

Legal Regulation of the Digital Transformation of Local Self-Government in the BRICS Countries

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Abstract. This article presents an analysis of strategies used for the legal regulation of digital transformation processes at the municipal level in the BRICS countries. A systematic analysis of modern trends in the legal regulation of digital transformation in Brazil, South Africa, India and China was carried out, and the features and general directions of this process were highlighted. The authors noted a variety of different approaches to normalizing digital processes in management, ranging from fixing basic principles at the constitutional level to developing “flexible” regulation constitutionally mandated through by-laws and state political and legal documents. It is shown that the digitalization of public administration is primarily focused on the level of national government, since financial resources are specifically concentrated at the highest level of governance. It is concluded that the specificity of local government, manifested in a high degree of self-government and participation of the population in solving life support issues, objectively requires a shift in the emphasis of digitalization to the local level of government. It has been proven that this process requires strategic state planning on the part of the state for the digitalization of local self-government, taking into account the elimination of the “digital divide” in municipalities. The authors propose the implementation and development of the “smart city” concept in the BRICS countries with a differentiated scale of digitalization criteria for the various municipalities.

Keywords: legal regulation; local government; digital transformation; strategic planning; smart city; BRICS.

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Introduction

In the fields of both domestic and foreign legal science, the overall objective is to develop theoretical approaches, as well as practical recommendations for building a system of legislation that creates the basic, fundamental foundations for regulating the processes of digitalization of local government, taking into account its specific features with respect to public administration.

The objectively ongoing processes of transformation of local government in the Russian Federation against the background of the introduction of modern digital technologies actualize comparative research. The BRICS countries are currently key partners of the Russian Federation, which leads to scientific interest and the exchange of experience, including in the legal regulation of various social relations.

The most important trend in the evolution of the entire society and public administration system in recent decades is digitalization, which includes the introduction of information technologies into ever new areas and the emergence of new management methods based on the use of these technologies. The introduction of modern digital technologies at the municipal level presents significant opportunities for essential changes in the institution of local government through the establishment of a fundamentally new system of vertical and horizontal communication networks within the municipality.

However, unfortunately, an analysis of both the ongoing processes and the directions of state policy in the field of informatization of local government as defined by various documents shows that fundamentally the same approaches are used here as those applied to the informatization of state power. This situation seems conceptually incorrect. The significant differences that exist across municipalities lead to the fact that they have completely different capabilities for introducing modern digital technologies into management. This situation in turn leads to a break in the unified information space in the state and, objectively, has a negative impact on the quality of public administration.

Studies on central governments are frequently the focus of scholarly attention. The same can be said about legal regulation: a great number of project papers in this area of study address the digitalization of public administration. Even so, the digital transformation of local government in this regard is an understudied area. Meanwhile, the digital transformation of local government is characterized by significant specificities.

These circumstances necessitate a comprehensive conceptual analysis of both the current state and possible future prospects for the digitalization of local government from the perspective of long-term legal regulation.

In such a situation, the experience of foreign countries and the exchange of best practices in legal regulation of the digitalization of municipal government are more relevant than ever.

The main purpose of this study is to present scientifically based conclusions and proposals for improving the legal regulation of the processes of digital transformation of local government across the BRICS countries. In order to achieve the overall goal, it is necessary to address a number of specific objectives, such as defining conceptual approaches to the digitalization of local government in the BRICS countries, determining the existence and features of strategic state planning for the digitalization of local government in these countries, assessing the needs of states and society with regard to digitalization as well as identifying the risks associated with such a process at the local level, and formulating acceptable and optimal directions for all of the BRICS countries along with standards for the digitalization of their respective local governments.

The study presents substantiated conclusions and proposals for improving the legal regulation of the processes of digital transformation of local government in the

BRICS countries. To effectively achieve the overall goal, it is necessary to first address more specific tasks, such as identifying conceptual approaches to the digitalization of local government in the BRICS countries; determining the existence and features of strategic state planning for the digitalization of local government in these countries; assessing the demands of states and society regarding digitalization and identifying the risks associated with this process at the local level. Additionally, it is necessary to formulate acceptable and optimal directions for all of the BRICS countries as well as standards for the digitalization of their respective local governments.

The research methodology employed in this study is based on both general and special methods of scientific cognition. The system-legal method, the method of analysis and synthesis, grouping and comparison and analytical and statistical methods were used, which together made it possible to comprehensively study the problems of digital transformation of local self-government in the BRICS countries. Since a comparative analysis of the legal regulation of the digital transformation of local self-government in different countries was carried out, empirical methods of comparison and description, as well as private scientific methods, were used. These methods included the legal-dogmatic method of interpretation of legal norms.

1. Digital Transformation of Local Government in Brazil

1.1. The Real Situation in the Field of Digitalization of Governance

Brazil is currently one of the leading countries in terms of the digital transformation of state and municipal government.¹ This is largely due to a systematic approach to the legal regulation of the processes of digitization, digitalization and digital transformation. The Federative Republic of Brazil has a fairly extensive regulatory framework governing these processes.

Decree No. 9.319 of 21 March 2018² (computerized legislation) establishes the National Digital Transformation System – SinDigital, which includes the Brazilian Digital Transformation Strategy – E-Digital, along with its thematic areas and governance structure (Art. 1).

In accordance with Article 3 of this Resolution, the E-Digital digital transformation strategy shall be updated every four years. This process should be carried out in close collaboration with the scientific community, the manufacturing sector and civil society.

¹ Linda Bower, *Brazil as a Leader in Digital Transformation*, in Proceedings of the 16th International Conference on Theory and Practice of Electronic Governance 80 (2023); *Brazil ranks seventh in digital transformation in public service. This result stems from the government's improved online platform*, Agência Brasil, 30 September 2021 (Oct. 2, 2023), available at <https://agenciabrasil.ebc.com.br/en/geral/noticia/2021-09/brazil-ranks-seven-digital-transformation-public-service>.

² Decreto No. 9.319, de 21 de março de 2018 (Legislação Informatizada), Publicação Original (Oct. 2, 2023), available at <https://www2.camara.leg.br/legin/fed/decret/2018/decreto-9319-21-marco-2018-786355-publicacaooriginal-155087-pe.html>.

The “Brazilian Digital Transformation Strategy (E-Digital)” is presently being implemented in Brazil from 2022 to 2026.³ However, it was the implementation of the previous strategy, which was in effect from 2018 to 2021, that laid the groundwork for a full-fledged transformation of the legal regulation of digitalization and digital transformation processes in Brazil.⁴

Furthermore, it was in the Strategy for 2018–2021 that the need for a new approach to the legal regulation of the processes of digital transformation of public administration was outlined. This Strategy introduced a regulatory paradigm aimed at accelerating digital transformation across all areas. This notion is embodied in the concept of so-called collaborative digital regulation.

Nevertheless, fragmentation and inconsistency of actions on digital transformation between the center, regional and local authorities is a problem that remains unresolved at the level of legal regulation in many states.⁵ In this regard, the concept of joint digital regulation presented in the Strategy 2018–2021 is of significant interest from both scientific and practical points of view.

In fact, this concept is about building a whole-of-government approach and coordinating various government digital transformation initiatives. The need to clarify the decision-making rules in the Interdepartmental Committee on Digital Transformation (CITDigital) has been established as the main direction for the implementation of this concept. The Strategy 2018–2021 states that decisions made by CITDigital must be integrated into a systematic process (in fact, this direction was expressed in the development and adoption of the Digital Government Law).⁶ In addition, the establishment of certain allocations for the implementation of E-Digital was fixed in budget legislation.

All of this contributed to the improvement of existing legislation as well as the development of new legislation regulating digital transformation processes.

1.2. Key Regulations Governing Digital Transformation in Brazil

Currently, the following regulations can be identified as the basic regulatory framework for digital transformation in Brazil:

³ Brazilian Digital Transformation Strategy (E-Digital) 2022–2026 Cycle Brasília 98 (2022).

⁴ Brazilian Digital Transformation Strategy (E-Digital) 2018–2021 Cycle Brasília 115 (2018).

⁵ Eugenio Salvati, *Fragmentation and Intergovernmental Conflict During the Covid-19 Crisis: The Complex Relationship Between National and Regional Governments in Italy*, Reg. Fed. Stud. 1 (2022); Asad Asadzadeh et al., *Urbanization, Migration, and the Challenges of Resilience Thinking in Urban Planning: Insights from Two Contrasting Planning Systems in Germany and Iran, 125 Cities* (Article 103642) (2022); Henry Rothstein et al., *True to Type? How Governance Traditions Shaped Responses to Covid-19 in China, Germany, UK, and USA*, in Patrick R. Brown et al. (eds.), *Covid-19 and the Sociology of Risk and Uncertainty: Studies of Social Phenomena and Social Theory Across 6 Continents* 115 (2022).

⁶ Lei No. 14.129, de 29 de março de 2021 (Oct. 2, 2023), available at https://www.planalto.gov.br/ccivil_03/_ato2019-2022/2021/lei/14129.htm.

1. The Brazilian Data Protection Law (Lei Geral de Proteção de Dados Pessoais, abbreviated as LGPD) is the law regulating the processing of personal data. The LGPD aims, on the one hand, to protect confidentiality, and on the other, to ensure openness and transparency. It operates at both the federal and municipal levels, and therefore, is of great importance for regulating the processes of digitalization and digital transformation of local authorities.

2. A set of regulations aimed at regulating the processes of digitization of documentation, which includes Decree No. 10.278, in force since March 2020,⁷ Law No. 13.874 of 2019⁸ and Law No. 12.682 of 2012.⁹ These regulations collectively establish the procedure, principles and rules for transferring documentation into digital format. Decree No. 10.278 on the digitization of documents establishes digital documents as legally valid as originals in Brazil, which is extremely important for the organization of digitalization and digital transformation. The principles, standards, requirements and digitization procedures established in the 2020 Decree apply to both state and municipal bodies and private organizations.

3. Law No. 14.129 of 29 March 2021 (which entered into force in August 2021), known as the Digital Government Law.¹⁰ This Law establishes the principles, rules and tools of digital government and increasing public efficiency. Article 3 of the Law enshrines twenty-six principles for the smooth functioning of the digital government, as well as the effective provision of state and municipal services in digital format. The fact that the Law enshrines the principle of ensuring system compatibility and promoting open data appears to be a positive addition to the legislation.

Indeed, the problem of fragmentation, which leads to the impossibility of integrating information systems used by local authorities and the federal center, is one of the most common problems faced by numerous countries in the world.¹¹ In this regard, it is worth noting that the implementation of this above mentioned principle also requires the consolidation of a mechanism that is well-thought-out and agreed upon at all levels (federal, regional and municipal) for its effective execution. A special role in the implementation of this direction is played by the establishment

⁷ Decreto No. 10.278, de 18 de março de 2020 (Oct. 2, 2023), available at https://www.planalto.gov.br/ccivil_03/_ato2019-2022/2020/decreto/d10278.htm.

⁸ Lei No. 13.874, de 20 de setembro de 2019 (Oct. 2, 2023), available at https://www.planalto.gov.br/ccivil_03/_ato2019-2022/2019/lei/l13874.htm.

⁹ Lei No. 12.682, de 9 de julho de 2012 (Oct. 2, 2023), available at https://www.planalto.gov.br/ccivil_03/_ato2011-2014/2012/lei/l12682.htm.

¹⁰ Lei No. 14.129, de 29 de março de 2021 (Oct. 2, 2023), available at https://www.planalto.gov.br/ccivil_03/_ato2019-2022/2021/lei/l14129.htm.

¹¹ Nawel Lafioune et al., *Digital Transformation in Municipalities for the Planning, Delivery, Use and Management of Infrastructure Assets: Strategic and Organizational Framework*, 6 Sustainable Futures (Article 100119) (2023); Suchit Ahuja et al., *Responsible Innovation with Digital Platforms: Cases in India and Canada*, 33(1) Info. Systems J. 76 (2023).

of rules and standards that can contribute to systematization in this area. However, unfortunately, it is impossible to talk about a systematic approach to legal regulation of this particular domain in Brazil, as in most other developing countries. Although the move towards centralized platforms is currently being encouraged, in Brazil there is currently no effective mechanism to regulate the creation and operation of information systems at all levels, including municipal ones.¹²

In addition, the Digital Government Law establishes the possibility of using mobile devices and applications to facilitate interactions between the state and the population. It regulates the establishment of digital services that are accessible through mobile devices (such as the Meu INSS and Digital Work Card application), the use of a single platform for accessing information and services, specifically “gov. br”, encourages the use of electronic signatures in interactions between government agencies and citizens, enhances transparency and streamlines government workflows through the government’s use of open data and technology.

However, the Digital Government Law is applicable to states, municipalities and Federal Districts only if the relevant authorities adopt regulations that indicate the applicability of the provisions of the Digital Government Law at the local level (sec. 2, para. III, Art. 2). In fact, the provisions of this Law can only serve as a guideline for local authorities to follow when developing their regulatory framework for digital transformation. This is due to the facts that in the Federative Republic of Brazil, municipalities, according to the Constitution, are autonomous, which consequently affects the legal regulation of their digital transformation processes.¹³

1.3. Problems and Prospects for Regulation of the Digital Transformation of Local Government in Brazil

As in most other countries, the legislation of Brazil pays much less attention to the regulation of the digital transformation of local government than it does to the general issues of regulating the digital transformation of public administration, which, in turn, affects the implementation of the digital transformation of local governments. This fact was highlighted in the report *Going Digital in Brazil* (OECD Reviews of Digital Transformation),¹⁴ which, for example, pointed out the need to “improve coordination between federal, regional and municipal levels to facilitate broadband deployment.”

¹² Dmitriy Nakisbaev & Natalia Dugalich, *Introduction of Digital Platforms to State and Municipal Administration: Opportunities for Regulation and Transformation of Social Services for the Population*, 12(3) *Braz. J. Pub. Pol’y* 133 (2022); Alex V. Teixeira & Denis Alcides Rezende, *A Multidimensional Information Management Framework for Strategic Digital Cities: A Comparative Analysis of Canada and Brazil*, 24(1) *Glob J. Flex Sys. Mgmt.* 107 (2023).

¹³ Constituição da República Federativa do Brasil de 1988 (Oct. 2, 2023), available at https://www.planalto.gov.br/ccivil_03/constituicao/constituicao.htm.

¹⁴ *Going Digital in Brazil* 248 (26 Oct. 2020) (Oct. 2, 2023), available at <https://doi.org/10.1787/e9bf7f8a-en>.

In this regard, Lígia Baechtold Bertolini and Adilson Giovanini note that the scientific literature lacks the proper level of consideration and definition of criteria for the digital transformation of local authorities.¹⁵

Indeed, when it comes to regulating digital transformation at the federal level, we can say that Brazil appears to have a fairly developed regulatory framework. However, at the regional and local levels, local authorities need to develop their own legislation addressing the digital transformation of their individual governments, which, unfortunately, is not encouraged by the current federal legislation.

At the same time, in the scientific literature of Brazil, practically no attention is paid to the issues of introducing new information technologies, developing information systems at the municipal level, the digital transformation of rural areas, etc. In many respects, we believe this is due to the fact that in Brazil, as in most other countries, there is an unregulated process of digital transformation in municipalities.¹⁶

On the other hand, there is a downside to centralized regulation of digital transformation. For example, Larissa Galdino de Magalhães notes the over-centralization of governance of digital transformation in Brazil:

there are no formal incentives for end-to-end or decentralized policy initiatives, such as smart cities, agricultural technologies or the Internet of Things, that could be adopted at the non-federal level municipalities or states.¹⁷

Furthermore, as in many countries around the world, digital inequality is one of the key problems in Brazil. There are 5,568 municipalities in the country.¹⁸ Each of them has its own characteristics, as well as its own social, economic and structural realities that need to be taken into account when formulating legal regulations.

In fact, there is an urgent need to find a balance between the centralization and decentralization of legal regulation of the digital transformation of local authorities¹⁹.

In this regard, it seems appropriate to establish a system of incentives that would motivate local authorities to implement digital transformation. Moreover,

¹⁵ Ligia B. Bertolini & Giovanini Adilson, *Sistemas inteligentes e transformação digital: evidências empíricas para os municípios brasileiros*, 25(1) *Textos de Economia* 1 (2022).

¹⁶ Lara Sucupira Furtado et al., *A Framework for Digital Transformation towards Smart Governance: Using Big Data Tools to Target SDGs in Ceará, Brazil*, 12(1) *J. Urban Mgmt.* 74 (2023).

¹⁷ Larissa Galdino de Magalhães Santos, *Brazil's Over-Centralised Governance of Digital Transformation*, 30 *Afr. J. Info. & Comm.* 1 (2022).

¹⁸ IBGE: dados geográficos de estados e municípios brasileiros são atualizados, Data de publicação: 17 de Abril de 2023, 19:30h, atualizado em 17 de Abril de 2023, 20:54h (Oct. 11, 2023), available at <https://brasil61.com/n/ibge-dados-geograficos-de-estados-e-municipios-brasileiro-sao-atualizados-bras238124>.

¹⁹ Dawid Bunikowski & Ksenia Ivanova, *The Decentralization Method as a Tool to Implement Social Initiatives of Citizens in Multinational States*, 4(1) *BRICS L.J.* 7 (2017).

incentives need to be established in both positive and negative ways. For example, positive incentives could consist of providing additional financial incentives or the establishment of financing benefits when developing comprehensive regulatory regulation of digital transformation in the municipalities while negative incentives could involve an increased loan percentage for local authorities in the absence of comprehensive regulation and plans for digital transformation.

At present, the Digital Government Law provides technical support to municipalities in developing and adopting strategies aimed at the digital transformation of public administration. We are also of the opinion that an additional incentive for local authorities would be to establish the obligation of strategic planning for digital transformation locally and set deadlines for the development of such strategies. This proposal is also relevant for the Russian Federation.

Furthermore, in order to ensure a balanced approach to regulating the digital transformation of local governments, it is worth dividing issues related to digital transformation into those that need regulation at the federal level and those that need regulation at the local level. The first category, for example, would include issues for which the level of coordination is important, such as the development and creation of integrated information systems, as well as general standards for their development, principles of strategic planning for digital transformation, etc. At the local level, on the other hand, those issues must be resolved whose solution is directly related to the characteristics of the municipality, such as the timing of the implementation of certain technological solutions.

The introduction of these proposals into the current legislation of both Brazil and Russia will stimulate the process of digital transformation of local authorities, while also taking into account the characteristics of each municipality.

2. Digital Transformation of Local Government in South Africa

2.1. Features of the Legal Regulation of Digital Transformation in the Sphere of Governance in South Africa

Basic provisions on information are enshrined in South Africa at the constitutional level. However, they concern only the consolidation of the general right to freedom of receipt and transmission of information (cl. "1b" of Art. 16) and the right to access information (cl. 1 of Art. 32). Furthermore, it should be noted that the wording of the latter right is somewhat unusual: the Constitution of South Africa establishes the right of access not only to public information (*informacoes publicas*) as is done in most countries of the world, including the Russian Federation, but it also establishes the right to information that is owned by another person (although the application of this right is limited by the condition that such information is necessary for the exercise or protection of any other rights – para.1 of Art. 32).

Regarding digitalization issues, the South African government has developed its own e-government concept in recognition of the fact that information and communication technologies (ICT) play a key role in the modernization of public services and provide a range of benefits for the provision of public services. Thus, the policy proposes the use of ICT to improve the efficiency and effectiveness of government, as well as to enhance the convenience of citizens and their access to government services.²⁰

The National Development Plan (NDP) 2030 has identified fragmented ICT infrastructure and connectivity, as well as high access costs as critical issues that must be resolved in order to address the challenges leading to the socio-economic and geographical digital divide.²¹ In response to the identified challenges, the Department of Communications (DoC) and Digital Technologies (DCDT) implemented the National Integrated Information and Communications Technology (ICT) Policy White Paper in 2016 to address the digital divide and the identified challenges mentioned in the NDP 2030. However, despite considerable progress in socioeconomic development, South Africa continues to lag economically in terms of digital transformation.²²

At the same time, although the majority of official documents in the field of digitalization are adopted at the national level, local authorities are at the forefront of the implementation of new digital technologies and processes. This is due to the fact that the majority of the essential services needed by the population are provided at the local level.²³

The digitalization of management processes makes local authorities more accessible to citizens. In general, people who use the Internet and mobile technologies find it easier to receive municipal services. Accordingly, the main goal of digitalization of local government processes is to reduce costs and administrative burden.²⁴ Another advantage of digitalization at the municipal level (as well as at the national level) is increased transparency of management and, as a result, a reduction in the level of corruption.

Many studies acknowledge that social media, as a form of digital innovation, can effectively harness public participation in municipal decision-making and

²⁰ Simnikiwe Mzekandaba, *SA's E-Government Strategy Showing Progress*, 11(3) *Service Delivery Rev.* 1 (2018).

²¹ Thato Foko et al., *Addressing Service Delivery in Rural Areas through Deployment of Information and Communication Technology Platforms*, in *IST-Africa 2017 Conference Proceedings*, Windhoek, Namibia (2017).

²² Keneilwe Maremi et al., *The Benefits of Digital Transformation: Addressing the Hindrances and Challenges of E-Government Services in South Africa: A Scoping Review*, 2022 *IST-Africa Conference (IST-Africa)*, IEEE 1 (2022).

²³ Thokozani Ian Nzimakwe, *Leading Digital Transformation and Innovation in Local Government Institutions in South Africa*, 29(2) *Administratio Publica* 1 (2021).

²⁴ Rajesh Duneja et al., *Digitalization of Government Services*, Arthur D. Little (2018) (Oct. 11, 2023), available at <https://www.adlittle.com/en/insights/viewpoints/digitalization-government-services>.

policy formulation. Digital innovations have further enhanced the capacity of local governments to foster and leverage technology-based participation, which is imperative for improving service delivery. Digital technology has also bridged the communication and interaction gap between citizens and service providers, although their effectiveness in delivering public goods and services must not be overemphasized.²⁵

2.2. Testing Digital Technologies in Municipalities in South Africa: Difficulties and Prospects

Understanding of the afore-mentioned facts led to the inclusion of the Standards of Corporate Governance at the Local Government Level (IODSA 2016) in the fourth edition of the Code of Corporate Governance (referred to as King IV, which is a booklet of guidelines for governance structures developed in South Africa by the Institute of Directors in South Africa). The IODSA 2018, in particular, contains recommendations for digitalization at the municipal level. However, King IV, like all other previous King codes, contains principles of voluntary management and only recommends best practices for implementation. As a result, in contrast to private organizations, which have largely adopted the recommended approaches, initiatives to implement the recommended management standards at the municipal level have been applied in only a small number of municipalities.²⁶

Positive examples include online appointment booking and e-billing for municipal services in Gauteng, an online utility tariff payment system in Ekurhuleni, a comprehensive system for accessing official information in Cape Town, etc.

Cape Town is, in principle, one of the few municipalities in South Africa where digital technologies are widely used. The South African city has partnered with network providers to acquire data from sensors placed around the city. This data helps the city run more effectively in several ways, ranging from traffic monitoring to waste management, crime detection and fire response.²⁷ According to researchers, it is one of five successful examples of the implementation of the “smart city” concept on the African continent.²⁸

²⁵ Elvin Shava & Shikha Vyas-Doorgapersad, *Fostering Digital Innovations to Accelerate Service Delivery in South African Local Government*, 11(2) Int'l J. Res. Bus. & Social Sci. 84 (2022); Egine Karagulyan & Maria Batyreva, *A Study of the Availability and Demand of Digital Services for the Manifestation of Social and Political Activity by Citizens*, 10(4) BRICS L.J. 162 (2023).

²⁶ Purshottama S. Reddy & Nirmala Govender, *Effectiveness of Governance Towards Digitalisation at eThekweni Metropolitan Municipality in KwaZulu-Natal Province, South Africa*, 7(1), a336 Africa's Pub. Serv. Delivery & Performance Rev. 1 (2019).

²⁷ Sanjay Balkaran, *Smart Cities: Misplaced Priorities in South Africa: A Complex Balance of Conflicting Societal Needs*, 2 J. Mgmt. & Admin. 1 (2019).

²⁸ Estate Cloud, *Top 5 Smart City Initiatives in Africa*, Nairobi, Kenya, 13 July 2019 (Oct. 11, 2023), available at <https://estatecloud.co.ke/top-5-smart-city-initiatives-in-africa/>.

However, even in those municipalities that make attempts to introduce digital technologies into management, they are not always successful and often do not yield any positive results at all. Thus, as noted above, in Gauteng, an online system for making appointments with officials was introduced in 2018, both for the convenience of citizens and in an effort to overcome corruption. However, due to the same prevalent corruption, as well as constant failures in the reservation system, it can be stated that this attempt ended in failure. At the same time, individuals continue to queue up at the Home Affairs department so early in the morning in the hopes that if they are lucky, they will be attended to the same day.²⁹ Even in the metropolitan municipality of Etequini, a manual paper method is still used to process applications.³⁰

All of these issues are covered by both practitioners and scientists in their writings. At the same time, several reasons for the difficulties of municipal transformation in South Africa are highlighted. First and foremost, it is noted that the main efforts of the authorities to provide legal support for the digitalization of public administration are carried out at the national level and concern the central authorities. The national government routinely relinquishes its responsibilities, and municipalities are left with no choice but to develop processes at local levels to deal with the potential of digitalization.³¹

However, another problem awaits them along this path. Each individual municipality independently prepares the legal framework for digitalization and develops its own digital platforms. As a result of this, firstly, economies of scale are lost; and secondly, disparate information systems are created that have only limited capabilities for integration with each other.³²

In this regard, it should be noted that the highlighted problem is, in principle, characteristic of all the BRICS member states. For example, in the Russian Federation, one of the significant problems is that

the integration between municipal information systems of various municipalities is not always provided. Therefore, when such a need arises, it becomes impossible or very difficult.³³

²⁹ Tariro Washinyira, *South Africans Hamstrung by Home Affairs as Complaints over Queues and Service Standards Escalate*, Daily Maverick, 21 October 2021 (Oct. 7, 2023), available at <https://www.daily-maverick.co.za/article/2021-10-21-south-africans-hamstrung-by-home-affairs-as-complaints-over-queues-and-service-standards-escalate/>.

³⁰ Reddy & Govender 2019, at 5.

³¹ *Id.* at 7.

³² Mzekandaba 2018, at 14.

³³ Roman Amelin et al., *The Digital Transformation of Local Government: Notion and Peculiarities*, 2(74) *Revista Juridica*, Curitiba 751 (2023).

Another problem of the digital transformation of local government in South Africa (one that is also typical for the other BRICS member states and for most countries of the world) is the problem of digital inequality (the digital divide). The digital divide is a “stubborn” phenomenon in adopting digital innovations in South African local government. A recent study conducted by Shava and Doorgapersad in South Africa confirms that the digital divide is affecting the adoption of digital technologies in local municipalities.³⁴ Ramakgopa further affirms that the digital divide in the City of Tshwane creates unequal opportunities and exacerbates socio-economic disparities in communities. The absence of digital skills, in particular, significantly hinders the metros’ capacity to respond to citizen demands for service providers’ accountability promptly.³⁵

Nevertheless, despite all these shortcomings, in general, South Africa does not look so bad in terms of digital inequality compared to other African countries. Western Europe has an internet penetration rate of 90 percent, while African internet penetration rates vary from as low as 12 percent in Central Africa to 51 percent in Southern Africa.³⁶ One specificity and serious problem of the digital divide in South Africa is that it is gender-based. Social, economic and political barriers hinder women’s access to ICT. Women have lower ICT literacy rates, own fewer devices and therefore have less access to such technologies.³⁷ Patriarchal structures and cultural practices further hinder access. For example, many men (and women, since there are structures of complicity in the discrimination of women) consider the internet to contain inappropriate content for women, consequently barring wives and daughters from using the internet.

Thus, although in general South Africa appears to be doing well and has made significant progress in terms of the level of digitalization of public administration when compared to many other African countries, there are very serious problems at the local level. These problems are primarily due to the absence of a unified strategy at the national level for the digitalization of municipalities, formalized in the form of a legal act containing general requirements addressed to all local authorities. As noted in OECD documents, support from national and subnational

³⁴ Shava & Vyas-Doorgapersad 2022, at 87.

³⁵ Kgosientso Ramokgopa, *State of the Capital City Address by His Worship, The Executive Mayor of Tshwane, Councillor Kgosientso Ramokgopa, City Hall*, South African Government, 3 April 2014 (Oct. 11, 2023), available at <https://www.gov.za/news/speeches/state-capital-city-address-his-worship-executive-mayor-tshwane-councillor-kgosientso>.

³⁶ Laura Schelenz & Kerstin Schopp, *Digitalization in Africa: Interdisciplinary Perspectives on Technology, Development, and Justice*, 9(4) *Int’l J. Digital Soc’y* 1414 (2018).

³⁷ Koliwe Majama, *Exploring Africa’s Digitalisation Agenda in the Context of Promoting Civil Liberties* (2018), presentation at the conference *Digitalization in Africa: Interdisciplinary Perspectives on Technology, Development, and Justice* on 26 and 27 September 2018 in Tübingen, Germany (Oct. 11, 2023), available at https://www.researchgate.net/publication/334488683_Digitalization_in_the_Global_South.

political leadership, as well as integration and coordination between various levels of government, are necessary in order for digital initiatives to be successful. This type of multilevel effort will ensure that the strategies developed for digitalization will effectively benefit various levels of government and entities through joint financing, commitment and shared ownership. Furthermore, such an approach will work particularly well within the South African context, as it will move away from a silo approach within government, bringing in alignment, effectiveness, efficiencies and true intergovernmental relations in the process.³⁸

3. Digital Transformation of Local Government in the BRICS Countries of the Asian Region

3.1. Main Directions of the Transformation Processes in Local Government in Asian Countries

Given the cross-border nature of digital transformations in the municipal government system, a systematic comparative analysis of the legal regulation of the digitalization of local governments in the Asian group of countries is of considerable scholarly interest. Historically, Asian countries have chosen unique ways to solve certain problems, and the ongoing digitalization process is no exception. The proposed conglomerate of countries will allow us to consider both technologically advanced countries that have successfully implemented AI technologies in the formation and structure of their government bodies at the municipal level and countries that are currently facing difficulties in this innovation process. It is worth noting that the heterogeneous degree of digital transformation of governance in these countries will make it possible to identify common problems characteristic of each state, and thus, provide potential solutions for other states facing similar problems.

It is increasingly becoming standard practice to highlight the vector directions of ongoing transformation processes in the public sector and at the municipal level. It appears, therefore, logical to reveal the directions that have been indicated:

- digital economy, comprising areas such as e-commerce, the financial sector, agriculture and logistics;
- database management;
- provision of public services in electronic remote format;
- platformization of the stated processes and services through the development of mobile applications.

Thus, in some countries, ensuring the transformation processes of economic activity into a digital format has been declared the main priority of the country's development. For example, on 4 April 2023, the State Light of the People's Republic

³⁸ Reddy & Govender 2019, at 8.

of China announced that the development of the digital economy is a top priority for the country.³⁹

3.2. Features of the Legal Regulation of Digital Transformation in the Sphere of Governance in India and China: Comparative Analysis

One of the prominent examples of digital transformation not only in Asia but also in the world is the “Aadhaar” database in India. India has created the Unique Identification Authority (UIDAI) Aadhaar, which in 2009 launched a large-scale project to create a biometric identification system for all citizens of the country. Within the framework of this project, the following unique results were achieved: online identification of users was created on the e-KYC (“know your customer”) platform using biometric data (fingerprints and iris), which enables the identification of citizens when receiving public services in an electronic remote format and minimizes the number of crimes involving the illegal use of personal data. It is worth noting that this database system has received legal formalization. Thus, in 2016, the Government of India passed the Aadhaar biometric database law, which provides a legal basis for data protection.

This confirms the need to study the regulatory support granted to ongoing digitalization processes in these countries. Thus, it is logical to assume that for each of the areas to function effectively, a legal field framework that incorporates a digital component must be established. According to M.Ya. Isokhuzhaeva, the main vectors of the state policy of the countries under consideration, ensuring smooth transition processes, are the development of a clear national policy and action plans for the development of the digital economy; consideration of the introduction of regulatory sandboxes to test the effectiveness of new legal acts relating to digital technologies; increasing investment in science, technology and innovation; improving data sharing within countries and the neighboring sub regions and strengthening regional cooperation in the development of digital infrastructure.⁴⁰

As part of the study, we noted that initially the digitalization process tends to focus on the areas of economics and finance, which is easily explained by the possibility of more accessible financial support for initiatives in these areas. Management issues, particularly at the local level, are not immediately included in the agenda for digitalization and artificial intelligence capabilities. However, in order to realize the potential of self-government, which is recognized by many countries as a democratic value, it is important to simplify the participation of citizens in the management of

³⁹ Notice on the 14th Five-Year Plan for the Digital Economy (Oct. 11, 2023), available at http://www.gov.cn/zhengce/content/2022-01/12/content_5667817.htm.

⁴⁰ *Исохужаева М.Я.* Актуальные вопросы управления электронной коммерцией в условиях цифровизации экономики Узбекистана // Экономика Центральной Азии. 2022. Т. 6. № 1. С. 34 [Munira Ya. Isokhuzhaeva, *Actual Issues of E-Commerce Management in the Conditions of Digitalization of the Economy of Uzbekistan*, 1(6) Cent. Asian Econ. 33, 34 (2022)].

state affairs through the use of digital technologies in the formation and activities of public authorities at all levels. In particular, this is especially significant when identifying the opinions of citizens on creating a comfortable living environment. Examples of such integration can be seen in the experiences of India and China. For example, China has established 26 provincial government data platforms, 257 municipal government data platforms and 355 county government data platforms.⁴¹ The Government of India has been implementing the Digital India program since 2015, which has established a network of Common Service Centers (CSCS) to provide government services electronically (for example, filing tax returns, applying for passports and registering businesses).⁴²

It is also worth noting that all Asian countries under consideration have adopted program regulations aimed at the digital transformation of local governments. For example, in China, the 14th Five-Year Plan for the Development of the Digital Economy has been approved;⁴³ in India, both at the level of the Constitution and on the basis of an independent normative act, the digital transformation of the Panchayats has been consolidated.

The program and strategic documents mentioned above show that the regulatory regulation of digitalization processes in India and China is programmatic, just as it is in the Russian Federation. In addition, it has a high degree of flexibility and does not contain an imperative implementation of digitalization at the municipal level. The existing regulatory approach is aimed at forming a “concept” without strictly defined limits and boundaries for the use of digitalization and artificial intelligence in the process of building municipal governance. We believe that this practice emphasizes the fact that the world community has only just begun shaping the legal regulation of digital transformation in general and local government in particular.

The analysis of these documents made it possible to identify the following main directions for the digital transformation of local self-government in the states under consideration:

- the improvement of management methods, taking into account the development of technology and innovation;
- the establishment of electronic governance systems for municipalities;
- the utilization of digital technologies to develop new forms of promoting active citizenship;

⁴¹ Rogier Creemers & Paul Triolo, *Analyzing China's 2021–2025 Informatization Plan: A DigiChina Forum*, 24 January 2022 (Oct. 11, 2023), available at <https://digichina.stanford.edu/work/analyzing-chinas-2021-2025-informatization-plan-a-digichina-forum/>.

⁴² Digital India, Ministry of Electronics and Information Technology, Government of India (Oct. 11, 2023), available at <https://csc.gov.in/digitalIndia>.

⁴³ 国务院关于印发“十四五”数字经济发展规划的通知 国发〔2021〕29号 [Notice on the 14th Five-Year Plan for the Digital Economy] (Oct. 11, 2023), available at http://www.gov.cn/zhengce/content/2022-01/12/content_5667817.htm.

- the optimization of interaction between the state and local governments, including through automated systems.

Finally, it is worth noting that a significant aspect of the digital transformation scenario at the municipal level in both India and China is the provision for priority development of the economy and agriculture.

One of the common mistakes when analyzing the digital transformation of local government is to compare and equalize transformation processes in large and medium-sized cities and rural areas. Previously, we noted the heterogeneity of these areas, encompassing both financial and technological aspects; therefore, it would be inaccurate to discuss the development of digital transformation only through the prism of building smart cities. The process of digitalization of rural areas and remote municipalities is especially relevant for the Russian Federation due to its special territorial structure. Moreover, let us note that only in India will we currently find the implementation of the state policy of digitalization of rural settlements. Thus, as per paragraph 1 of Article 40 of the Indian Constitution:

The State organizes rural Panchayats and vests them with such powers and authority as are necessary for their functioning as self-governing units, taking into account technological breakthroughs and at the same time returning to the traditional foundations of Indian civilization.⁴⁴

In addition, Part IX of the Panchayats Act provides for the following mandatory obligations for the municipality: connecting rural areas to high-speed Internet networks, developing secure and stable digital infrastructure, delivering government services digitally and promoting universal digital literacy. The National e-Governance Plan, which was adopted recently regulates the transfer of all front-end government services online.⁴⁵ In an effort to connect rural India with Digital India, the Government of India in 2022 encouraged email service provider giants including Gmail and Rediff to provide email addresses in regional languages (prior to this, email addresses could only be created in English). Data Xgen Technologies Pvt. Ltd., an Indian IT company, has launched the world's first free linguistic email address called "DATAMAIL" which allows users to create email IDs in eight Indian languages, including English as well as three foreign languages, namely Arabic, Russian and Chinese.⁴⁶

⁴⁴ Constitution of India (Oct. 11, 2023), available at <https://legalns.com/download/books/cons/india.pdf>.

⁴⁵ National E-Governance Plan (Oct. 11, 2023), available at https://www.tech.gov.sg/files/media/corporate-publications/2016/01/eGap_II.pdf.

⁴⁶ Tina Gurnaney, *IDATA XGen Launches Free Linguistic Email Address Service*, ET Telecom, 18 October 2016 (Oct. 11, 2023), available at <https://telecom.economicstimes.indiatimes.com/news/data-xgen-launches-free-linguistic-email-address-service/54919558>.

Conclusion

The findings of this study indicate that in order to ensure a balanced approach to regulating the digital transformation of local authorities, it would be worth dividing issues related to digital transformation into those that need regulation at the federal level and those that demand regulation at the local level. The former would include, for example, issues related to developing and creating integrated information systems, as well as general standards for the development of these systems along with the principles of strategic planning for digital transformation, since the level of coordination that is required for effectively solving a problem is of utmost importance. On the other hand, issues that are directly connected to the characteristics of each municipality must be resolved at the local level, such as the timing of the implementation of certain technological solutions. The incorporation of the identified proposals into the existing legislation will stimulate and accelerate the process of digital transformation of local authorities.

An important direction in the development of digital transformation of local self-government is competent systemic strategic planning of these processes.

Currently, in the BRICS countries, including South Africa, there is no unified strategy for the digitalization of municipalities at the national level, formalized in the form of a legal act containing general requirements addressed to all local authorities. As noted in OECD documents, the success of digital initiatives requires support from national and subnational political leadership, as well as integration and coordination between different levels of government. It seems that the success of digitalization strategies for the BRICS countries can be ensured through the development of a legal act of state strategic planning for the digitalization of public administration at the national level within each respective state. Such a legal act should also include provisions for the joint financing of these processes.

The analysis of the digital transformation program documents of India and China casts doubts on the quality and successful implementation of digitalization, specifically in the context of local government. It appears that these processes should begin at the local level, taking into account the strong cohesion of the municipality and its activities. It would be advisable to critically borrow positive foreign experience in developing the concept of building a modern municipality within the framework of the smart city concept. In this context, it is worth considering the integration of the following priority areas:

1. A smart city in which residents can actively participate in decision-making in the field of urban policy, using technologies of the fourth industrial revolution to preserve the ecosystem and urban spatial environment.

2. An eco-city that can achieve sustainable growth by incorporating the principles of environmental, economic and social sustainability into the physical environment of villages and towns.

3. A convergent city that improves the quality of life of residents by promoting the creation of decent architecture and urban space through the convergence of advanced technologies and ecological principles with the urban space environment.

All of these criteria constitute a holistic understanding of the development of the smart city concept, as they allow the concept to be implemented in all its manifestations, including the development of public administration, the improvement of the quality of life and the formation of a technologically advanced urban space.

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