI and LMDH, (e) rental services are available to improve the economy such as shop owners, boat rentals, atv rentals, lodging rentals, outbound facilities (f) public perception of the Ungapan coast and, (g) typical culinary specialties such as grilled fish found in almost all food stalls. This factor has motivated the Malang Regency government to accelerate economic growth in the coastal areas.

The strategy to develop Ungapan Beach tourism was implemented by identifying a) beach attractions, b) human resources to support tourism, c) support-

ing facilities for tourism. The tourism development in Gedangan District is described in Figure 3.
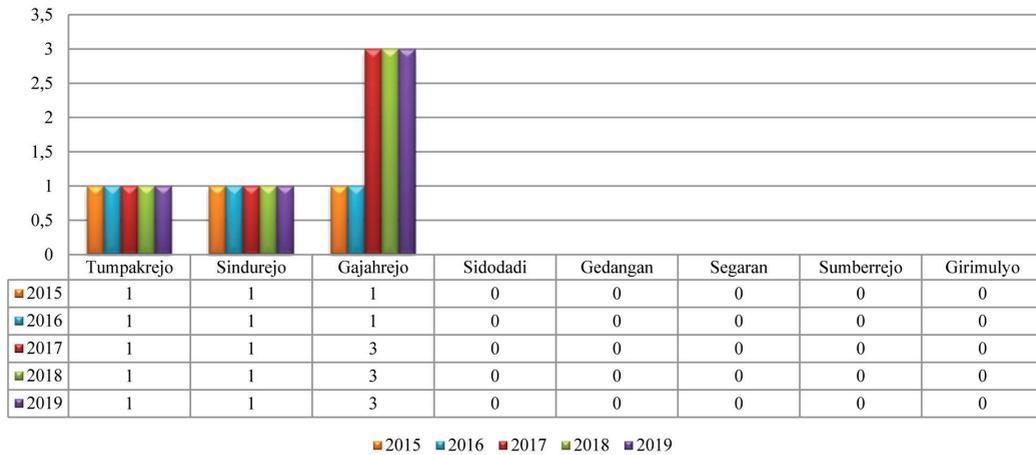
	Tumpakrejo	Sindurejo	Gajahrejo	Sidodadi	Gedangan	Segaran	Sumberrejo	Girimulyo
2015	1	1	1	0	0	0	0	0
2016	1	1	1	0	0	0	0	0
2017	1	1	3	0	0	0	0	0
2018	1	1	3	0	0	0	0	0
2019	1	1	3	0	0	0	0	0

Figure 3. **Beach tourism objects in the district of Gedangan**

Figure 3 shows that the number of beach resorts is increasing. In 2015, there were three beaches in Gedangan subdistrict, now there are five beaches. Gajahrejo village used to have only one beach, but now there are three beaches there (Bajulmati Beach, Ungapan Beach and Karang Dowo Beach). The growth of beach resorts has a very positive impact on the growth of businesses in the area, especially businesses that support the tourism sector, such as restaurants, eateries, kiosks and others, as described in Figure 4.
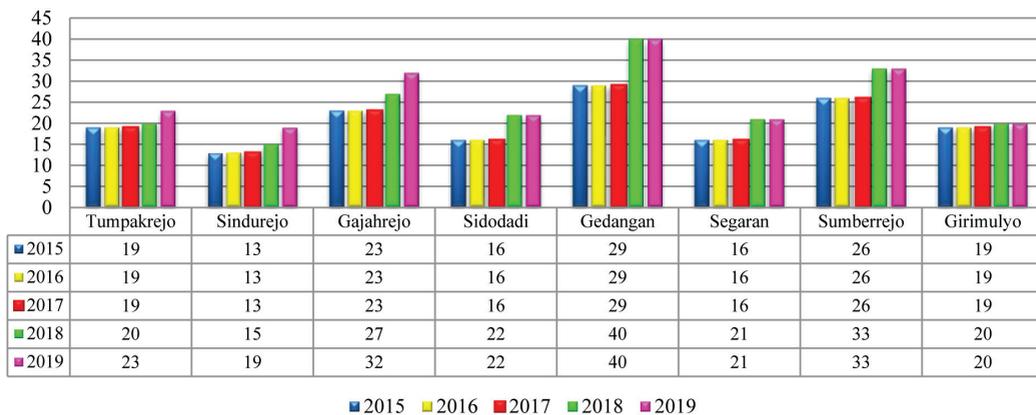
	Tumpakrejo	Sindurejo	Gajahrejo	Sidodadi	Gedangan	Segaran	Sumberrejo	Girimulyo
2015	19	13	23	16	29	16	26	19
2016	19	13	23	16	29	16	26	19
2017	19	13	23	16	29	16	26	19
2018	20	15	27	22	40	21	33	20
2019	23	19	32	22	40	21	33	20

Figure 4. **The number of restaurants around the beach**

Figure 4 shows that the development of Ungapan Beach affects the economy of the surrounding communities. The highest growth of restaurants was in Gedangan Village, the capital of the subdistrict. The next highest growth was in the village of Gajahrejo due to the location of Ungapan Beach. It showed that Ungapan Beach could improve the economy of the surrounding community. A growth

in the number of restaurants could increase the income of residents in the tourist areas. In addition to restaurants, there are other facilities that can improve the welfare of people such as hotels and lodging facilities. Figure 5 shows the growth in the number of hotels in Gedangan subdistrict.
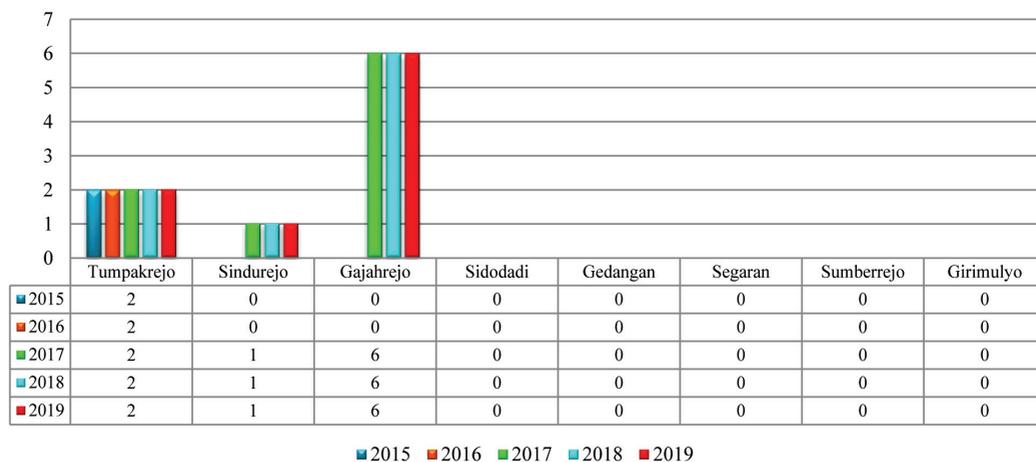
	Tumpakrejo	Sindurejo	Gajahrejo	Sidodadi	Gedangan	Segaran	Sumberrejo	Girimulyo
■ 2015	2	0	0	0	0	0	0	0
■ 2016	2	0	0	0	0	0	0	0
■ 2017	2	1	6	0	0	0	0	0
■ 2018	2	1	6	0	0	0	0	0
■ 2019	2	1	6	0	0	0	0	0

■ 2015 ■ 2016 ■ 2017 ■ 2018 ■ 2019

Figure 5. **The number of Hotels/Lodging in the Gedangan district**

Figure 5 shows that the development of Ungapan Beach affects the economy of the surrounding community. The highest growth in accommodation/hotels was in the village of Gajahrejo, which was influenced by the location of Ungapan Beach. This shows that Ungapan Beach could increase business activities in the community. The high number of tourists staying in hotels also has an impact on improving the economy and welfare of the community (Allard and Trabant, 2008; Latham, 2009).

Conclusion

The results showed that Perum Perhutani managed the private-public partnership in Ungapan Beach tourism with LMDH partners, Malang district government with POKDARWIS partners and local communities. LMDH acted as a manager of the tourism area, POKDARWIS as a manager of events, and the community that provides facilities and needs of tourists. The Private-public partnership management of Ungapan Beach tourism proves that the partnership between local communities, government organizations and private groups can develop tourism destinations and benefits to the community. The study has shown that partnerships in coastal tourism management must be based on a binding and mutually beneficial agreement. The partnership must accommodate all the information from various parties, including tourism management, by prioritizing common interests.

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