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The government of Indonesia's smart city development: Fiscal capacity, cognitive models in decision making, excessive caution about future accrual of benefits, and null regulatory leadership

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This article investigates the lack of certainty regarding the success of smart city development in the Government of Indonesia's regions. The authors suspect that developing smart cities in each region ran independently and nationally, without a unifying strand of knowledge and information system leadership models. Based on these statuses and circumstances, this research examines these phenomena with two critical perspectives: The cognitive model of double-loop learning of smart city development and a dexterous strategy in terms of political economy. Consequently, this study finds that the regions developing a smart city act according to the statuses: Working with only fiscal budget readiness, cognitive models in the decisions to create future works, excessive caution about accruing potential future benefits, and null regulatory leadership in terms of guidelines. Thus, this study concludes that regions develop smart cities in their self-imagination without profound directional boundaries.

KEYWORDS

mental models, double-loop, smart city, prosperity, innovation, political economy

Introduction

Since the Indonesian Government at the central level (GoI) announced the development of smart cities in 2017, the medium-term plan has stated that 50 out of 100 smart cities in the region were starting to be built. However, implementing smart city development varies according to each region's motivation (Mayangsari and Novani, 2015; Anindra et al., 2018a; Budy, 2018). Furthermore, this study indicates that smart city development is affected by regions' freedoms of analysis and design, the IST type and

platform developed, the management of their implementation, etc., On the other hand, the central GoI does not lead the regions with smart cities' standardised ICT and IoT nationally and, at the same time, does not instruct them with strategic knowledge to accelerate these smart city developments. In other words, realising the smart cities, the GoI should invest in the knowledge endowment to be imparted to the regions through regional government chiefs and collective communities Ng et al. (2022); Pratama (2021); Yigitcanlar (2015). Thus, this study demonstrates that physical or non-physical development is realised more quickly when capitalised knowledge substantially precedes physical and legal aspects. This lack of clarity implied a void in terms of a genuine spirit to complete the development of smart cities (Bykova and Jardon, 2018; Offenhuber, 2019; Peter and Meyer, 2022). Finally, this study analyses the potential emergencies in the GoI's smart city development without strategic knowledge to accelerate smart city realisation (Lerro and Schiuma, 2009; Centobelli et al., 2017; Džupka, 2021). The lack of knowledge is the partiality of deceit that becomes agility, which is wrong (Offenhuber, 2019; Pratama, 2021; Kusumastuti et al., 2022), and a lack of understanding to accrue future potential benefits based on a definite political economy (Purwanto, 2018; Appio et al., 2019; Ahmad et al., 2022).

This article demonstrates that many smart city developments are possibly stalled (i.e., not immediately realised) due to the GoI's clandestine leadership supported by a lack of knowledge informing the transformation process (Israilidis et al., 2021; Pratama, 2021; Okafor et al., 2022). This clandestine leadership is the first uniqueness of this study, with evidence of the various smart cities being developed differently in various regions. Thus, this study suggests variations in managing smart city development projects. Furthermore, it reveals that the GoI did not issue an intelligent city development model as a tool to systemise control of this development (Firmanyah et al., 2017; Anindra et al., 2018b; Herdiyanti et al., 2019). Therefore, this article shows that the immediately unrealised smart city developments were solved when the central GoI shared congruent knowledge with the regions (Tan, Taeihagh, and Sha 2021; Tan and Taeihagh 2020; Yigitcanlar et al., 2019), supporting the regions' chiefs through their cognitive models. Consequently, the GoI has to dismantle its clandestine leadership for the control systems that always actively diagnose smart city development progress (Shelton et al., 2015; Silva et al., 2018; Yoshida and Thammetar, 2021). Next, when the GoI uses command leadership to replace clandestine ones, the regions' chiefs can construct their cognitive models (Donaldson and Luo, 2014; Chen et al., 2018; Džupka, 2021), which then get feedback to correct these development projects. Finally, this study concludes that smart city development is immediately incomplete because the regions are not equipped with cognitive models due to GoI's clandestine leadership, which does not place knowledge supremacy as part of the transformation process.

Furthermore, regarding the regions' cognitive model, this study shows that each region gains capabilities and competencies to provide counterfactual reasoning in developing smart cities (Tay et al., 2018; Mahesa et al., 2019; Parlina et al., 2019). In other words, the regions act to develop smart cities with their double-loop learning as a consequence of a cognitive model. Then, they acquire intellectual endowments because of the knowledge transformation from central GoI that are used to adapt their smart city development to fit with the environment and the institutional and work culture. On the other hand, the regions' double-loop learnings allow its chiefs to compare their projects to normative denominators or other smart city developers (Mohamed et al., 2006; Lerro and Schiuma, 2009; Offenhuber, 2019). Finally, the authors believe that double-loop learning ascertains the regional chiefs' institutional efficacy due to feedback regarding improved decision-making (Kayaga et al., 2013; Kusumastuti et al., 2022; Okafor et al., 2022). Moreover, the quality of smart cities built by the regions would be better due to their chiefs countering the production progress.

The second uniqueness of this study is the analysis of the GoI's implementation of a dexterous strategy (or not) for smart city development (Susanti et al., 2016; Syalianda and Kusumastuti, 2021; Hasmawaty et al., 2022), which is sequentially related to its political economy. Specifically, this study highlights whether the central GoI implements dexterities in smart city development by involving multiple resource-based views or just a single one (Moreno et al., 2009; Pettit et al., 2018; Offenhuber, 2019). Furthermore, this study argues that the central GoI should utilise multiple resource-based or dexterous strategies to ensure that the investments in smart city development are not a paradox in terms of investments in the future (Shelton et al., 2015; Mouazen and Hernández-Lara, 2021; Pratama, 2021). On the other hand, the authors analysed the central GoI's political economy to accrue the future potential benefits of smart cities to be capitalised on as an initial investment (Appio et al., 2019; Israilidis et al., 2021; Kusumastuti et al., 2022). The authors also identify that the central GoI enables this smart city development to have a welfare function for society (Shelton et al., 2015; Pratama and Imawan, 2019; Pratama, 2021) or just a societarian investment. Then, this article argues that when the GoI dares to capitalise on the future economic benefits of smart city development, the GoI takes political economy action correctly because it is really for the communities' prosperity in the future with low processing costs for each living activity.

This research contributes to the awareness of knowledge mastery and its transformation process to work on smart city development projects or others. Therefore, the authors argue that the GoI's smart city development should be about knowledge supremacy (Bosch-Mauchand et al., 2013; Yigitcanlar et al., 2019; Tan et al., 2021) as a function of constructing the cognitive agents

involved. Therefore, this article considers constructivism which proposes that knowledge is the primary driver for successful development. Thus, when the regions' chiefs and their communities have capitalised on constructive knowledge for smart city development, its process and implementation are efficiently controlled and effectively achieved (Mohamed et al., 2006; Silva et al., 2018; Appio et al., 2019). Moreover, during the development period, the GoI's agents became highly dynamic because of their higher ability to use counterfactual reasoning to find the best solutions for smart city problems (Yigitcanlar, 2015; Silva et al., 2018; Pratama, 2021). Otherwise, the GoI's smart city development process will be dogmatic even if what is dominantly transformed is only mechanistically administrative regulations and compliance with budgeting procedures (Mintrom and Luetjens, 2016; Pereira et al., 2018; Pettit et al., 2018). On the other hand, knowledge mastery becomes the capital for the GoI's agents to succeed in developing smart city projects because they are in cognitive states within a cognitive model that can provide feedback and evaluate deviations from the supposed truth. Likewise, the GoI's agents get the dynamic learning to adopt various alternative solutions.

The second contribution of this study is to formulate the validity of the smart city development that the GoI is undertaking to succeed in the future. The validity of smart city development is valid when the GoI has a strategy of dexterity, which utilises double- or multi-resource-based approaches to ensure success (Dencker and Gruber, 2015; Wanzenböck and Piribauer, 2016; Tan and Taeihagh, 2020). Likewise, the double- or multi-resource-based approach eliminates the IT investment paradox where smart city development incurs very high costs, and the development work becomes protracted. Furthermore, the validity of smart city development is properly complemented if the GoI accrues future economic benefits (Mohamed et al., 2006; Chen et al., 2018; Pratama, 2021). In other words, the GoI carries out a political economy by utilising smart cities as a function of the community's prosperity for the future. The authors argue that the investment validity of the smart city development made by the GoI plays a "polity" in which the community gets definite benefits, and the GoI bears the concentrated costs. In brief, this article underlines that the investment motive for developing smart cities of the central and regional GoI is in the validity of public interest (Bykova and Jardon, 2018; Suartika and Cuthbert, 2020; Kwak and Lee, 2022) or something else.

This study's critical perspective

Cognitive models of double-loop learning for smart city development

Organisational intellectuality, as a collection of individuals' tacit knowledge, supports the development of smart cities. Then, this article obliques to induce cognitive models into smart city development, showing the knowledge capabilities needed to accommodate decision-making and create problem-solving experiences (Dencker and Gruber, 2015; Pratama, 2021; Mangindaan et al., 2022). Furthermore, as a consequence of the cognitive model, double-loop learning facilitates decision-making by changing the work methodologies to become more optimal. On the other hand, the authors explain that double-loop learning transforms simple and static understanding into a broader and more dynamic one (Moreno et al., 2009; Kim et al., 2017; Chen et al., 2018). Moreover, double-loop learning can respond when receiving feedback information and increase optimisation in decision-making. Thus, this study argues that smart city development should adopt individual and organisational cognitive models and double-loop learning. Thus, the GoI empowers its regions to innovate smart city development and further realises it with the certainty of induced cognitive models and double-loop learnings. Hence, these cognitive models and double-loop learning inducements certainly guarantee the process of realising a smart city development.

This study focuses on the fact that smart city development projects are not immediately realised due to the incomplete knowledge of the cognitive model (Mohamed et al., 2006; Džupka, 2021) and the absence of double-loop learning (Tan et al., 2021; Yoshida and Thammetar, 2021). Furthermore, the GoI did not conduct a knowledge of the transformation process for regions to build smart cities or did not emphasise regions' knowledge mastery (Retna, 2002; Lerro and Schiuma, 2009; Purwanto, 2018), especially for the formation of mental models which have consequences for double-loop learning capabilities. However, this article highlights that the GoI tends to command the development of regions' smart cities with mechanical public administration and compliance with budgetary evaluations. Furthermore, this mechanical system has a consequence that creates a void and the absence of feedback information, impacting regions' low expertise to realise a smart city (Silva et al., 2018; Mouazen and Hernández-Lara, 2021; Pratama, 2021). Thus, this study reveals that smart cities are not immediately realised in various regions because they do not place knowledge supremacy as capitalised cognition but only mechanical administrative and budgeting evaluations. Hence, the regional governments, leakages in the incompleteness of the cognitive model and the void in terms of double-loop learning, cannot achieve dynamic flexibility to realise smart cities.

Dexterous strategy in political economy

This study considers a manual dexterity concept (Bosch-Mauchand et al., 2013; Mintrom and Luetjens, 2016; Sobinov and Bensmaia, 2021), revealing that regions should construct dexterous strategies for developing smart cities programmes. Moreover, in viewing various urban problems, local leaders should be able to activate their neural

mechanisms along with fundamental smart cities knowledge, creating the optimum strategies for solving those problems and enhancing society's prosperity. Furthermore, because regions have primary responsibility compared to the GoI, they should use functionalised all existing resources, producing the most professional approach and deploying the best ICT knowledge through their smart cities programmes. Consequently, they interactively stay ahead of the dynamisation curve of political economy phenomena *via* their groundbreaking strategies (Purwanto, 2018; Suartika and Cuthbert, 2020; Yoshida and Thammetar, 2021). However, the authors argue that all regions' poor progress in smart city programmes is caused mainly by the vagueness of the region itself in conceptualising a smart city project as an ongoing IST project rather than a mission to streamline all society activities. Even worse, the GoI has not yet accommodated a clear national roadmap for these 100 smart city projects, leading them to actualise the smart city building project blindly and endlessly (Deng et al., 2021; Džupka, 2021; Rachmawati et al., 2021). Thus, this study demonstrates that a dexterous mindset of all regions' chiefs is critical to running smart city projects. Hence, the regions have their decentralised autonomous organisation and society's responsibility, simultaneously executing political economy. Likewise, the GoI has done this too.

Consequently, the GoI could further build rigorous policies, guiding and controlling smart city intercity projects. Furthermore, each region utilises its resources optimally by using those policies as an anchored institutionalisation in developing smart city programmes (Retna, 2002; Caprotti et al., 2017; Mangindaan et al., 2022), reaching the national-smart city's mission integratively (Yigitcanlar 2015; Pettit et al., 2018; Appio, Lima, and Paroutis 2019). Moreover, the punctilious policy of the GoI resulted from its cognitively dexterous strategies, which determined the parameterised national production and consumption adaptively. In particular, in each GoI-graded relationship, welfare achievement targets could continue to grow, involving all agents at the regional and central levels (Mouazen and Hernández-Lara, 2021; Rachmawati et al., 2021; Okafor et al., 2022). Therefore, this study highlights that the implemented dexterity principle by the GoI led to the establishment of collective knowledge, encouraging all regions to work on smart city development properly. Consequently, when the Central GoI bundles all smart city projects, all regions could run in an aligned political economy (Shelton et al., 2015; Purwanto, 2018; Suartika and Cuthbert, 2020) due to disparity of thoughts. Furthermore, all smart city projects fulfil the essential missions of the smart city's political economy rather than as mechanistic administrative IST projects. Thus, all actors involved in smart city development concurrently run political economies generated from a high-minded smart city roadmap.

Proposition developments

This article develops propositions that would be investigated in terms of the actual activities of central-regional governments and all agents involved in smart city development. The deep contextual design of this study is the development of smart city projects for the regions concentrating on mechanistic administrative and budget fulfilments. GoI stressed that the development of smart cities does not emphasise the role of substance knowledge, which is when the regions' chiefs capitalise on this knowledge. Then, this knowledge is helpful for the smart cities' settlement process. Furthermore, this article indicates that the GoI did not innovate with dexterous strategies, which were then induced to the regions' and communities' involvement because of uncontrolled boundaries of this intangible knowledge (Mohamed et al., 2006; Wanzenböck and Piribauer, 2016; Israilidis et al., 2021). Therefore, this study indicates that the GoI implements the knowledge of the transformation process (Centobelli et al., 2017; Deng et al., 2021; Džupka, 2021) and the ability to measure output (Kayaga et al., 2013; Džupka, 2021; Ng et al., 2022) on the smart city development project with the clandestine approach. In addition, the unclear measurement and control of smart city development are due to misplaced philosophical concepts and theoretical knowledge (Caprotti et al., 2017; Appio et al., 2019; Kusumastuti et al., 2022) that should be transformed into the regions' chiefs. Likewise, the authors highlight that a smart city's development is equivalent to software application development. Furthermore, this study searches for the underlying inquiries of the realm-validated phenomena. Thus, we develop the propositions below.

P1: Does GoI treat regions? Through chiefs and communities involved, do substance knowledge sharing focus on underlying philosophies for smart city development or just ICT and IoT knowledge?

P2: How does the GoI's knowledge sharing improve regions' capacities and competencies with a cognitive model, double-loop learning, dexterity, and political economy to ascertain the succession of smart city development?

P3: How does the GoI measure and control these regions' smart city developments through an innovative achievement or mechanistically administrative and budget absorption performance?

P4: Why does the GoI not measure and control these regions' achievement levels with incremental welfare criteria in smart city developments?

Research method

This study collects data from the GoI's regulations or policies and the websites of regions developing smart cities and confirms them with competent participants related to implementing smart city development projects. Furthermore, this study analyses the content of a set of regulations, information on websites and social media, and inferences from in-depth interviews. On the other hand, the authors randomised 20 smart city development projects from 98 regions that carry out development projects,

obtaining an assessment from Aptika Kominfo in 2021. In addition, the authors consider the Ministry of Communication and Information assessing the project completion. Moreover, we select our sampling randomly based on this ministry grading system of A, B, C, and D, presented in Supplementary Appendix Table 1A. Furthermore, this research used the Ministry of Communication and Information grading system for 2020–2021. In addition, we show the grading and trend of these project development, presented in Supplementary Appendix Table 1B. However, we noted that there are no data for 2017–2019 due to the time for planning design.

Furthermore, this study has selected participants from GoI, the Ministry of Communication and Information, regions, ICT consultants, and the GoI's internal auditor. The authors select research samples randomly from the west, central, and east Indonesian areas. In addition, we consider public administration types of regency and city, presented in Supplementary Appendix A. We collected primary data with triangulated sources that are masterplan, grading and scoring systems, and other related documents. In addition, we also design a triangulation of participant expertise from central GoI, regencies, cities, and smart city consultants. Meanwhile, we analyse the contents using a qualitative method referring to this research's proposition. Then, in analysing data from various sources, the authors strive to achieve the best mutually confirming data collection to achieve reliability, validity and credibility (Garside, 2014; Kaczynski et al., 2014; Lowe et al., 2018). Finally, we finalise the data collection and then shift to analysis and reporting using the highest critical reasoning when it reaches saturation (Rowlands et al., 2016; Sebele-Mpofu, 2020). Hence, we depict participants as giving valid confirmation of this study's content analysis and whether it is true or false. Finally, we are concerned about the data credibility through the participants collected, as presented in Table 1 below.

The authors collected data from all legislation and regulations, websites from various regions developing smart cities, and in-depth interviews with participants concentrating on the knowledge transformation by the GoI for the regions, especially in cognitive models, double-loop learning, dexterous strategy and political economy. Furthermore, this study breaks down the four primary constructs into subdimensions and detailed subdimensions with detailed questions (Moreno et al., 2009; Kayaga et al., 2013; Kim et al., 2017). The detailed questions for the cognitive model and double-loop learning focus on information feedback from the implementation of smart city development projects that can drive the decision-making process and improve the cognitive model (Džupka, 2021; Israilidis et al., 2021; Ahmad et al., 2022). Furthermore, the details of the questions on the dexterous strategy are related to the attachment of the multiple strategies carried out by the regions to ensure the success of all cities' development (Shelton et al., 2015; Pettit et al., 2018; Appio et al., 2019). Furthermore, the concept of this strategy relates to the symptoms and consequences of the political economy (Purwanto, 2018; Pratama and Imawan, 2019; Suartika and Cuthbert, 2020) or is it just an IST development project? Finally, this study integrates the answers from all participants on the four constructs to condense them into research analysis and discussions.

Analysis and discussion

Development within single dexterity

This study has identified that smart city development using single dexterity in each region or city efficiently serves society. Moreover, this development is not treated as an ICT investment (Mwaniki, 2017; Rao and Prasad, 2018; Shin et al., 2021) and does not comprehend cognitive behavioural therapy for society (Ning and Liu, 2015; Jiang et al., 2020; Nikki Han and Kim, 2021). Thus, smart city development is solely an ICT product not accompanied by knowledge domains that society should consider (Lin et al., 2011; Ning and Liu, 2015; Rana and Dwivedi, 2015). The authors then present some transcripts below.

We, as human resources for regions and cities, accept the work of developing this smart city project as one activity to engage in it. But, more profoundly, we are not accommodated with the control and measurement of whether this is an ICT investment or cost-burdened. Therefore, the better we should do, the more knowledge Central GoI supports us, such as cost reduction strategy, information failures, programming interconnection, deep learning, etc., (P-05; 13'; P-02; 9'; P-01; 23').

We are in deep agitation or nervous anxiety that the smart city development project will become an investment paradox. We believe this project works on ICT development without comprehending knowledge sharing, learning orientation, social influences, etc., for regional society's learning (P-05; 60'; P-02; 54'; P-04; 3'; P-08; 9').

There are no determinative outputs and outcomes when we would be measured with mission accomplishment in this smart city development (P-07; 63'; P-01; 25'; P-08; 57').

This research shows that investments in information system development are usually equipped with ambi- or multiple-dexterities that aim to ensure the success and usability of the application (Dencker and Gruber, 2015; Wanzenböck and Piribauer, 2016; Offenhuber, 2019). Likewise, investing in smart cities does not become a futile activity with uncertainty regarding the generation of returns, better known as the investment paradox (Bibri and Krogstie, 2017; Edelenbos et al., 2018; Yigitcanlar et al., 2019). Ensuring the investment paradox does not occur, the management of the information system equipped this ICT product with ambi- or multiple-dexterous strategies (Wanzenböck and Piribauer, 2016; Edelenbos et al., 2018; Mouazen and Hernández-Lara, 2021). For example, the controller conducts dual- or triple-emphasises strategies, cross- or multi-platform, users' learning fit systems,

knowledge repository, reciprocity booster, etc. However, the authors find that comprehensive strategies have not equipped smart city developments in several regions and cities, especially in knowledge-sharing disseminated to communities. Moreover, we believe that regencies or cities should influence local communities to ascertain that this smart city application program could reduce the costs of effort, time, and resources (Lin et al., 2011; Ning and Liu, 2015; Nikki Han and Kim, 2021).

On the other hand, this study reveals that without strategies implemented in managing smart cities, the GoI's instructions to develop and practise them are not measured and controlled determinatively (Shen et al., 2018; Sharifi, 2019; Bisello, 2020). Then, the authors infer that the GoI orders smart city development without profound outputs, especially for what society and its administrative process should be transformed (Huovila et al., 2019; Sharifi, 2019; Kumar et al., 2020). Therefore, we argue that a smart city is an information system application program oriented to serve society's needs (Lin et al., 2011; Ning and Liu, 2015; Jiang et al., 2020). From other perspectives, developing smart city applications did not disrupt the former administrative process for local citizens to new defragmented activities promising cost reductions (Appio et al., 2019; Kakderi et al., 2021; Nikki Han and Kim, 2021). Thus, we infer that regencies or cities did not act as disruptors of existing administrative processes, innovating these processes efficiently and social welfare congruently (Serey et al., 2020; Ramirez Lopez and Grijalba Castro, 2021; Okafor et al., 2022). Finally, we reveal that developing a smart city with an unclear mission to be accomplished would not move local citizens to be involved and used as a learning repository (Ma et al., 2018; Tomor et al., 2019; Zhao et al., 2021).

Cognitive models based on regions' or cities' fiscal budget capacity

The authors argue that decision-makers rely on rules of decision-making, feedback and feedforward information to determine what they will do (Greene et al., 2001; Cornelissen et al., 2013; Truelove et al., 2014). By contrast, decision-makers could make a decision that disregards the rules and information. Hence, this research collects transcripts of how a smart city development is implemented.

Most regions and cities received instructions to develop smart cities and technical guidance to create master plans. We were chosen not based on data and information in our area for smart city development. However, we did a smart city development project because of the fiscal capacity of our regional budget to finance this project (P-05; 27'; P-02; 14'; P-01; 6').

Due to Central GoI's instruction to build, we are doing a smart city project. However, we did not yet collect data and information for analysing, designing and developing it. We, moreover, recognise that this project is not a usual program, as shown by the disguised mission and goal (P-05; 13'; P-02; 83'; P01: 3').

This study successfully identifies that the regional leaders' cognitive model for smart city development is determined by fiscal capacity. The realisation of the smart city, in the context of budgeted programs, articulates the regional leadership missions that have been budgeted for in this fiscal capacity. This regional cognitive model implies the absence of comprehensive rules for decision-making, feedback and feedforward information (Chen et al., 2018; Džupka, 2021; Pratama, 2021). In addition, at the same time, regional leaders are more responsive to this smart city development by labelling an existing ICT development of e-government. Meanwhile, the GoI's mental leadership in carrying out this smart city development program can be classified into instructive characteristics (Cruz and Camps, 2003; Yiing and Ahmad, 2009; O'Donovan et al., 2021) without financing the budgeted costs. Thus, the authors infer that the GoI's and regional leadership's cognitive models have an output-based orientation (Ichniowski et al., 1996; Considine, 2002; Ryan and Walsh, 2004). Thus, the authors highlight that they are in adverse accountability and responsibility due to not being process-based (D'Agostini et al., 2017; Pichler, 2012; Tagliabue et al., 2020).

As for the other perspective, the authors reveal that most regions and cities received the smart city development project with no opportunities to diagnose their short- and long-run capacities (Appio et al., 2019; Israilidis et al., 2021; Ahmad et al., 2022). In other words, regions and cities tended to comply only with the GoI's instructions. Consequently, the authors demonstrate that the smart city development would be no expectation for a significant change due to the absence of synergy between the GoI and the regions or cities. Thus, both exhibit adverse cognitive models.

Excessive caution about accruing potential future benefits

This study indicates that smart city development was an instruction from the GoI that is not based on regional or municipal diagnostics. Meanwhile, agents in regions and cities developing smart cities have no obligation to conduct analytical reviews of prospective social denominators eligible to be transformed and accrued (Smith and Cooper, 1994; Cruz and Camps, 2003; O'Donovan et al., 2021). Finally, the authors collected the following participants' transcripts.

Some regions' smart city developments construct the current needs for service to society without capturing foresight information. Thus, smart city investment is treated by regions or cities without considering such capital budgeting, discounting future benefits to calculate financial, social and political returns (P-07; 43'; P-03; 97'; P-01; 14').

TABLE 1 Data on participants.

Respondents code	Gender	Echelon	Institution	Duration
P-01	Male	III	Regional Government	02.41.32
P-02	Male	II	Regional Government	03.36.12
P-03	Male	III		
P-04	Male	III	Government Auditor	01.47.26
P-05	Male	II	Regional Government	02.25.30
P-06	Male	III		
P-07	Female	III		
P-08	Male	Vice President	ICT Company	03.19.56
Total				17.46.36

As technocrats, smart city development projects in Indonesia did not build with unclearly staged elevations. So, where are we standing on these smart city developments now? How will we enhance the adaptive capacities of the smart city? From the perspective of analytical review, what have we done in the "signified" and "signifier" nodes in developing a smart city? These question answers will always be unclear (P-05; 15'; P-04; 2'; P-01; 87').

The authors depict the problems of smart city development that regions and cities carry out based on instructions from the GoI. Meanwhile, the instructions are the regency's and city's duty to develop smart cities' applications of e-government, society, living, environment, economy, or tourism for enhancing social prosperity. On the other side, this study argues that the directed instructions are valid when the content domains are laid out as sequential knowledge used to conduct a perfect transformation process (Lewrick et al., 2010; Kantabutra, 2020; Hai et al., 2021). Furthermore, this process should order regions and cities to conduct an analytical review first to ensure a focused, smart city. In addition, regions' and cities' analytical reviews must formulate their adaptive capacity as a driver, trigger, accelerator and disruptor to the ongoing regional administrative processes to be transformed into ICT-defragmented ones (Lin et al., 2011; Rana and Dwivedi, 2015; Kumar et al., 2020). Thus, developing a smart city with an analytical review of a region or city becomes more certain to serve the community's social needs.

From the financial, social and political budgeting points of view, smart city developments do not consider the process of accruing potential future benefits that are to be obtained (Purwanto, 2018; Israilidis et al., 2021; Pratama, 2021). Thus, the development of smart cities should capture the need for foresight information mapped into designated signifiers that are useful to transform society's beliefs, attitudes and behaviours. Furthermore, the authors highlight that the development of smart cities in Indonesia does not prioritise knowledge supremacy, which can shift towards a new equilibrium balance. We emphasise that the success of smart city development depends on the knowledge and faithfulness of appropriation to society structuration to become more prosperous in the future (Shelton et al., 2015; Ramirez Lopez and Grijalba Castro, 2021; Okafor et al., 2022). Thus, this smart city development must be in the knowledge's saddle-point to increase the community's prosperity, not merely the development of information system applications. Therefore, this study demonstrates that the GoI commanding regions and cities to develop smart cities enriched by perfect knowledge transformation is the proper order. Hence, regions and cities, supported by knowledge supremacy in developing smart cities, could accrue future benefits for communities compared to inferior ones.

Null regulatory leadership to guideline

Regulations containing control and measurement information would lead to the successful development of smart city projects (Vitunskaite et al., 2019; Rochet and Belemlih, 2020; Ismagilova et al., 2022). Meanwhile, smart city project leaders define the ordered activities. These activities usually show path dependencies and construct a series of induced control and measurement tests. The series of activities direct projects agents not to distort procedures. Thus, smart city developments need genuine regulatory leadership, directing and leading fieldwork and outputs. Some participants' transcripts are below.

Some of us understand that smart city development is in the context of managing information systems. However, Central GoI instructed us to build this project without clarity regarding creating social values, knowledge acquisition, collective cognition of social balancing programs, etc. Moreover, conceptual frameworks benefit the future community's welfare (P-04; 12'; P-03; 42'; P-08; 17').

We were ordered to develop a smart city, but the order was not comprehensive regarding information system development standards, such as IEEE, ISO, etc. Likewise, the results of developing this smart city system in the realm of multi- or

cross-platforms, what are the uses for making decisions? What is the required data interconnectivity with other ICTs? etc., (P-07; 33'; P-05; 17'; P-01; 46'; P-08; 93').

We criticise the development of this smart city project because it is carried out centrally from Central GoI and then distributed to all regions and cities. As a result, development with a choice of 50 regions and cities consumes enormous development costs, the future benefits of which cannot be achieved optimally (P-01; 22'; P-04; 36'; P-02; 8'; P-01; 58'; P-08; 49').

When Central GoI, the Indonesian President, directs to accelerate national digital transformation programs. Most relevant ministries generally respond to these directions, although they are still in a future isolated operating with others or building-blocked silo of knowledge. Consequently, Central GoI faces difficulties innovating regulatory leadership to realise these directions in nationally united-regulatory action (P-04; 22'; P-06; 31'; P-01; 50').

This study finds that there is currently null regulatory leadership for smart city development through participants. Then, it underlines this null regulatory leadership in managing smart city development and standardising information system specifications (Gupta et al., 2019; Lytras et al., 2021; Sharif and Pokharel, 2022). Consequently, the developments of agents interpret various perspectives in these two disciplines. For example, the regional agent's development focuses on an ICT application's short-run smart city capacity that ignores interconnectivity and interoperability between dimensions of smart e-government, living, economy, tourism, environment, and society. Moreover, agents' developments tend to escape from complex and dynamic designs of information systems to simple ones such as innovating cross- and multi-platforms, mobile and desktop networks, supportively extensive data analysis, etc. On the other hand, the authors noted that massive smart city developments numbering 50 make the regulatory impetuses diverge. Therefore, this study reveals that regions' and cities' smart city developments produce unstandardised applications due to null regulatory leadership in the construction process.

From the principal perspective, the GoI did not lead smart city development with fixed regulatory leadership (Gupta et al., 2019; Ben Yahia et al., 2021; Sharif and Pokharel, 2022). In addition, this study highlights how the embryo of smart city development was originally from a digital transformation. Therefore, this study underlines that GoI's null regulatory leadership for smart city development has emerged from the unprioritised agenda. The authors also highlight that the GoI has never discussed smart city development, implying no regulations issued by law or *in lieu* of laws. Meanwhile, the authors note that regions' and cities' executive heads signalled they would not issue related regional laws following the GoI policy of prioritised programs because of the knowledge they gained on international best practices. Therefore, in the case of smart city development, the GoI will not issue regulations whenever various regencies and cities translate modern ICT with their respective backgrounds.

Concluding remarks and implications

Overall, this study finds four condensations for the development of smart cities: the application of single dexterity, a cognitive model based on fiscal capacity, excessive caution about accruing future potential benefits, and null regulatory leadership in terms of guidelines. These four findings show that smart city development does not innovate based on regions' or cities' adaptive structuration and dynamic capability. Therefore, this study indicates that the development of smart cities in Indonesia does not demonstrate the existence of "signified" underlying factors and "signifiers" for driving benefits in the future. Finally, this study notes a void of knowledge for managing smart city development and ICT standards as parameters for making information system applications. Therefore, this research reveals that smart cities developed by regencies and cities are not characterised by the faithfulness of appropriation to administrative needs that transform society to become more advanced and prosperous.

From the dynamic capabilities perspective, smart city development should consider that communities change smoothly over time, and information system applications must capture this change. In other words, smart cities should have dynamics that capture the dynamics of community change in living social orders. Moreover, the community ecosystem changes towards a new shifted balance. These new ecosystems are where the role of smart cities, through information system applications, accelerates the achievement of this shifted balance with additional smart-distinctive characteristics. However, the authors reveal the dwarfing of smart-distinctive characteristics into a mere application tool of information systems. Finally, the findings of this research demonstrate that smart city development is just a utopian idea, as if drawing an equivalence between global issues and sustainability.

This study implies that the GoI needs to carry out administrative transformation processes. First, it acknowledges that the GoI is experiencing the voids of knowledge endowment in smart city development that have become far from the community's dynamic structuration. Moreover, the GoI has not decided that smart city development is a core budgeted program but is an additive one instead. In addition, the authors have been able to show there is an antagonistic dualism between comprehensive development and partialised fallacies. In other words, this study infers that the ongoing smart city development is only a perfunctory concept rather than accentuating knowledge. Furthermore, due to partialised fallacies and perfunctory concepts, the smart city will still lead to a lively atmosphere of conflict, moving away from a comfortable life, resulting in a tough city. Thus, the developed smart city still becomes traditional information system applications because it

cannot prevent residents from not keeping up with the punctual times. Next, most residents cannot use a proper information system application, causing regencies and cities to be unfaithful in appropriation and untransparent to community members. Finally, partialised fallacies and perfunctory concepts will probably promote other criminal behaviours, and bureaucratic corruption will thrive.

Second, this research notes that the central GoI controls the development of the smart city with poor management. Nevertheless, it has still received assurances from cities or regions that it will comply with its directives. On the other hand, the GoI's control remains full in terms of administrative disciplines. In addition, this administratively focused control directs no enhancements of local people's welfare but tends tendentiously according to a political agenda. Consequently, this study infers that massive developments of smart cities in 50 regencies and cities would produce ICT pedantry concerning applications, which is impressive but does not increase people's belief and improve behaviour in terms of more social welfare. Finally, this study implies a need to transform the deficiencies of GoI's knowledge management into a comprehensive development for society's economy with genuinely dynamic capabilities.

Limitations

This study has fundamental weaknesses, which are described as follows. Firstly, it does not measure governmental agent readiness for regencies and cities. This weakness was identified after completing this research, which did not simultaneously analyse and identify governmental agent readiness and cognitive models. Consequently, this study opens up a new opportunity to develop future research that adopts governmental agent readiness, general or multidimensional commitments, and readiness for change for human resources in each regency and city. Secondly, this study does not discuss the unfinished completion of Indonesia's population and land information systems. Likewise, it recognises that smart cities are highly dependent on these two information systems as identification and internalisation functions for the underlying information that realises the accomplished mission of smart city development. Moreover, the identification refers to regencies' or cities' needs for smart city development, such as no need, enforced to build and high necessity. Meanwhile, internalisation means that regencies or cities must accrue the need for realising forward-looking orientations. Therefore, future research becomes even more interesting when the central GoI has a mission and goal to solve problems related to a smart city but is handicapped by the absence of these two fundamental information systems.

The authors did not conduct to asses governmental agent maturities in high technology and management systems. Instead, this maturity level emphasises the collective knowledge of governmental agents' human resources capabilities in machine learning, big data analysis, artificial programming interface, artificial intelligence, deep learning, and blockchain system. Thus, future research would be interesting whether it measures the governmental agents' capability maturities. Moreover, other future research could focus on the emptiness of the Indonesian Finance and Development Supervisory Agency, assessing technological and managerial capabilities-level assurances for each government agency. Furthermore, the authors underline that this Supervisory Agency did not, so far, innovate this measurement. Finally, future research would be fruitful when it investigates low incentives for the Supervisory Agency and related ministries to make standards of the technological capacities and the managing information systems for each government agency nationally.

Data availability statement

The raw data supporting the conclusion of this article will be made available by the authors, without undue reservation.

Author contributions

All authors listed have made a substantial, direct, and intellectual contribution to the work and approved it for publication.

Conflict of interest

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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Supplementary Material

The Supplementary Material for this article can be found online at: https://www.frontiersin.org/articles/10.3389/fbuil.2022.1065652/full#supplementary-material

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