Collaborative Governance in the Electronic Road Pricing Implementation Plan in Jakarta

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Abstract

The proliferation of private vehicle ownership and the associated increase in traffic volume has prompted the government to introduce an Electronic Road Pricing (ERP) policy to manage congestion and mitigate air pollution in the Special Region of Jakarta (DKI). This study seeks to delve into the application of collaborative governance in the Jakarta ERP policy's execution by giving prominence to the historical aspects of problem identification, planning review, system context study, dynamic elaboration, collaborative actions, and resulting outcomes, to fulfill the government's objectives for the ERP plan. The research methodology employs a literature review and case study, qualitative descriptive methods, and secondary data. The findings reveal a collaborative governance process within the Jakarta ERP policy's implementation, particularly concerning system context, collaborative governance regime, collaborative dynamics, collaborative actions, and their associated outcomes. Moreover, based on the study's findings, the DKI Provincial Government is urged to sustain the engagement of community and private stakeholders in formulating draft regional regulations about electronic traffic control and to enhance the management and governance of transportation infrastructure in Jakarta, all aimed at guaranteeing the inclusiveness, effectiveness, quality, and acceptance of this policy up until its future execution.

Keywords: *Electronic Road Pricing, Collaborative Governance, Congestion.*

1. Introduction

The high traffic volume in the Special Region of Jakarta (DKI), a megacity and the economic center of the country, and surrounding buffer cities (Bogor et al.) are leading to significant congestion issues. As per data from BPS, the projected 1.86% growth in the number of private vehicles (cars and motorbikes) in 2022 is a concern due to the population's preference for private cars over public transportation (Ricardianto et al., 2018). The increase in private vehicles, urbanization, population density, and limited road construction exacerbate the traffic problems in Jakarta. This rapid vehicle growth requires a corresponding expansion of road infrastructure to mitigate congestion. Furthermore, the prolonged travel times resulting from congestion are not just a matter of inconvenience, but they also significantly impact road users' productivity. What's more, traffic jams are contributing to a surge in air pollution, posing serious health risks to the public (Christian, 2020). The current public transportation services in Jakarta are perceived as less efficient regarding travel time and schedule reliability (Usmany & Dirkareshza, 2023). Even the odd-even motorized vehicle restriction policy has yet to

successfully promote a shift to public transportation or reduce congestion in Jakarta (Prayudyanto & Tamin, 2019; Zulatsari & Sampurna, 2024).

In response to these challenges, the implementation of Electronic Road Pricing (ERP) emerged as an alternative transportation policy in the early 2000s (Putra, 2020; Nomleni, 2019). This policy aims to reduce road use in specific areas to encourage the public to opt for public transportation (Ricardianto, 2018; Sunitiyoso et al., 2017; Abadi, 2011; Fernando & Najid, 2019). The Jakarta Special Regional Provincial Government (Pemprov DKJ) is drawing inspiration from successful implementations of ERP in major cities worldwide and exploring this approach to alleviate congestion. The text illustrates various studies on ERP implementation in different cities such as Osaka and Kobe (Yamamoto et al., 2000), Vancouver (Washbrook et al., 2006), Singapore (Agarwal & Koo, 2016; Seik, 2000), Hong Kong, and Stockholm (Small & Gomez-Ibañez, 1998). The successful adoption of ERP in Singapore, as studied by Menon and Guttikunda (2010), led to a 12-20% modal shift from private cars to bus transportation during the morning hours and a 10% modal shift in the evening. Similarly, studies in Stockholm and downtown Singapore showed a 20-30% reduction and at least 20% in traffic volume, respectively (Walker, 2011).

In an attempt to adopt ERP, the Pemprov DKJ conducted trials on 25 arterial roads with variable rates, including prominent locations such as M. H. Thamrin Road, Jenderal Sudirman Road, H. R. Rasuna Said Road, and the Kota Tua area (Falatehan et al., 2020; Nomleni, 2019). The implementation of ERP has shown potential in reducing congestion by approximately 19% (Rifai et al., 2021). This promising result encourages further research and development in the field. However, challenges exist as drivers tend to avoid roads with ERP, leading to increased congestion outside ERP roads due to travel route diversions (Rizki et al., 2016; Alvinsyah & Fathurrizqi, 2022; Rifai et al., 2021). The economic impact on lower-middle-class communities, which heavily rely on private vehicles for mobility, is a crucial consideration (Usmany & Dirkareshza, 2023). Additionally, the successful implementation of ERP is contingent on public involvement, communication, input from various stakeholders, and raising public awareness of the ERP system's benefits. This underscores the need for stakeholder engagement to prevent community resistance (Talukdar & Hassan, 2014; Sugiarto et al., 2020; Ricardianto et al., 2018).

Given the intricate nature of the ERP policy plan, which encompasses diverse societal interests and groups, and considering the limited implementation of technology-based policies in Indonesia, collaborative governance is imperative to ensure inclusivity, efficacy, quality, and acceptance in formulating and implementing future policies. *Collaborative governance* refers to a unified process and structure for public policy decision-making that entails community participation from various public institutions, government levels, and cross-sector actors, both public and private, working constructively together to achieve common goals that cannot be attained individually (Emerson et al., 2012). Furthermore, Ansell and Gash (2007) highlight that effective collaborative governance hinges on historical conflicts or cooperation, stakeholder incentives, power and resource imbalances, leadership, and institutional design.

In transportation, numerous scholarly works emphasize the advantages of collaborative governance in shaping policies. For instance, Cain, Gerber, and Hui (2020) highlight the

increase in public support for transportation policy governance when citizens are involved instead of solely having interest group representatives. Additionally, Guajardo et al. (2018) underscore the presence of collaborative governance in the transportation sector, resulting in significant cost savings. Similarly, Xie et al. (2023) point to cost savings through collaborative pricing schemes in electric transportation policies. Integrating innovative and collaborative governance within public administration can foster cooperation, inclusivity, and joint problem-solving among stakeholders, significantly influencing society (Temitope, 2023). Furthermore, establishing effective and efficient governance in the public sector requires trust, well-defined objectives, and technological support to facilitate collaborative innovation processes (Lopes & Farias, 2020; Cahyadi & Soenarjanto, 2019). Therefore, at its core, collaborative governance, as a tool for decision-making and policy development (Wenhua, 2023), embodies inclusiveness and democratic principles.

Unlike previous studies that primarily focused on the outcomes and impacts of ERP or collaborative governance, this study takes a unique approach. It delves deeper into the plans for implementing ERP in DKJ, explicitly emphasizing the historical underpinnings of collaborative governance. This includes problem identification, plan assessment, system context examination, elucidation of collaborative dynamics and actions, and review of outputs stemming from collaborative governance. The aim is to provide scholarly and practical insights that can serve as a comprehensive reference for future ERP research and governance collaborations in administration and public policy. Additionally, this study seeks to furnish relevant stakeholders with a comprehensive reference to aid in formulating all-encompassing and inclusive public policies while fostering and reinforcing stakeholder commitment for prospective implementation.

2. Method

The study employs a descriptive qualitative methodology, utilizing a literature review and secondary data analysis. This approach encompasses various philosophical assumptions, research strategies, and the systematic collection, analysis, and interpretation of data. Creswell and Poth (2018) have noted its suitability for systematically analyzing discussions. It aims to provide a detailed and in-depth understanding of the contextual conditions (natural setting) and occurrences within the field of study, as described by Fadli (2021). Furthermore, the analysis of collaborative governance aligns with the Integrative Framework proposed by Emerson, Nabatchi, and Balogh (2012), which encompasses system context, collaborative governance regime, collaborative dynamics, collaborative actions, and collaborative outcomes.

3. Results and Discussion

ERP is a method of traffic demand management aimed at enhancing road traffic efficiency and effectiveness. This policy falls within the government's jurisdiction and constitutes a pivotal responsibility as a state administrator to mitigate congestion and environmental concerns, address economic issues related to public transportation services,

and ensure legal certainty. Congestion remains a pressing issue in DKI Jakarta (formerly known as DKJ), causing adverse socio-economic and environmental impacts. Given the urgency of the situation, immediate action is necessary to combat congestion and environmental issues in DKI Jakarta through traffic control initiatives. Article 78, paragraph 2 of DKI Jakarta Provincial Regulation Number 5 of 2014 pertaining to Transportation grants regional authorities the power to impose restrictions on motorized vehicles on roads and traffic movements by implementing a paid traffic control system in specific areas and during certain times. In line with these regulations, the implementation of ERP emerges as a viable traffic control strategy that can be executed by the DKI Jakarta Provincial Government.

Importantly, the ERP policy has been a success story in various countries, including Singapore, Canada, Hong Kong, Sweden, and Japan. It operates as a push strategy, involving measures to regulate the use of private cars and motorcycles by restricting vehicle traffic in designated areas, times, and roads, alongside the imposition of specific fees. This approach utilizes electronic devices to identify vehicles, conduct data collection and payment processes, and adjust service rates in line with traffic conditions. The ERP policy can be promptly implemented concurrently with the advancement of the pull strategy, encompassing enhancements in public transportation services and their associated infrastructure. This success story from other countries should instill confidence in the potential of ERP to address congestion, environmental, social, economic, political, and other technical aspects in Jakarta.

The development and execution of the ERP policy in Jakarta have undergone a lengthy process from 2004 to early 2023 (BPTJ Ministry of Transportation of the Republic of Indonesia, 2020). Initially proposed during Sutiyoso's tenure as the Governor of DKI Jakarta, the ERP was intended to complement the 3-in-1 policy already in place on several Jakarta roads, with implementation scheduled for 2007. However, insufficient infrastructure and public transport availability led to the plan's non-realization (BPTJ Ministry of Transportation of the Republic of Indonesia, 2020). Under the leadership of Governor Fauzi Bowo, the ERP implementation plan underwent a thorough study, revealing its potential to save fuel costs of up to 6.6 trillion Rupiah through reduced traffic. However, the implementation required a substantial budget of 1.2 trillion Rupiah (BPTJ Ministry of Transportation of the Republic of Indonesia, 2020). During this period, the DKI Jakarta Provincial Government received proposals for ERP equipment, including one from the Norwegian company Q-Free, which had prior ERP implementation experience in Stockholm, Sweden (Detik News, 2008). Although scheduled for the end of 2008, the ERP implementation was postponed to 2009 and remained unrealized under Governor Fauzi Bowo due to the absence of central government regulations about ERP.

Government Regulation Number 32 of 2011 addressing Traffic Engineering Management, encompassing ERP implementation, was issued in 2011 during Governor Joko Widodo's leadership. Collaboration between the DKI Jakarta Provincial Government and Polda Metro Jaya to synchronize vehicle data was conducted to assess the ERP system and tools readiness. Furthermore, the DKI Provincial Government received ERP equipment offers from Sweden, Russia, and Norway during this period (metadata.co.id, 2017). Subsequently, in 2014, ERP was initially tested on various roads, including H.R. Rasuna Said Road, Jenderal Sudirman

Road, and M.H. Thamrin Road, under Governor Basuki Tjahja Purnama. The DKI Jakarta Provincial Government, in collaboration with BUMD PT Alita Praya Mitra, PT Toba Sejahtera, Q-Free from Norway, and IBM Indonesia, conducted trials for the implementation of ERP (BPTJ Ministry of Transportation of the Republic of Indonesia, 2020). However, the execution of the ERP faced setbacks due to public demand for regulatory reviews, auction cases, and technical issues with the tools used. In 2019, DKI Jakarta DPRD urged the then-Governor, Anies Rasyid Baswedan, to proceed with the ERP plan. Governor Anies mentioned that the ERP process was under review and that the latest technology was being prepared for its implementation. However, due to the COVID-19 pandemic, the implementation of the ERP policy was further postponed.

In early 2023, the Acting Governor of DKI Jakarta, Heru Budi Hartono, expressed the intention to continue the ERP plan by engaging in discussions regarding the draft regional regulation with the DPRD and various stakeholders, including academics, non-governmental organizations (NGOs) and other community organizations. Despite facing resistance from the community, the DKI Provincial Government proceeded with discussions with all relevant stakeholders to conduct a more comprehensive study and develop draft regulations (Yuantisya, 2023). Given the intricacy of the ERP policy plan, which involves diverse stakeholders and the relative novelty of technology-based policies in Indonesia, collaborative governance is essential to ensure inclusiveness, effectiveness, quality, and acceptability in formulating and implementing this policy. This study aims to explore the aspects of collaborative governance in implementing ERP policies in DKJ, drawing upon the perspectives of Emerson and Nabatchi (2015), as elaborated in the subsequent explanation.

System Context

The system context is influenced by political, legal, social, economic, and environmental conditions. There are six critical elements in the system context of the ERP implementation plan in Jakarta:

1. Condition of Public Resources/Services
   The public service conditions relevant to the ERP implementation plan in Jakarta involve:
   a. Rapid development of the public transportation system and non-motorized transportation modes such as LRT, MRT, bicycle lanes, pedestrian lanes, sidewalks, and integration of public transportation.
   b. High private motorized vehicle usage has significant adverse environmental, economic, and social impacts.

2. Legal and Policy Framework
   The regulatory framework for ERP implementation plans in Jakarta includes:
   a. Presidential Regulation Number 61 of 2011 on the National Action Plan for Reducing Greenhouse Gas Emissions involves congestion charging, road pricing, and fast mass public transportation in Jakarta and Surabaya.

b. Presidential Regulation Number 55 of 2018 concerning the Jakarta, Bogor, Depok, Tangerang, and Bekasi Transportation Master Plan for 2018-2029 encompasses ERP implementation and regulation of motorbike usage on specific Jakarta roads.
c. Governor's Instruction Number 66 of 2019 on Air Quality Control, including congestion pricing policies related to air quality control.

3. Economic and Cultural Characteristics

Social, economic, and cultural characteristics influence the implementation plans for ERP systems in Jakarta.

a. Social Characteristics

As the capital city, Jakarta plays an essential multifunctional role, serving as a hub for government, industry, trade, education, culture, and other facilities. Geographically, Jakarta is surrounded by the buffer cities of Bogor, Depok, Tangerang, and Bekasi, and the progress and development of these areas are interconnected with Jakarta. However, this has given rise to societal issues such as traffic congestion and environmental pollution. The limited growth of road infrastructure, increasing number of trips, high vehicle ownership, low usage of public transportation, and environmental pollution from industrial and vehicular emissions contribute to these problems (DPRD et al. Jakarta, 2020).

b. Economic Characteristics

Congestion and air pollution in Jakarta resulted in economic losses of 65 trillion rupiah and 50 trillion rupiah, respectively. Considering external factors such as increased accidents, higher logistics costs, and decreased quality of life, the actual losses may surpass these figures (Puspitasari, 2023; Fauzan, 2023).

c. Cultural Characteristics

Private vehicles are Jakarta residents' primary mode of transportation due to the city's population growth, which has outpaced urban transportation infrastructure development. Although convenient for navigating through traffic, the increasing environmental impact is a concern. Additionally, there has been a paradigm shift in the DKI Jakarta Provincial Government from Car Oriented Development (COD) to Transit Oriented Development (TOD) (DPRD et al. Jakarta, 2020). COD emphasizes city density optimization, corridor-oriented development, and private vehicle prioritization. In contrast, TOD focuses on controlling traffic volume through public transportation support, pedestrian and cyclist access, road safety enhancement, and regionally oriented development, which is suitable when transportation integration is widespread.

4. Network Characteristics

The network characteristics of the ERP implementation plan in Jakarta underscore stakeholders' diversity and interdependence, distinguishing this characteristic from

previous ones. The stakeholders include the government, the private sector, and the public.

a. The government component comprises entities such as the Transportation Department, Central Government, DKI Jakarta Provincial Government, Jabodetabek Transportation Management Agency (BPTJ), and Metro Jaya Regional Police.
b. Meanwhile, the private sector encompasses ERP electronic technology providers, financial institutions, construction companies, and automotive companies.
c. The public includes road users, environmental organizations, transportation and policy observers, academics, mass media, and transportation associations.

The interdependent relationship between these three elements is evident. For instance;

a. Government-Society
   The government relies on active participation, perspectives, and support from the public to gain comprehensive commitment and input on the ERP implementation plan in Jakarta. Similarly, the public requires clear, transparent information and an open avenue for involvement in the ERP policy formulation process to enable active participation. Individuals possessing a comprehensive understanding of ERP plans tend to comply with the regulations and maintain a high level of trust in the government, facilitating the achievement of policy objectives (Thetool et al., 2017).
b. Public-Private
   Regarding the public-private relationship, the government requires support from the private sector in terms of investment, provision of electronic devices, or infrastructure development that supports ERP implementation. The private sector can also aid in the development and execution of ERP, reaping not only material benefits but also intangible ones such as a positive reputation.
c. Public-Private
   Moreover, the community's dependency on the private sector for economic and employment opportunities stemming from ERP implementation fosters a demand for new services or products from private enterprises, leading to both material and intangible benefits.

5. Political Dynamics and Power Relations
   In the ERP implementation plan context, the political dynamics encompass formal and informal power relations.
   1. Formal relationships
      Formal relations are exemplified by collaborations between regional and central governments, as evidenced by issuing legal frameworks for ERP implementation, such as Presidential Decree No. 61/2011, Presidential Decree No. 55/2018, and Governor's Instruction No. 66/2019. Furthermore, private entities like Q-Free

Norway and the Indonesian IBM company were involved in ERP trials in 2014 through a competitive bidding process (Aziza, 2014).

2. Informal relationships
   On the other hand, informal relations are reflected in public pressure exerted on the DKI Jakarta Provincial Government, manifested through demonstrations against the ERP implementation plan in 2015, 2019, and 2023. These demonstrations, as documented by Soebijoto (2015), Dakta.com (2019), and Aspirasi Online (2023), highlight informal dynamics within the context of the ERP implementation plan.

6. History/Conflict History
   Conflicts and setbacks have marked the history of ERP implementation plans. For instance, in 2007 and 2009, plans to implement ERP were delayed due to the unpreparedness of Jakarta's public transportation system, while in 2014, ERP testing and follow-up were halted due to auction-related issues, technical challenges with supporting tools and the need for regulatory review. The postponement of the ERP implementation plan in 2019 was attributed to the COVID-19 pandemic and public concerns regarding regulatory revisions and technological preparedness. Similarly, in 2023, the postponement of ERP implementation was driven by community and governmental pressures to review regulations for the benefit of diverse stakeholders comprehensively.

Furthermore, in the system context, certain factors drive the initiation of the Collaborative Governance Regime (CGR). Key drivers of the ERP implementation plan in DKI Jakarta Province encompass:

1. Leadership; In this respect, efforts have been made to introduce the ERP system in DKI Jakarta to alleviate traffic congestion and environmental pollution. The concept of ERP was initially introduced by the then Governor of DKI Jakarta, Sutiyoso, during the 2002-2007 period, and the implementation process has since been ongoing.
2. Consequential Incentives; Incentives take the form of community motivation to engage in collaborative efforts for the community's benefit. The proposed ERP implementation in DKI Jakarta promises reduced travel times by decreasing vehicular volume on the roads, ultimately enhancing the community's quality of life and welfare. These advantages serve as motivation for community participation in the ERP implementation plans.
3. Interdependence; This aspect underscores the interconnectedness of relevant parties in achieving shared objectives. In the context of the ERP implementation plan in DKI Jakarta, the Provincial Government requires the support of various stakeholders due to limited knowledge, expertise, skills, and legitimacy. Collaboration with diverse stakeholders from government entities, including the transportation department, central government, Jabodetabek Transportation Management Agency (BPTJ), Metro Jaya Regional Police, and private entities encompassing ERP electronic technology providers, financial institutions, construction companies, as well as societal elements such as road users, environmental organizations, transportation and policy observers, academics, mass media, and

transportation associations is essential to formulate comprehensive policies with a unified commitment.

4. Uncertainty; This aspect arises from the involvement of numerous stakeholders with varied interests. In the ERP implementation plan in Jakarta, uncertainty is evident in the plan's evolution from 2004 to 2023. The plan has encountered dynamic shifts, from the initially planned implementation in 2007 being postponed to 2009; trial plans in 2014 being halted due to obstacles, and necessitating reassessment until the most recent review period in 2023. This has resulted in uncertainty regarding the implementation of ERP in Jakarta, contributing to the occurrence of a Collaborative Governance Regime. In summary, the system context elucidation demonstrates a sustained continuity in the ERP implementation plan in DKI Jakarta.

Collaborative Governance Regime (CGR)

Under the Collaborative Governance Regime (CGR), a system for making public decisions involving cross-border cooperation and influencing behavioral patterns, two key components are present: Collaborative Dynamics and Collaborative Actions.

Collaborative Dynamics

Within the context of the ERP implementation plan in Jakarta, Collaborative Dynamics encompasses three aspects that interact to produce collaborative actions or steps to achieve CGR goals.

1. Principled Engagement; This aspect underscores all stakeholders' inclusive, fair, and transparent involvement in the collaborative process. In the context of the ERP implementation plan in Jakarta, principled involvement ensures that all relevant stakeholders are included in the planning process, decision-making, and policy implementation. This inclusive approach is exemplified by the DKI Provincial Government's efforts, from involving community and private elements in the initial stages of the ERP implementation plan in 2004 with JICA's participation to the recent discussions of the Draft Control Regulations for Electronic Traffic (PL2SE) in 2023, which included relevant stakeholders and made results transparently available for wider audiences (DPRD et al. Jakarta, 2023). Principled involvement has the potential to facilitate the formulation of more inclusive, comprehensive, transparent, and accountable policies. This, in turn, can lead to heightened public trust, commitment, and participation in the decision-making process and its subsequent implementation.
2. Shared Motivation; The concept of shared motivation underscores the importance of unified zeal and stakeholder support in pursuing mutually advantageous objectives. It involves a collective acknowledgment that collaboration is an effective means to surmount challenges, devise solutions, distribute responsibilities, and foster enhanced trust, all in the interest of achieving superior goal attainment. In the context of the intended implementation of an ERP system in Jakarta, the collective impetus centers on alleviating traffic congestion, enhancing vehicular mobility, reducing environmental

pollution, elevating welfare and safety standards, and amplifying positive economic impacts. Furthermore, this shared motivation is fueled by the recognition of the inadequacy of previous policies, such as the 3-in-1 policy, which led to the proliferation of unauthorized passengers and vehicles; the odd-even policy, which triggered a surge in secondary vehicle purchases and escalated the overall volume of vehicles; and the restrictions on motorcycles, which were deemed ineffective due to their impact on couriers and online transportation (Media Indonesia, 2023). Moreover, shared motivation is linked to cultivating trust and positive stakeholder relationships. As trust and rapport flourish, so does the motivation to collaborate. It also entails understanding collective accountability toward goal attainment and calls for developing joint solutions to surmount emerging challenges. In the context of ERP implementation in Jakarta, stakeholders join forces to devise an efficient implementation framework, implement equitable tariff adjustments, and address technical issues relating to the ERP (DPRD et al. Jakarta, 2020). Through shared motivation, stakeholders can seamlessly and synergistically collaborate to reinforce effective and comprehensive cooperation, leading to the realization of the superior objectives outlined in the ERP implementation plan in Jakarta. This collective motivation serves as the impetus driving the oversight and sustainment of active involvement from all stakeholders in the collaborative governance process of the ERP implementation plan in Jakarta.

3. Capacity to Act Together; The concept of "Capacity to Act Together" in the context of ERP implementation in Jakarta underscores the importance of stakeholders' collaborative effectiveness in achieving predefined objectives. It involves the development of requisite skills, knowledge, and resources to facilitate active participation in the collaborative process. Stakeholders must comprehensively understand the technical, financial, social, environmental, and economic aspects of the policy to contribute effectively to its design and decision-making (DPRD et al. Jakarta, 2023). Additionally, the institutional strength of each stakeholder plays a significant role, as robust institutions with clear organizational structures, adequate resources, and collaborative capabilities foster active participation in formulating ERP policies in Jakarta. Moreover, the capacity to act together relies on the active involvement of all stakeholders in the collaborative and accountability processes by sharing thoughts and taking responsibility for actions required in the ERP implementation plan (Göpfert et al., 2018). This ensures strengthened collaboration and enhances the likelihood of successful policy implementation (Scott & Manning, 2022). The capacity to act together encourages effective collaboration in the governance of ERP implementation in Jakarta, promoting good communication, leveraging institutional strengths, and utilizing financial and technical resources to actively engage in collaborative processes (DPRD et al. Jakarta, 2020; Dharma, 2022). In conclusion, the collaborative, dynamic elaboration aspect signifies the continuity of the ERP implementation plan in Jakarta.

Collaborative Actions

Collaborative action involves a deliberate effort stemming from joint decisions made in collaborative governance under dynamic, collaborative conditions. According to Emerson and Nabatchi (2015), such actions are contingent on a given program or action's contextual factors, demands, and objectives. In the context of the Enterprise Resource Planning (ERP) implementation plan in Jakarta, several instances of collaborative actions are evident:

1. Public consultation: The DKI Jakarta Provincial Government conducted public consultations to engage relevant stakeholders in formulating the ERP policy. This inclusive approach allowed stakeholders to express their inputs, opinions, and concerns regarding the ERP implementation plan in Jakarta (Al Faruq, 2023). Furthermore, Herman, Kurniawan, and Rezki (2023) emphasized the importance of dialogue in collaboration, as it aligns perceptions toward mutually desired outcomes. Active dialogue during public consultations enables stakeholders to design ERP policies collaboratively by considering diverse perspectives, leading to comprehensive policy formulations prioritizing community interests.
2. Establishment of a working group: The DKI Jakarta Provincial Government established a working group to address issues related to the ERP implementation plans in Jakarta (Aziza, 2013). This working group comprises relevant stakeholders who engage in periodic interactive discussions to share information, process data, and develop collaborative solutions to emerging issues.
3. Joint research and evaluation: The DKI Provincial Government has undertaken joint research and evaluation of the ERP implementation plan in Jakarta, commencing with the SITRAMP study in 2004. Subsequently, an evaluation of ERP implementation trials in 2014 resulted in the revision of related regulatory plans, and most recently, in 2023, a review of the draft ERP regulations will be conducted to ensure alignment with community interests. This activity involves government, private, and community entities gathering data, analyzing impacts, and establishing evaluation mechanisms for policy implementation. Through joint research and evaluation, stakeholders can acquire robust and high-quality evidence for making evidence-based decisions and enhancing policies to address field-identified challenges, ensuring improved implementation in the future.
4. Increased public awareness: The DKI Provincial Government, in collaboration with community and private entities, initiated a program aimed at enhancing public awareness and imparting a comprehensive understanding of the advantages, objectives, and mechanisms associated with the implementation of ERP in Jakarta (KumparanNEWS, 2019). This amplified public understanding mitigates potential community resistance towards the proposed ERP implementation in Jakarta.
5. Joint implementation and monitoring: Furthermore, joint implementation and monitoring involving the DKI Provincial Government, private sector, and community stakeholders have been pivotal in ensuring the effective execution of ERP policies and

evaluating their impacts. This cooperative approach was evidenced during the ERP implementation trials in 2014. It initially progressed smoothly but encountered setbacks during its development phase due to extensive regulatory reviews, technical equipment issues, and obstacles in the equipment auction process (BPTJ Ministry of Transportation of the Republic of Indonesia, 2020). Such collaboration fosters shared responsibility in identifying emerging challenges and implementing corrective measures.

The aspect of collaborative elaboration in the ERP implementation plan at DKJ denotes a commitment to continuity and coherence. Moreover, the aforementioned collaborative efforts prompt relevant stakeholders to work harmoniously towards the collective objectives of implementing ERP in Jakarta. This collaborative framework also encourages considering diverse perspectives, fostering innovative solutions, and culminating in improved outcomes for the ERP implementation endeavors in Jakarta.

Collaborative Outcomes

The dynamics and collaborative actions within the Collaborative Governance Regime (CGR), as noted by Emerson and Nabatchi (2015), result in collaborative outcomes in the form of impact and adaptation. Impact signifies the consequences of dynamic, collaborative actions. At the same time, adaptation denotes the potential for transformative change arising from collaborative efforts within CGR, among participating organizations, or about targeted resources. The anticipated collaborative outcomes of the ERP implementation plan in DKI Jakarta encompass the following:

Impact

a. Development of regional regulations for electronic traffic control in DKI Jakarta Province.
b. Publication of an academic paper addressing electronic traffic control in DKI Jakarta Province.
c. Issuance of complementary regulations about service rates, vehicle parking adjustments, motor vehicle taxes, fuel subsidies, pedestrian paths, and cycling provisions.
d. We are promoting increased usage of public transportation modes such as KRL, LRT, MRT, and Transjakarta.
e. Alleviation of traffic congestion and reduced vehicle queues lead to shorter travel times.
f. Enhancement of traffic safety, including the support of electronic devices for traffic control, such as Radio Frequency Identification (RFID), Dedicated Short-Range Communication (DSRC), Global Navigation Satellite System (GNSS), or Automatic Number Plate Recognition (ANPR) (Wibowo, 2017).

Adaptation

a. Enhancement of environmental quality by curbing air pollution and noise from vehicular activities.
b. Advancement of public transportation infrastructure.
c. Implementation of electronic law enforcement.

d. Cultivation of a shift in driving behavior through heightened public awareness and adherence to regulations.

Conclusively, elaborating collaborative outcomes reveals their integral continuity within the ERP implementation plan for DKI Jakarta. Overall, these outcomes emphasize the innovative and comprehensive solutions aligned with community acceptance and support, manifesting a substantial positive impact on society.

4. Conclusion

Based on the findings from the preceding discussion, it can be inferred that within the context of the ERP implementation plan in Jakarta, collaborative governance is evident in the system context aspect, known as the collaborative governance regime (CGR), encompassing collaborative dynamics, actions, and outcomes. The system context aspect manifests in the conditions underpinning the ERP implementation plan in Jakarta, including the legal framework, social, economic, and cultural characteristics, interdependent network relationships between stakeholders, formal and informal power relations, and a history of conflict in ERP development. Meanwhile, the collaborative governance regime aspect is exemplified by leadership, initiatives involving the community as the primary driver, interdependence among stakeholders to actualize the ERP plan, and uncertainty in the ERP implementation. Additionally, the collaborative dynamics aspect is demonstrated by principled stakeholder involvement, shared motivation for mutually beneficial goals, and the ability to act in unison. From the collaborative actions' perspective, evident components include public consultations, formation of working groups, joint research, monitoring and evaluation, and efforts to enhance public awareness. Ultimately, the collaborative outcomes aspect encompasses the impact and adaptation of the ERP implementation plan in Jakarta.

Future steps required by the DKI Jakarta Provincial Government regarding the ERP implementation plan involve the sustained involvement of public and private entities in formulating draft regional regulations related to electronic traffic control. Equally important are regulations for preparedness and enhancements in transportation governance and infrastructure management as well as the diversification and enhancement of public transportation modes. These measures are essential for the successful implementation of the ERP plan. Furthermore, the selection of suitable technology, and the development of supportive regulations pertaining to tariffs, public service standards, and integration of population data with vehicle ownership records are also crucial.

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