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Building Agility and Adaptive Governance Through Digital Bureaucracy Ecosystem for Innovative Public Policy

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ABSTRACT

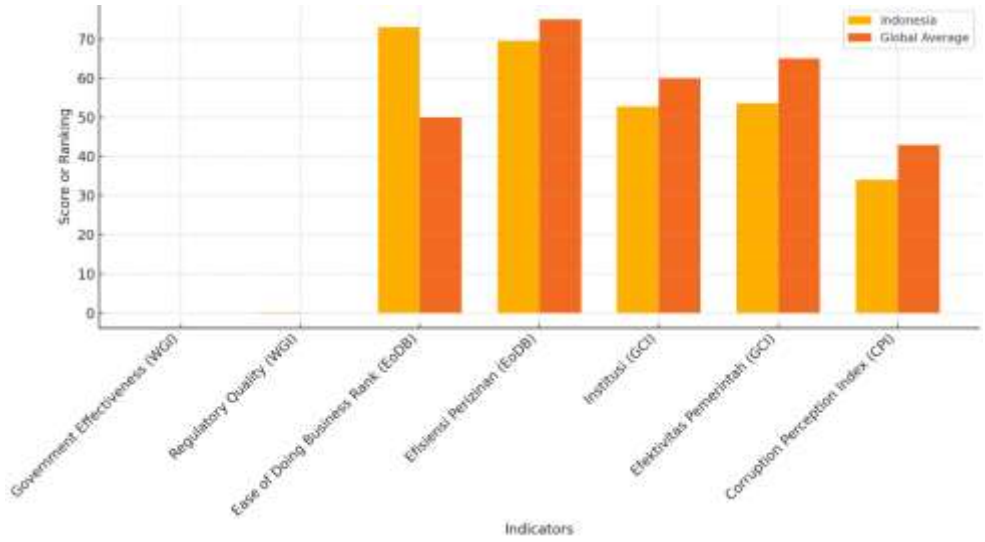
This study discusses the weaknesses of bureaucracy in responding to strategic development issues, especially related to low transparency and public participation. Causal factors include limited public governance capacity, lack of policy actor qualifications, and suboptimal use of digital technology in decision-making. The bureaucracy's focus on internal, operational, and administrative aspects also worsens these conditions. This study introduces the agile and adaptive governance approach, which allows the bureaucracy to work more strategically, flexibly, quickly, and adaptively in the VUCA era (Volatility, Uncertainty, Complexity, Ambiguity). The digital bureaucracy ecosystem (EBD) model was developed to integrate stakeholders, systems, and supporting environments through the use of digital technology. Using a multi-criteria decision-making method with a participatory approach, this study found that the EBD model is able to increase public governance capacity, transparency, and public participation. Digital integration also encourages the creation of an innovative and responsive public policy formulation process. Recommendations include strengthening the capacity of bureaucratic human resources through adaptive training, accelerating digital transformation, and comprehensive supporting policies. This research contributes to the development of an agile and adaptive public governance model, supports bureaucratic competitiveness, and encourages green digital initiatives as a step towards better governance in the era of globalization.

A. INTRODUCTION

Digitalization and readiness of Indonesian and regional communities are the momentum of bureaucratic transformation with new agile and adaptive governance (governance 4.0-5.0) (Addo&Senyo,2021; Kadarisma et al, 2022). Agile and adaptive governance as a new organizational paradigm in the VUCA era (Volatility, Uncertainty, Complexity, Ambiguity), has the opportunity to present a public bureaucracy with a different DNA than before, expected to prepare several preconditions for the development of fast, precise, innovative public policies in responding to the world situation that continues to change and move dynamically, especially in the field of ICT (Cordella&Tempini, 2015).

The increasingly dynamic and uncertain global environment has put pressure on the bureaucracy to adapt. The problem of the weak bureaucracy in responding to strategic development

problems through policy optimization, is colored by demands for transparency and participation. The issues that arise are the lack of: public governance capacity and qualifications in creating new models of policy formulation patterns, policy formulator capacity, training methods to create agile formulator actors to work together and adapt to the new environment. Technical, critical, innovative, and social-behavioral skills are needed in the VUCA era (Bakir et al, 2021; Aftab et al, 2022; Tresiana&Duadji, 2022). The causes of this are: the application of a political bureaucracy model that focuses on internal, operations, internal, procedures; performance measures of budget absorption, causing: the loss of discourse on conditions in the field; imperfect in seeing facts; problems as a result of thinking, not seen trans-disciplinary; alternative ways of thinking through dogma (Mayne et al, 2018; Tresiana et al, 2023). Decision-making support is still based on e-government (digitizing paper into soft file form), not prioritizing data, technology that can increase transparency, participation, and connectedness of results, plus the absence of policies at the law level to strengthen digital bureaucracy (Omar&Almaghthawi, 2020).



Source: *World Bank (2022), World Economic Forum (2019), Transparency International (2023)*

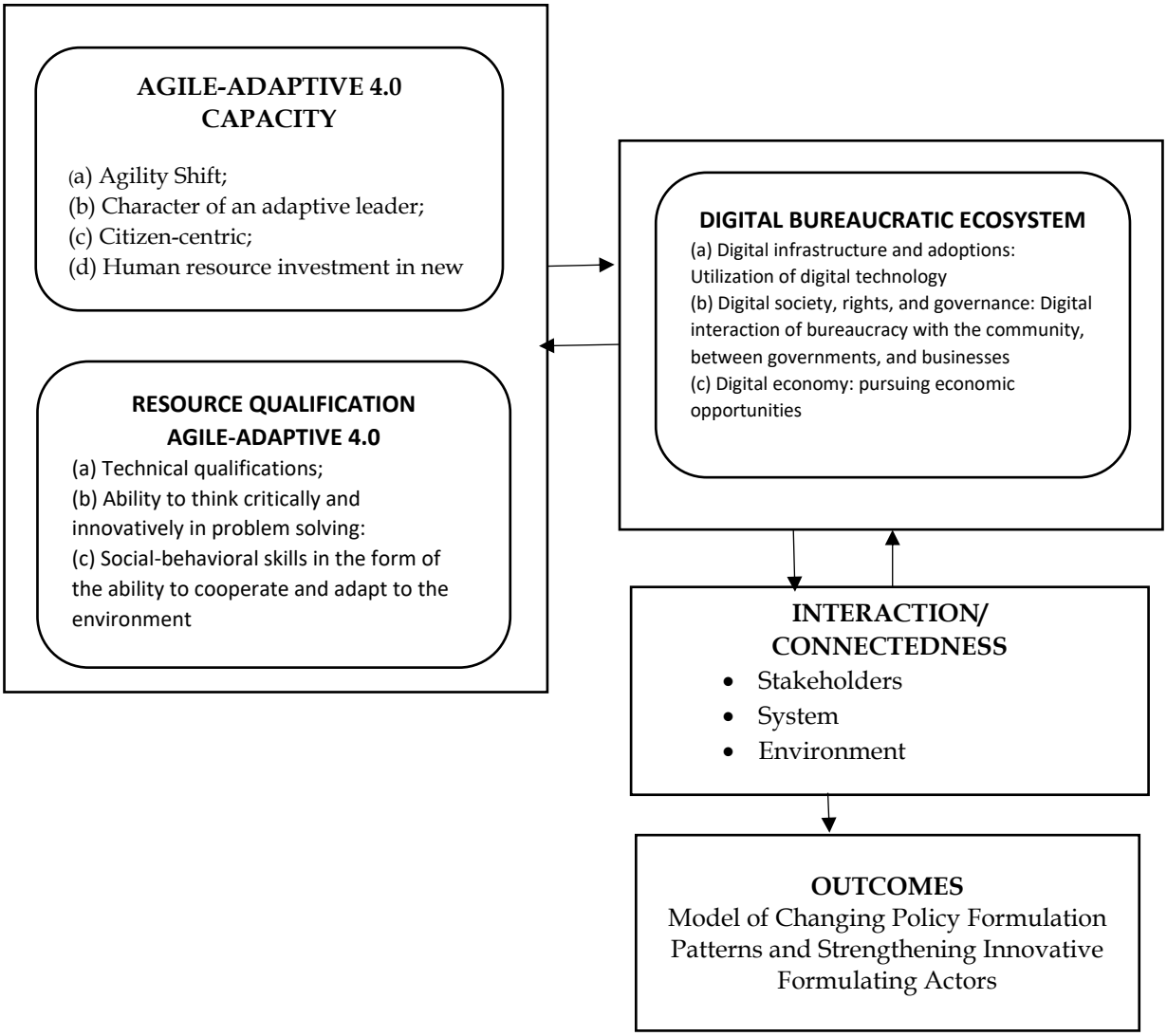
Figure 1. Indonesia Bureaucracy Index Based on Global Standards

The diagram above shows comparison performance Indonesian bureaucracy against the global average based on indicator main bureaucracy. Backwardness score No only problem technical bureaucracy, but also influenced by multi- actor support and governance capacity**.** Tresiana and Duadji (2016) study, achievement performance need support Variety actor /sector; evaluation comprehensive. Accuracy policy No duties and functions technical only, but capacity and governance wide. The old bureaucratic model is difficult changed and not agile impact weakness transparency and reach participation limited, impactful inaccuracy development policy due to outdated database, single, result focus No connected / networked, no based on one data. Tresiana et al (2022) Study, this impact on dependency full transaction policies, including corruption. The implication is that the inaccuracy builds future prediction (trust, recovery and future data). Development capacity digital bureaucracy is needed for push success transformation governance new agile- adaptive face challenge strengthening choice, connectedness inter-agency, opportunities new and innovation.

Agility and adaptive governance are approach organization just able to enable bureaucracy Work more strategic, flexible, simple, agile, fast and adaptive to the nature, scale and trends of global change, in particular digitalization in produce policies and services more public good. Agile bureaucracy then: moves going to more structure flat; strive equality and greater opportunities area; achievement vision and goals (Mergel, 2018; De O'Luna, 2013; Hasselman, 2017). Meanwhile that, ecosystem digital bureaucracy is a model for strengthening agility and adaptive governance. Some strengthening in the form of: support various stakeholders' interests, systems and environments that are mutually support with empowering public through utilization digital technology for access service, interaction in society and pursue opportunity economy (Newman et al, 2022; Cennamo&Santalo, 2019;

Erkut, 2020). He is preconditions development innovative public policy. Ecosystem digital bureaucracy is used as framework analysis system model development policy agile and adaptive governance use realize innovative public policy (Newman et al, 2022; Cennamo&Santalo, 2019; Erkut, 2020).

Design get up analysis development model change policy innovative (Figure 2), directed strengthening qualifications and capacities government in create pattern formulation , capacity formulator / actor policy through variables : (1) Agile- adaptive capacity 4.0: Agility Shift, character leader adaptive , citizen centric , investment source Power man For control field sciences new and technology (Huang et al, 2023; Poligadu & Moloo,2014); (2) Qualifications agile and adaptive resources 4.0: qualifications technical , ability For think critical and innovative in breakdown problem , skills socio-behavioral in form ability Work same and adaptive with environment (Gunasekaran, 2019) ; (3) Ecosystem digital bureaucracy : digital infrastructure and adoptions; digital society, rights, and governance; digital economy (Newman et al, 2022; Cennamo&Santalo, 2019; Erkut, 2020).; (4) Interaction / Connectedness and results (Tresiana & Duadji,2023). Framework has strategic sensitivity, can balance method think machines, values government, preference public as well as bang it with condition socio-economic, environmental, market in decision making.



Source: *Newman et al, 2022; Cennamo&Santalo, (2019); Erkut, (2020); Huang et al, (2023); Poligadu & Moloo,(2014), Tresiana & Duadji, (2023_*

Figure 2. Framework analysis policy model change innovative

Development studies innovative public policy faced with change environment complex bureaucracy consequence progress emerging information and communication technologies (ICT) as governance tools of conditions regarding economic, political and social, as well as new models' transparency and reach participation a more society big (Kern et al, 2019). Ecosystem digital bureaucracy can strengthen bureaucracy become agile and adaptive to uncertainty and change fast. Ecosystem Study previous digital bureaucracy develop through digital infrastructure concept, e-government services in form change document in form soft file, not yet towards digital society and digital economy and connectedness results between sectors and actors (Omar & Almaghthawi,2020; Tresiana & Duadji, 2016).

Newness studies This is sit down draft integration-connectedness digital governance in A system digital bureaucracy for explain a number of required preconditions for development innovative public policy. Dominant Weberian Bureaucracy Studies used until moment This both in Indonesia and several developing countries have Lots criticized theory organization and literature management new, including public policy (Aristovnik et al, 2022). The Face of Bureaucracy considered No efficient and not capable respond demands digitalization.

Studies transformation digitalization (Tasyah et al, 2021; Zhang & Guo,2022) describes as a new momentum in the field of ICT can improve ability government with analysis bureaucracy, performance bureaucracy towards the public, ensuring accountability, accelerate operational government, producing accurate data and reducing my personality corruption. Plus, digital governance can provide freedom new in implementation work, structure new bureaucracy that refers to relations new and achievements new performance (Muellerleile & Robertson,2018).).

Table 1. Comparison draft Weberian and digital bureaucracy

Weberian Bureaucracy	Digital Bureaucracy
Knowledge	Data
The public	Big data
Office	Platform
Charismatic Leaders	Talented Innovator/Disruptor
Rules	Code
Procedure	Algorithm
Files and Archive	Digital Footprint
Iron Cage	Silicon Web

Source: *Muellerleile & Robertson,(2018)*

The study of digital governance in bureaucracy is discussed through 2 comparative studies of Digital Weberian Bureaucracy (DWB) and Digital Era Governance (DEG).

Table 2. Development studies digital governance in development theory bureaucracy

No	Phase	Key Figures	Thoughts/Studies
1	Digital Weberian Bureaucracy	Muellerleile & Robertson (2018), Meilani & Hardjosoekarto (2020), Schroeder (2015), Ray, L., Reed, M., Ray, L., & Reed (1994), Dash, SS, & Padhi (2020), Muellerleile & Robertson (2018).	Historical study of the role of technology in society focusing on access and the ability to use the Internet, its reach, and who dominates its content; Digitalization and performance: The main features of Weberian political bureaucracy (efficiency, objectivity, and rationality) have shifted and provided a new, less rigid form, but bureaucracy remains resilient; Disaster risk awareness and reduction studies in Sunda Strait, Indonesia, highlight the need for institutional regulation at the macro level supported by Government Regulations, integrated disaster data management, and information systems.

2	Digital Era Governance	Dunleavy et al., (2006), Kolleck , N., Jörgens, H., & Well (2017), Tassabehji et al., (2016), Gao & Tan (2020).	Technology-based governance emerged as a new stream in public sector organizations, replacing and dominating previous paradigms, including New Public Management (NPM); The study of relationships between the state and society in China's digital era provides an image of relationships between central and provincial governments supported by a Weberian administration system. Digital technology enables widespread participation through online platforms that serve as tools for top-down implementation of effective policies.

Source: *Das et al, (2017); Ravšelj et al, (2022)*

Furthermore, studies implementation digital governance in bureaucracy experience development from e-government concept towards e-governance.

Table 3. Transformation of Digital Bureaucracy Implementation

No	Transformation	Study progress	Views/Opinions
1	E-Government/ Electronic Government	Emerged as a technological advancement at the end of the 20th century. Study by Dr. Albert Meijer discusses the evolution of E-Government and its impacts on open governance.	Focus: Provision of public services through online platforms, such as tax payments and vehicle registration. Over time, this evolution introduced concepts like open and participatory government
2	E-Governance/Digital Governance or Electronic Governance	Developed as a response to emerging complexities alongside the adoption of information technology. Study by Dr. Adegboyega Ojo on the influence of electronic governance on public inclusion.	Focus: Governance aspects, including interaction between government, private sector, and society. Emphasis on exploring how information technology changes decision-making processes and collaboration both within and beyond governmental environments.

Source; *Beyes et al, (2022); Wen et al, (2020); Lekkas & Souitaris, (2023)*

Use studies theoretical ecosystem digital bureaucracy for push change capacity, agile qualifications and adaptive governance for development of formulation models policy new, strengthening actor formulator policy, with a number of studies introduction researchers, became the superiority /novelty of the proposer. Therefore, studies this will put objective for describe the factors key in realize innovative public policy using agility and adaptive governance based on development ecosystem digital bureaucracy. The study is directed at developing a model formulation policy and strengthening actor formulator policy. Findings contribute change capacity government in build connection governance taking decision based on connectedness government with society, business world and inter- agency government.

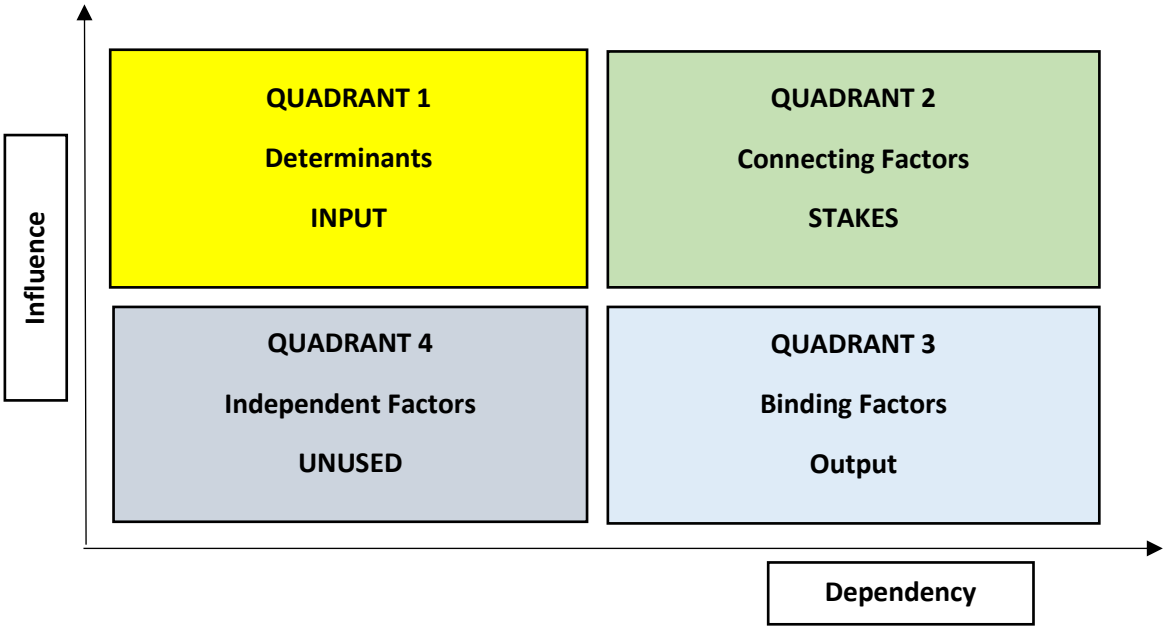
B. METHOD

Study using Policy Research Models with approach quantitative (Patton et al, 2015). Research location conducted at the Lampung Regional Police (Polda Lampung). Polda Lampung own diverse system service based on mutually exclusive applications overlap on online platforms, but no integrated. 2022 launch application Polri-Super APP for integrate all data unit Work in a single data portal. The goal is to improve services and decisions the more precision with integrating 10 services on 1 digital platform , namely : 1) Vehicle Registration and STNK Extension services ; 2) SIM A and SIM C extensions ; 3) Online complaints ; 4) e- ticket services ; 5) e- ticket confirmation ; 6) vehicle registration services Monitoring SP2HP (Notification Letter) Development of Investigation Results); 7) information Public Order ; 8) Public Relations Information ; 9) maps ; 10) POLRI TV/Radio, police website .

Subject study is the Lampung Regional Police and the Bandar Lampung City area, including: 1) Lampung Regional Police: Division of Technology Information and Communication (ICT), HR Department, Public Relations, Sub- Services, Bureaucratic Reform Department; 2) Bandar Lampung City: community user service, group business, government regions, academics, NGOs, community leaders.

Instrument Study Use Questionnaire Stakeholder needs assessment survey, Focus Group Interview (FGI) Protocol, FGD, guidelines interviews, documentation, observation.

Research Analysis Techniques use multi criteria analysis, namely: 1). Prospective Test Analysis (Moraes Vieira et al, 2017). which includes: (a) Determination of key factors from system agile and adaptive governance development through quadrant influence and connectedness between factors; (b) Determine objective strategic and interests the main stakeholders involved with the system studied. (c). Determine influence direct inter factors in system, which is carried out in stages First analysis prospective use matrix influence direct inter-factor in agile and adaptive governance development; d) Building scenario and formulate scenario implications for compile recommendation policy from implications that have already been compiled; 2) Need Assessment Test (Mardle et al, 2003). Grouping of stakeholders in stakeholder quadrant of interests and influence, to see need for see stakeholder needs for agile development and adaptive governance.

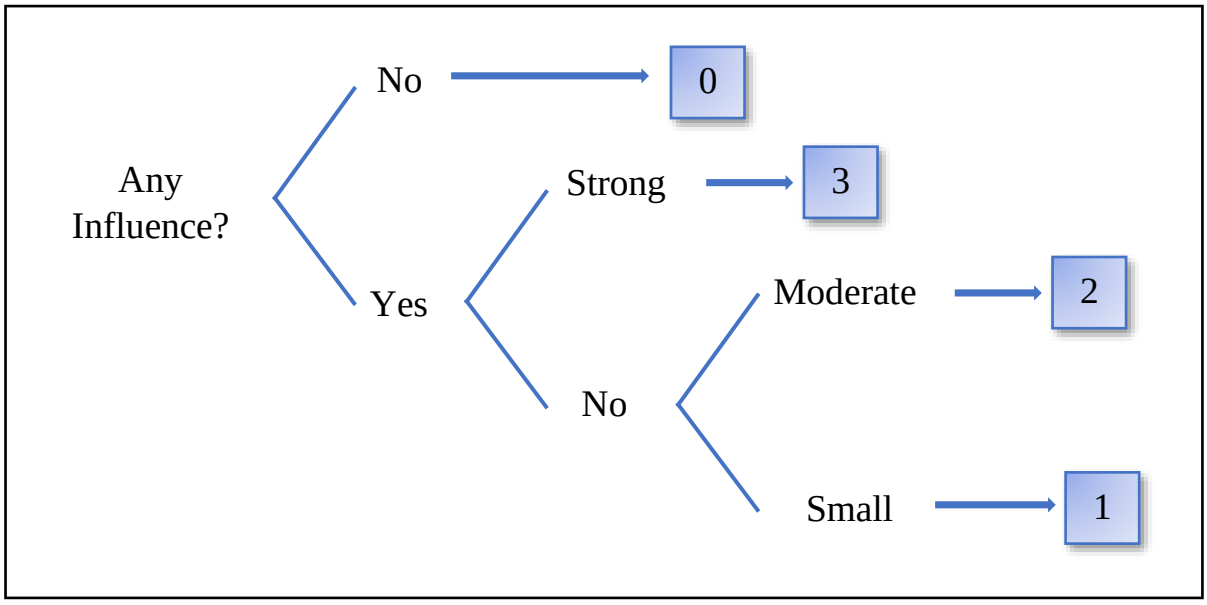


Source: *Mardle et al, (2003)*

Figure 4: Influence and Dependence Matrix between factor

From ↓ To →	A	B	C	D	E	F	G	H	I	J
A	■									
B		■								
C			■							
D				■						
E					■					
F						■				
G							■			
H								■		
I									■	
J										■

A – Be the factors in the system being studied



Source: *Moraes Vieira et al, (2017).*

Figure 5: Direct influence between factors in Agile and Adaptive Governance systems

C. RESEARCH FINDING AND DISCUSSION

Ecosystem Digital Bureaucracy in the Police Super APP Service

The ideal policy formulation patterns are carried out using the digital bureaucratic ecosystem analysis framework, namely: the relationship of support from various stakeholders, systems, and the

environment through community empowerment in utilizing digital technology to access services, interactions in society and pursuing economic opportunities. The success of the digital bureaucratic ecosystem in the Super APP Polri service is supported by several factors including: 1) Agile-adaptive capacity 4.0: Agility Shift, adaptive leader character, citizen-centric, investment in human resources to master new fields of science and technology; 2) Agile and adaptive resource qualifications 4.0: technical qualifications, ability to think critically and innovatively in problem solving, social-behavioral skills in the form of the ability to work together and adapt to the environment; 3) Digital bureaucratic ecosystem: digital infrastructure and adoptions; digital society, rights, and governance; digital economy;

Table 2. EBD Factors and Their Relationship with Changes in the Pattern of Decision Making

EBD Supporting Factors	**Data/Information**	**Change Formulation Patterns**
Agile-adaptive capacity 4.0		
Agility Shift	The use of Polri digital technology enables a rapid response. Interaction through the Polri Super App facilitates reporting and handling of cases in *real time.*	Conventional : decision making with a rigid hierarchy Innovation: Fast and responsive decisions with flexible structures and use of *real-time data.*
adaptive leader character	Leaders use digital dashboards for monitoring and quick decision making. Economic opportunities are created from collaboration with businesses in technology development.	Conventional : Leaders rely on manual reports and outdated data. Innovation : Adaptive leaders use analytical data for evidence-based decisions.
Citizen-centric	Interaction between the public and the Police through the application creates transparency and trust.	Conventional : Lack of community involvement in the policy process. Innovation : This policy is made in accordance with current technological developments and social trends.
Investing in human resources to master new fields of science and technology	Digital training for Polri members to master new technologies.	**Conventional : Training** is limited to conventional materials. Innovation : Continuous and integrated training with the latest technology and *e-learning.*
Agile and adaptive resource qualifications 4.0		
Technical qualifications	Police members are trained to use digital devices and applications.	Conventional **:** Technical qualifications are limited to basic skills. Innovation : Technical qualifications include skills in using advanced and digital technologies.
Ability to think critically and innovatively in problem solving	Police members are encouraged to develop innovative solutions through the use of technology.	Conventional **:** Problem solving based on fixed procedures and not creative. Innovation **:** Data-driven, creative problem solving powered by analytics and AI.

behavioral skills in the form of the ability to work together and adapt to the environment	Police officers are trained in social skills to work with communities and businesses.	Conventional **:** Limited social interaction and collaboration. Innovation **:** Close collaboration with communities and businesses through digital platforms and online interactions

Source : *Data Processing and Analysis, (2024)*

Table 3. Actors and Actor Interrelations

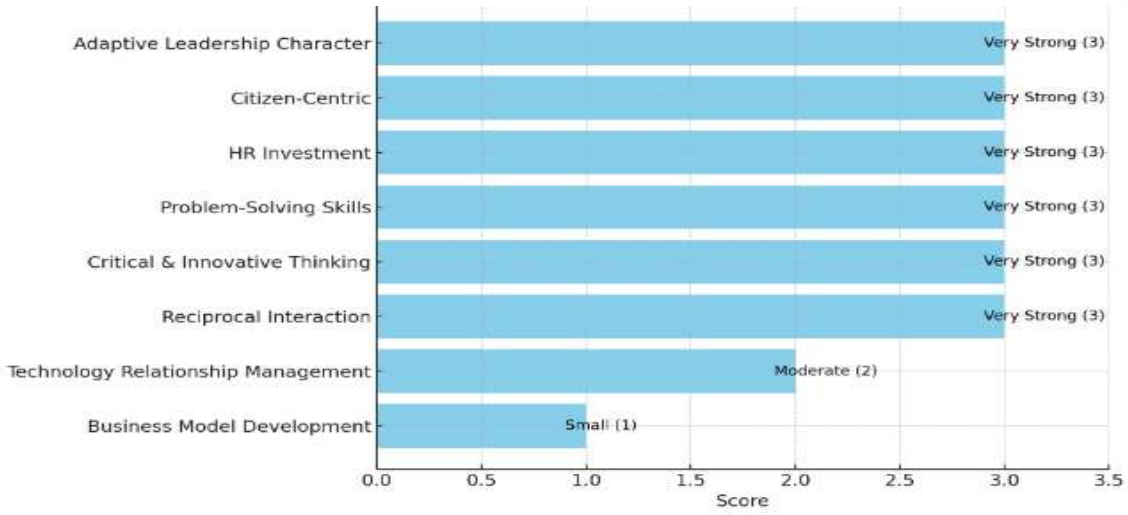
No.	Actor	Interrelation of Actors with Systems and Environment
1	Lampung Police Chief	Responsible for the implementation of the Polri Super App policy at Polda Lampung.
2	Public Relations Division of Lampung Police	Develop and manage IT infrastructure for Polri Super App
3	Lampung Police IT Division	Managing communication, socialization and image of the Lampung Police regarding the Polri Super App
4	Ministry of Communication and Information	Providing regulatory and technical support related to IT and communications infrastructure
5	Public	Polri Super App service users for daily security and convenience.
6	NGO	Ensuring transparency and accountability in the implementation of the Polri Super App, as well as protecting the rights of the community.
	Media	Disseminating information and conducting social monitoring related to the Polri Super App.
	Academics	Conduct research and provide input for the development of Polri Super App policies and technology.

Source: *Data Processing and Analysis, 2024*

The digital bureaucratic ecosystem in the Super APP Service at the Lampung Police is the result of strong collaboration between actors with different but complementary roles. The Lampung Police Chief is the main controller, while the Police IT Division and the Police Public Relations Division play vital roles in the technology and communication aspects. The Ministry of Communication and Information ensures that regulations and policies support the operation of the application, while the community, NGOs, media, and academics provide supervision and input that are essential for improving the quality of service. This close collaboration creates a digital bureaucratic ecosystem that is responsive, efficient, and able to adapt to the needs of society in the digital era.

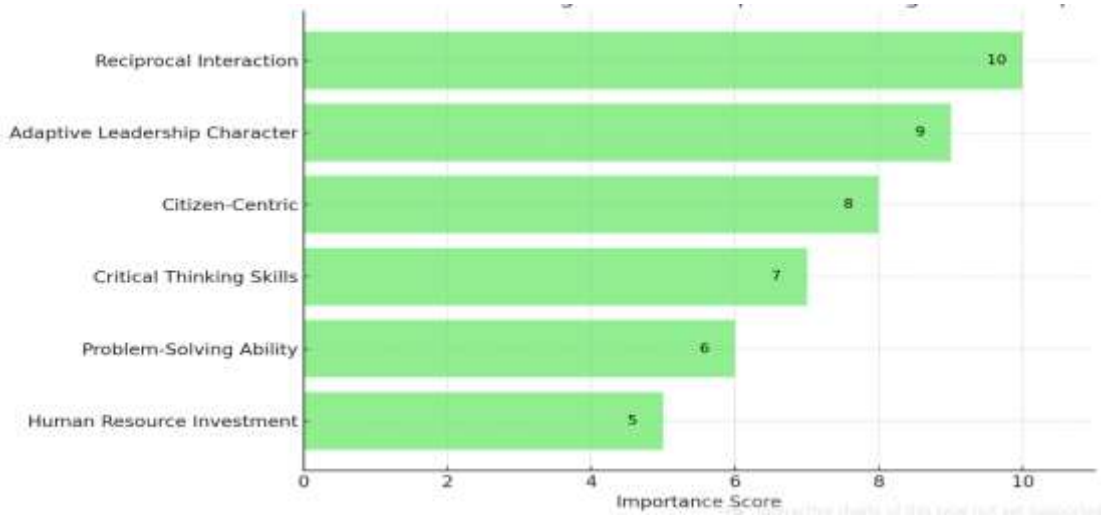
Prospective Analysis: Formulating Key Factors Changes in Formulation Model Policy

Use analysis prospective, study This carry out: 1) identification and analysis determinants of stakeholder needs and; 2) prospective analysis to obtain key factors. Based on interviews and questionnaires related to the strategy for developing new Super APP service policy formulation patterns , identified several stakeholder needs in the development strategy for developing Super APP service policy formulation patterns (figure 6).



Source: *Data processing,(2024)*

Figure 6**:** Stakeholder Needs Assessment Results in Prospective Analysis



Source: *data processing, (2024)*

Figure 7: Visualization of Ranking Based on Importance in Agile and Adaptive governance

Factors lever like character leader adaptive, investment source Power human resources (HR), and capabilities think critical marked by a very strong influence. Leader adaptive, which holds role central in determining direction policies and strategies, have influence significant in management connection technology and business model development. Capabilities them in adapting and leading facilitate implementation technology and effective human resource investment. Investment in human resources also plays a role important with very strong influence, ensuring that team own required skills and knowledge for manage technology and innovate sustainably. The ability thinks critically, also given score very strong influence, supportive in- depth data analysis and development solution creative, which contributes to more effective policies. effective and responsive to stakeholder needs.

The order of importance of key factors in the Agile and Adaptive perspectives provides insight into the priorities in developing services that are oriented towards flexibility and responsiveness. In the context of Agile and Adaptive, some factors play a more dominant role than others, and this diagram visualizes how each factor contributes to the success of an Agile implementation.

key factor is Mutual Interaction, which scored 10. This indicates that rapid and continuous feedback is the most important element in the Agile approach. In Agile methodology, mutual

interaction allows teams to receive direct feedback from users and stakeholders. This feedback is critical to adapting and optimizing products or services in real-time, ensuring that the solutions developed are always relevant and meet user needs appropriately. The iterative process promoted by Agile relies heavily on this feedback to make continuous improvements and adapt quickly to change.

Adaptive Leaders rank second with a score of 9, indicating that leaders who are flexible and ready to embrace change are key to success in an Agile environment. Adaptive leaders are able to navigate challenges and changes quickly, support teams in overcoming obstacles, and facilitate effective adaptation processes. This responsive leadership is critical in Agile methodologies, where rapid change and timely decisions are often required to achieve optimal results.

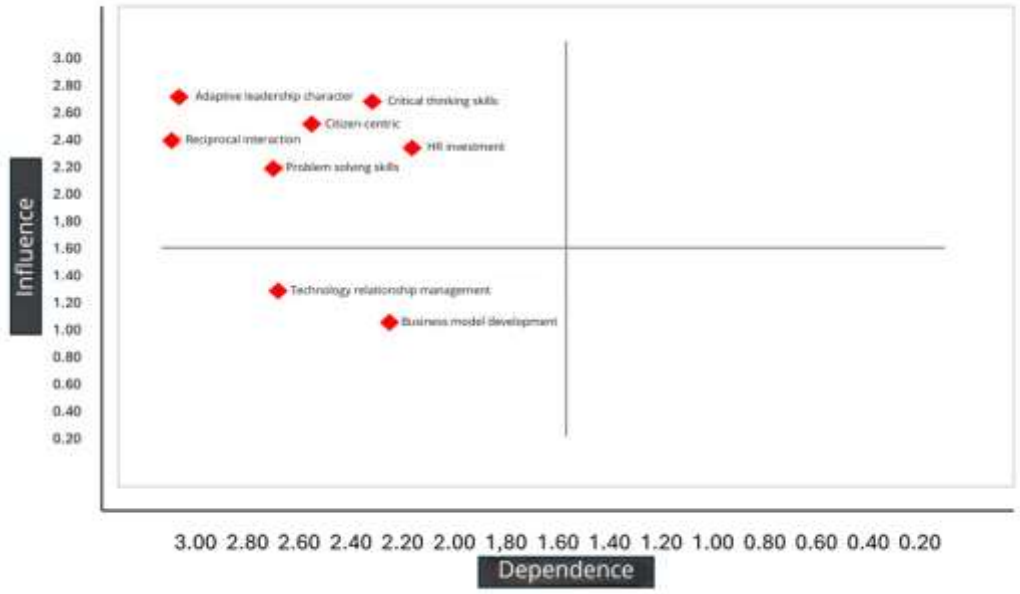
Next, the Citizen-Centric factor scored 8, indicating the importance of focusing on user needs. A user-centric approach ensures that the product or service being developed always meets the expectations and needs of the end user. By putting the user at the center of attention, Agile teams can ensure that each iteration of the product provides high value and relevance to the user.

Critical Thinking Skills scored 7, emphasizing the importance of the ability to make quick and informed decisions in an Agile context. Critical thinking enables teams to analyze information in depth, evaluate multiple options, and choose the most effective solution in frequently changing situations. This capability supports better and faster decision-making processes, which are critical in the iterative cycle of Agile.

Problem Solving Skills scored 6, indicating that while important, it falls below other factors in terms of priority. This skill is needed to address and resolve challenges that arise during rapid iterations in Agile projects. Effective problem solving helps teams overcome obstacles and continuously improve the product, however, this usually follows a feedback and decision process that is based on the leader and user needs.

Finally, Human Capital Investment, with a score of 5, while still important, has a lower priority in Agile rapid cycles compared to the other factors. This investment focuses on developing the skills and training of the team, but in an Agile context, the ability to adapt and respond to change is often more pressing than broader HR development.

These levers are then analyzed to determine the determinants that influence the development of innovative formulation patterns. The results of the prospective analysis of the determinants in the development of formulation patterns are shown in the figure below.



Source: *Data processing, (2024)*

Figure 8 : Influence and interest diagram Development Policy Innovative

These factors are then entered into a 4 quadrant diagram, namely: Quadrant I (input), Quadrant II (stakes), Quadrant III (output), Quadrant IV (unused) . The results of prospective analysis (figure xx) , obtained factors included in quadrant I, namely determining factors, including: Adaptive leader character , *Citizen-centric* , Human resource investment , Reciprocal interaction (Super APP, Masya, Business) , Problem-solving ability , Critical thinking skills . These six determinants have a very strong influence and have very low dependency. These five determinants are key factors in the strategy of developing innovative policy formulation patterns.

The 6 key factors of innovative policy formulation pattern development strategy are described as follows: ***First*** : adaptive leader character . Adaptive leaders have the ability to navigate change quickly and efficiently. They are able to anticipate emerging challenges and adjust strategies and tactics in real-time. Such leaders are not only reactive, but also proactive in identifying new opportunities and potential risks. Their ability to communicate effectively with teams and encourage innovation and collaboration makes them key in developing responsive and relevant policies.

Second: citizen *-centric* . The approach helps the government to redesign public needs, not just prioritize government interests. Citizens must have transparent access to information about public services, so that there is no deviation from the information that has been provided when the service is received . The approach ensures that policies formulated by the Lampung Police are always oriented towards the interests and needs of the community. By focusing on citizens, the Lampung Police can collect valuable feedback and integrate it into the policy formulation process. This helps increase public trust and the effectiveness of the resulting policies, as well as ensuring that the services provided are in accordance with the expectations and needs of the community.

Third : reciprocal interaction (Super APP, Masya, Bisnis) . This allows Polda Lampung to communicate in real-time with the community and business actors , strengthening transparency and accountability, enabling faster and data-based decision making. Good interaction between related parties also helps in detecting problems early and finding timely and effective solutions.

Fourth : problem -solving skills . It is an important asset for the Lampung Police in developing innovative policies. This ability involves in-depth analysis, identifying root causes, and developing creative and practical solutions. With this ability, the Lampung Police can address operational and strategic challenges more efficiently, and improve the quality of public services providedCritical Thinking Skills.

Fifth : Human resource investment . As a crucial factor in developing innovative policies. The Lampung Police must ensure that personnel involved in policy formulation have the skills and knowledge that are in line with the demands of the digital era. This includes ongoing training in new technologies, developing *soft skills* such as communication and collaboration, and increasing analytical capacity. Sixth: Critical Thinking Skills . The ability to analyze information in depth, evaluate arguments, and identify logical and valid conclusions. In the context of developing innovative policies, critical thinking allows the Lampung Police to filter relevant information from various sources, identify biases or invalid assumptions, and formulate policies that are based on solid facts and data. These skills are also important in anticipating the long-term impacts of proposed policies, as well as in developing innovative and sustainable solutions to complex problems. By thinking critically, the Lampung Police can ensure that the policies formulated are not only effective in the short term, but also have a positive, sustainable impact.

DISCUSSION

Agility and adaptive model in ecosystem digital bureaucracy describes **a** reciprocal and dynamic relationship between agile- adaptive 4.0 capacity, agile- adaptive HR qualifications, and ecosystem digital bureaucracy. Elements This interact for create policy innovative through changes in formulation processes responsive policy to changing times, improving Power competition bureaucracy, as well as strengthen service public based on technology. This study has produce a policy formulation model that agile and adaptive governance based on digital bureaucracy ecosystem (EBD) designed to increase bureaucratic capacity in responding to challenges in the VUCA era (Volatility, Uncertainty,

Complexity, Ambiguity). Based on the analysis results, several key factors were found that form a workflow that not only strengthens bureaucratic capacity, but also allows actor and institutional networks to collaborate more effectively in formulating policies including:

The first key factor : agile- adaptive capacity *4.0.* Capacity This emphasizes Agility Shift – the ability bureaucracy for respond fast dynamic changes in the digital era (Doz & Kosonen, 2010). Leadership adaptive play role central in driving change this, make sure bureaucracy moving with a citizen-centric approach (Heifetz et al., 2009).

Key factors second: qualification resource agile- adaptive human 4.0. HR qualifications in digital bureaucracy emphasize ability technical and non- technical through a) ability think critical and innovative , where in the digital era bureaucracy , the apparatus sued For control problem-solving and thinking skills critical , as explained in the framework competence 21st century (Dede, 2010); b) skills collaboration and adaptation : collaboration intense between various actor (cross sector) requires social-behavioral skills and rapid adaptation (Bryson et al ., 2014); c) adequate digital infrastructure support transformation bureaucracy as a whole . Bureaucracy based on technology allow improvement transparency and efficiency operational (Fountain, 2001).

Key factors third: interaction and connectedness. Elements interaction play a role as connector between various factor in ecosystem. Interaction This create Network actors and institutions working the same formulate effective and responsive policies (Provan & Kenis, 2008). Collaboration cross sector become factor key in create innovative policies.

Key factors fourth: outcome (result). Interaction elements This to form agile and adaptive bureaucracy, its results / outputs are: a) power competition bureaucracy: improvement capacity to respond change (Doz & Kosonen, 2010); b) policy public adaptive: policy digital- based that is effective and relevant to needs community (Janssen & Estevez, 2013); c) service effective and responsive: service fast, transparent, and community- focused public (Osborne & Gaebler, 1992).

D. CONCLUSION AND RECOMMENDATION

Conclusion

Study This succeed answer objective with identify and develop governance model agile and adaptive public in framework ecosystem digital bureaucracy (EBD)**.** Findings This show that improvement capacity bureaucracy depends on factors key including: Agile- Adaptive Capacity 4.0, Qualifications Human Resources (HR) Agile- Adaptive, Interaction and Connectedness, Outcome (Results). With strengthen factors key this, ecosystem model digital bureaucracy allow bureaucracy move more agile, adaptive, and strategic in face challenges of the VUCA era (Volatility, Uncertainty, Complexity, Ambiguity).

In general, this study concludes that bureaucratic weaknesses in responding to strategic problems can be overcome through the application of Agile and Adaptive Governance (AAG) within an ecosystem framework. digital bureaucracy. This model allows the bureaucracy to be more strategic, flexible, fast, and adaptive in facing the challenges of the VUCA era . Digital integration not only increases the capacity of public governance, but also encourages transparency and public participation. which leads to more innovative and responsive public policies. In addition, this model contributes to the development of bureaucratic competitiveness and supports the transformation towards green digital initiatives as an important step towards sustainable and innovative governance. in the era of globalization.

Recommendation

Strengthening Bureaucratic Human Resources Capacity through: 1) implementation training adaptive focused on improvement ability think critical, innovation and collaboration cross sector; 2) compiling curriculum training that is in accordance with the demands of the digital and VUCA era. Accelerating digital transformation through: 1) implementation comprehensive digital technology in governance bureaucracy for increase efficiency and transparency; 2) building a robust and integrated digital infrastructure across the line bureaucracy. Policy comprehensive support through: 1) compiling regulations that support agile and adaptive governance; 2) encourage synergy between stakeholders'

interests (government, private sector and community) in implementing policy digital- based. Green Digital Initiative through: 1) integrating digital policy with principles sustainability environment for support friendly governance environmental and sustainable. With steps said, bureaucracy expected capable increase governance capacity public, creating innovative policies, and encourage Power compete in facing global challenges in the digital era.

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