Research Article

Resilient Practices, Fragile Capacity: Organizational Traits For Resilience in Digital Local Tax Services in Kendari, Indonesia

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Abstract

Digital transformation in local government is often evaluated through service adoption and user satisfaction, while the organizational characteristics that keep public services running amid disruption receive less attention. This study analyses the organizational traits for resilience of the Regional Revenue Agency (Bapenda) of Kendari City, Indonesia, which launched a digital tax portal in 2020. A single descriptive-analytical case study was conducted from July to October 2026 through in-depth interviews with ten agency informants and seven taxpayers, direct observation of service delivery, and analysis of server logs for 2024–2025, portal user data, organizational structure, and fiscal records. Four traits were examined: risk awareness, preference for cooperation, agility, and improvisation. The findings show that risk awareness is moderate to strong, as risks are recognised from the strategic to the technical level, yet monitoring remains manual and disruptions were recorded in all twelve months of 2024 and eight months of 2025, including two cybersecurity incidents. Preference for cooperation is moderate to strong, built on partnerships with the regional bank, the communication and informatics office, and system vendors, but internal expertise is concentrated in a single systems analyst. Agility is moderate to strong, with procedures adjusted within days to weeks and services simplified in response to user complaints, although three disruptions exceeded two hours. Improvisation is moderate, taking the form of controlled workarounds that keep services running but remain unwritten. Resilient practices in the agency therefore outpace its supporting capacity. Strengthening technical staffing, automated monitoring, documented response standards, and written emergency procedures is required.

Keywords: Organizational Resilience; Digital Transformation; Local Tax Administration; Public Sector; Improvisation.

1 Introduction

Digital transformation has become a central agenda of public sector reform, promising more efficient, transparent, and accessible services. Evidence from public administrations shows that digital transformation can improve governmental efficiency, particularly when departments coordinate with one another (Yang et al., 2024), and that public sector innovation in Indonesian districts is positively associated with development outcomes (Hilmawan et al., 2023). Yet digital transformation is not merely the replacement of manual procedures with technology. It changes structures, work routines, skills, and relations between government and citizens, and public organizations may separate digital initiatives from their everyday operations in ways that weaken performance (Crusoe et al., 2024). The success of digital public services therefore depends on organizational capacity as much as on technology.

Tax administration is one of the domains where this dependence is most visible. A systematic review of digital tax administration shows that success depends on the wider ecosystem of context, stakeholders, technology, and demonstrated results rather than on technology alone (Bassey et al., 2022). Electronic systems can raise reported tax, but taxpayers also adjust their behaviour in ways that limit net revenue gains (Mascagni et al., 2021). Citizen use of e-government services in Indonesia is shaped by government capacity, information quality, service quality, trust, and perceived risk (Maktub et al., 2025). Digital tax services thus operate within a fragile combination of technical infrastructure, organizational routines, and taxpayer behaviour, and disruptions in any part of this combination can affect the continuity of revenue collection.

Disruptions are increasingly frequent in digital public services. Research on government data breaches identifies ransomware, weak data protection, and the security of government cloud systems as central concerns (Hamid & Huda, 2025), while incident response research emphasises that responses must be linked to their effects on ongoing operations (Shaked et al., 2023). Studies of public sector crisis management show that adaptive capacity rests on trust across organizational levels, autonomy of units, clear objectives, and lessons from earlier disruptions (Cedergren & Hassel, 2024). These findings direct attention to the organizational characteristics that allow public agencies to anticipate, absorb, and respond to disruption in their daily work rather than only during extraordinary crises.

Organizational resilience research offers a framework for examining these characteristics. Building on the principles of high reliability organizing, which emphasise preoccupation with failure, reluctance to simplify, sensitivity to operations, commitment to resilience, and deference to expertise (Weick & Sutcliffe, 2007), Andersson et al. (2019) identify four organizational traits for resilience: risk awareness, preference for cooperation, agility, and improvisation. Risk awareness refers to the tendency to recognise and anticipate threats to organizational goals; preference for cooperation refers to the mobilisation of actors inside and outside the organization to prevent or stop undesired events; agility refers to flexibility and speed when conditions change; and improvisation refers to the creative use of available resources when standard procedures are inadequate. Reviews of high reliability theory, however, note that empirical applications outside safety-critical industries remain scarce (Dwyer et al., 2023).

The Regional Revenue Agency (Badan Pendapatan Daerah, Bapenda) of Kendari City, Southeast Sulawesi, provides a relevant case for applying this framework to digital public services. On 17 September 2020 the agency launched the Pajak Menyapa (JAKPA) portal, which provides online services for land and building tax (E-PBB), land deed officials (PPAT Online), self-assessed tax reporting (E-SPTPD), tax potential mapping (E-Potensi), and supervision (E-Waspada). Local own-source revenue grew from IDR 298.14 billion in 2021 to IDR 409.62 billion in 2025, and local tax revenue rose from IDR 144.57 billion to IDR 270.77 billion over the same period. Adoption of digital services, however, remains low. In 2024 the E-PBB service had 400 registered users, or about 0.29% of 137,022 registered land and building taxpayers, and of 7,225 E-SPTPD accounts only 1,186 (16.41%) actively reported taxes, while 4,893 (67.72%) had never reported.

The coexistence of growing tax revenue, low digital adoption, and recurring system disruptions raises the question of which organizational characteristics sustain tax services during digital transformation. Previous studies of the same portal have focused on service effectiveness and identified barriers such as low digital literacy, limited staff competence, and inadequate infrastructure, but they have not examined the organizational traits that keep services running. Research on agile government also shows that bureaucratic and agile logics coexist in tension within public agencies (Johannessen, 2025), while studies of frontline digital work reveal that officials develop coping strategies and exercise digital discretion when systems change (Afzal & Panagiotopoulos, 2024). This study addresses the gap by analysing the organizational traits for resilience of Bapenda Kendari City in its digital local tax services through the four dimensions of risk awareness, preference for cooperation, agility, and improvisation.

2. METHOD

This study employed a qualitative single case study with a descriptive-analytical design, which is suited to examining a contemporary phenomenon within its real-life context when the boundaries between phenomenon and context are not clearly evident (Yin, 2018). The case was Bapenda Kendari City as the organization that has provided digital local tax services through the JAKPA portal since September 2020, with the services and systems managed by the agency during 2020–2025 as the case boundary. The unit of analysis was organizational practice rather than individual behaviour. Fieldwork was conducted at the agency's office in the Kendari Public Service Mall from July to October 2026. Ten agency informants were selected purposively, comprising the agency secretary, the head of the division for certain goods and services tax, two heads of registration subdivisions, the heads of planning and of general affairs and personnel, the systems and network analyst, two secretariat staff, and one frontline service officer. Seven taxpayers from three districts, grouped by age, were interviewed to triangulate the agency's accounts of service delivery.

Data were collected through semi-structured in-depth interviews, direct observation of digital and counter services, and analysis of documents, including server logs for 2024 and 2025, portal user data for 2020–2024, local revenue data from Statistics Indonesia and the city government, the organizational structure, and relevant regulations. Transcripts were coded deductively according to the indicators of each trait and inductively for emerging themes, and data were analysed through data condensation, data display, and conclusion drawing and verification (Miles et al., 2014). Each trait was assessed on a qualitative rubric: strong when practices were documented in at least two sources and consistent between statements and documents, moderate when practices were stated but not triangulated or were contradicted by counter-evidence, and weak when practices were absent or contrary evidence dominated. Credibility was ensured through source and method triangulation, member checking with key informants, a search for negative cases against server logs, an audit trail, and thick description of the context.

3. RESULTS

The findings are presented according to the four organizational traits for resilience. The traits are interconnected in the agency's practice: risk awareness determines which disruptions the agency anticipates, preference for cooperation determines who is mobilised to handle them, agility determines how quickly procedures and services are adjusted, and improvisation determines how services continue when standard procedures fail.

3.1 Risk Awareness: Recognising Risks Without Automated Detection

Risk awareness at Bapenda Kendari City operates at several organizational levels. At the strategic level, the main risk identified is a decline in local own-source revenue caused by interruptions in digital systems and by mismatches between taxpayers' reports and actual conditions. At the divisional level, the main concern is under-reporting under the self-assessment scheme, in which hotels, restaurants, and entertainment businesses declare their own turnover. At the technical level, the systems analyst monitors system availability daily, checks server usage graphs, and reviews server logs in order to detect problems before mass complaints arrive, while frontline officers identify early signals of failure from taxpayers' difficulties with email registration and layered verification. Low digital participation is not attributed simply to insufficient socialisation but is analysed through interface design, network reliability, staff readiness, age, and device ownership, and services are maintained through hybrid channels, counter services, and mobile payment units operated with the regional bank when the portal is disrupted. Mindful organizing of this kind has been found to be strongly associated with formal safety management systems (Teske & Adjekum, 2022), and internal control combined with information systems strengthens the accountability of public organizations (Purnamasari et al., 2024).

The server logs confirm that these concerns reflect real and recurring risks. As Table 1 shows, disruptions were recorded in all twelve months of 2024 and in eight months of 2025. In 2024, problems with the main internet connection supplied by the city's communication and informatics office affected nine months, followed by power outages in three months, whereas in 2025 the pattern shifted toward full server storage in April and May, web server and database bugs in three months, and two cybersecurity incidents, namely DNS hijacking of the PPAT Online domain in July and defacement of two domains in September. The backup network was recorded as unstable in September 2024, and the storage problem recurred in May 2025 after a temporary solution in April. Monitoring still relies on manual checks by a single analyst, and the service-level standard mentioned by the planning unit could not be verified. Taxpayer interviews further show that non-use of digital services also reflects unawareness of the services, perceived complexity, and fear of paying incorrectly, which are less emphasised in the agency's explanations.

Table 1. Server disruptions at Bapenda Kendari City by cause, 2024–2025 (number of months affected)

Cause of disruption	2024	2025
Main internet connection (communication and informatics office)	9	2
Electricity	3	2
Hardware	1	0
Internal network devices	1	0
Application, web server, or database	1	3
Full server storage	0	2
Cybersecurity (DNS hijacking, defacement)	0	2
Scheduled maintenance	0	1
Months with recorded disruptions	12 of 12	8 of 12

Source: Server logs of Bapenda Kendari City 2024 and 2025, processed by the authors (2026). One month may involve more than one cause, so rows are not summed; the logs do not record exact dates.

These findings show that risk awareness at Bapenda Kendari City is moderate to strong: strong in recognising risks, but moderate in sustaining their follow-up. Risk awareness requires systems and processes for reporting risks and disruptions together with a commitment by managers and employees to avoid failure (Andersson et al., 2019). The agency fulfils this requirement through layered reporting, daily monitoring, and a refusal to reduce low adoption to a single explanation, which reflects the principles of preoccupation with failure and reluctance to simplify (Weick & Sutcliffe, 2007). However, the shift of disruptions from network failures to storage, application, and security problems shows that the risk landscape is dynamic, while detection remains

dependent on one person's manual checks and unverified service standards. Awareness is therefore ahead of the infrastructure needed to act on it consistently. The agency should install automated real-time monitoring and adopt incident response playbooks that link each type of disruption to its effect on tax services, as operations-informed playbooks have been shown to help organizations prioritise responses according to their consequences for ongoing operations (Shaked et al., 2023).

3.2 Preference for Cooperation: Strong Partnerships, Concentrated Expertise

The risks identified by the agency are handled through a network of internal and external cooperation. Internally, technical decisions on cybersecurity, payment gateway integration, and system errors are delegated to the systems analyst, the IT function under the secretariat, or the vendor, while administrative and policy follow-up is reported through the hierarchy. Heads of subdivisions and frontline staff consistently refer technical problems to those with expertise rather than waiting for formal approval, which shortens response time. Externally, the agency cooperates with the city's communication and informatics office for network infrastructure, with the regional bank Bank Sultra for the payment gateway, QRIS, virtual accounts, and mobile payment services in urban villages, with the system vendor for application development, with audit and supervisory institutions for governance consultation, and with the tourism office, the one-stop service office, and municipal police for taxpayer data collection and supervision. This division of roles reflects the deference to expertise that underpins cooperative responses to disruption, and it is consistent with evidence that multi-sector partnerships improve the accuracy and timeliness of public service delivery (Kuntjorowati et al., 2024).

The structure of this cooperation also reveals its limits. The internal expertise to which almost all informants defer is concentrated in a single systems and network analyst, who manages all of the agency's systems with one supervisor, learned the JAKPA portal without formal training, and works without written technical IT procedures. Learning and empowerment are known to improve public sector performance (Imam et al., 2025), and internal control and organizational culture drive innovation in Indonesian public agencies (Maqdliyan & Setiawan, 2023), yet neither is institutionalised for the agency's technical function, while the accumulation of systems without matching capacity produces the administrative overload described in public governance research (Lourenço, 2023). The organizational structure contains no dedicated IT unit, and the logs record disruptions across many systems, with four types of disruption in May 2025 alone. At the same time, the external partner on which the agency depends most, the main internet connection of the communication and informatics office, was also the most frequent source of disruption, affecting nine months in 2024. Research on public sector adaptation shows that trust across roles and autonomous units strengthen adaptive capacity (Cedergren & Hassel, 2024), and that coordination among departments amplifies the efficiency benefits of digital transformation (Yang et al., 2024), but both depend on the availability of the actors being coordinated, as summarised in Table 2.

Table 2. Cooperation network of Bapenda Kendari City in digital tax services

Partner	Form of cooperation	Vulnerability identified
Systems and network analyst (internal)	Technical diagnosis, recovery, and liaison with external partners	Single point of failure; no written technical IT procedures
Communication and informatics office	Main internet connection and e-government infrastructure	Most frequent source of disruption (9 months in 2024)
Bank Sultra and collecting banks	Payment gateway, QRIS, virtual accounts, mobile payment units	Gateway connection failure of about 125 minutes (July 2024)
System vendor	Application development and permanent fixes	Permanent storage fix not completed within the recorded period
Audit and supervisory institutions	Consultation on accountable digital tax governance	Advisory role; no operational backup
Tourism office, one-stop service office, municipal police	Data collection and supervision of goods and services taxpayers	Coordination limited to supervision, not system continuity

Source: Interviews and server logs of Bapenda Kendari City 2024–2025, processed by the authors (2026).

These findings indicate that preference for cooperation at Bapenda Kendari City is moderate to strong. Preference for cooperation refers to the tendency to mobilise actors within and outside the organization to

prevent or stop undesired events (Andersson et al., 2019), and the agency demonstrates this tendency through clear divisions of technical and administrative roles and through partnerships with banks, infrastructure providers, and vendors. Deference to expertise, however, presupposes that expertise is available and can be mobilised when needed (Weick & Sutcliffe, 2007). In Bapenda, deference works well when one analyst is available and handling a single disruption, but simultaneous disruptions expose a constraint of resources rather than of willingness. Cooperation also creates dependence, since the agency's most important partner is also its most frequent source of disruption. The agency should establish formal service agreements with its infrastructure, banking, and vendor partners and appoint trained substitutes for each core system, since ambidextrous IT governance mechanisms combining internal and external collaboration with talent development have been shown to underpin successful digital transformation in Indonesian public institutions (Mulyana et al., 2024).

3.3 Agility: Fast Procedural Adjustment, Uneven Technical Speed

The cooperation network enables the agency to adjust quickly when policies, systems, or user needs change. Changes in national e-government policy, the transition to cashless transactions, QRIS integration, and new local tax regulations are translated by the leadership into technical guidelines for staff. Centralised decision-making supported by legitimacy enables fast and coordinated public responses, although it can leave citizen participation underdeveloped (Asthana et al., 2024). Subdivisions adjust data modules, test new features, revise standard operating procedures, and conduct internal briefings within a period of several days to weeks, while personnel assignments are aligned with new digital tasks. Frontline officers learn new mechanisms first and then guide taxpayers at the counter. The agency has also adapted its services to user feedback: the multi-layered email verification in E-PBB was simplified so that taxpayers only need to enter their tax object number, and the Cek PBB service was developed in response to complaints that the JAKPA portal was difficult to use. Two taxpayers who use the digital service confirmed that the current process is simple, which provides user-side evidence of this responsiveness. Digital participation platforms in Indonesian cities nonetheless face uneven citizen access and weak complementarity between platforms (McDermott et al., 2025), which helps explain why responsiveness has not yet translated into wide adoption.

Technical agility, however, is less consistent than procedural agility. The systems analyst estimates that network problems and minor bugs are resolved within 30 minutes to one hour on average and within two hours at most, but no service-level documents or ticket data were available to verify this estimate. The server logs show that most recorded disruption windows fall within this range, yet three disruptions lasted longer than two hours: about 144 minutes in January 2024, 125 minutes in July 2024, and 185 minutes in June 2025, the latter two linked to the communication and informatics office network or to the connection with Bank Sultra. Response speed therefore depends on external partners and on the availability of a single analyst, which becomes critical when several systems are disrupted at the same time. Studies of public services show that change readiness strengthens organizational agility, while high formalisation can weaken its benefits for performance (Almazrouei et al., 2024). These patterns are summarised in Table 3.

Table 3. Forms of agility at Bapenda Kendari City

Trigger	Agency response	Timeframe and evidence
National e-government policy and new local tax rules	Leadership decisions translated into technical guidelines	Days to weeks (interviews with leadership and subdivisions)
New system features	Module adjustment, trial runs, SOP revision, internal briefings	Several days to weeks (planning unit and registration subdivisions)
Complaints that JAKPA is difficult to use	Development of the Cek PBB service	Confirmed by the systems analyst and service list
Layered email verification in E-PBB	Simplified to entry of the tax object number only	Confirmed by frontline officer and two taxpayer users
Network problems and minor bugs	Recovery by the systems analyst with external partners	Estimated 30 minutes to 2 hours; not verified by SLA or ticket data
Major network and gateway disruptions	Coordination with the informatics office and Bank Sultra	About 144 (Jan 2024), 125 (Jul 2024), and 185 (Jun 2025) minutes

Source: Interviews, taxpayer interviews, and server logs of Bapenda Kendari City 2024–2025, processed by the authors (2026).

These findings show that agility at Bapenda Kendari City is moderate to strong. Agility refers to flexibility and speed in acting when conditions change (Andersson et al., 2019), and the agency displays this trait clearly at the level of decisions and procedures, translating policy changes into guidelines and simplifying services in response to users within days to weeks. Its technical agility, however, depends on the estimate of one analyst, on partners outside its control, and on the absence of simultaneous disruptions. The tension between fast procedural adjustment and slower technical recovery reflects the broader coexistence of agile and bureaucratic logics in public organizations (Johannessen, 2025). Agility in this case is therefore a property of managerial and frontline routines more than of the technical system that supports them. The agency should document service-level standards and record every incident as a ticket with start, response, and recovery times, since delay indices have been shown to make timeliness measurable and improvable in public sector processes (Ottou et al., 2024).

3.4 Improvisation: Controlled Workarounds Without Written Rules

When procedures and systems fail despite rapid adjustment, services continue through improvisation. Registration subdivisions use manual forms and temporary offline records when the network fails during tax reporting, and these records are re-entered into the system once the connection is restored. Staff reorganise counter assignments to keep queues orderly, record taxpayers' data while waiting for repairs, and serve them persuasively. The systems analyst has exercised technical discretion by temporarily transferring data to an external hard disk when the land and building tax and land transfer duty server storage became full in April 2025, and by restarting web services independently to restore access before permanent repairs were carried out with the vendor. Frontline officers guide elderly and digitally inexperienced taxpayers through data entry, register their telephone numbers, print virtual accounts, and complete transactions on the officers' own devices. When problems cannot be solved immediately, the analyst follows up with taxpayers personally through messaging applications, a practice that increases availability but, as research on electronic frontline communication shows, can also raise demand for staff time (Løberg, 2021). These practices allow services to continue on the same day despite disruptions.

Improvisation is nevertheless bounded by the accountability requirements of public financial administration. The head of the goods and services tax division insists that staff must not act outside standard procedures because of the legal risks involved, whereas the agency secretary appreciates staff initiative provided that every improvised action is promptly adjusted and reported. The two positions are not identical: the first prohibits departures from procedure, while the second permits initiative under reporting obligations. Frontline workarounds are not regarded by informants as violations, yet none of them is written into an emergency procedure, so the boundary between acceptable improvisation and procedural deviation depends on managerial interpretation. No taxpayer reported receiving assistance outside the procedures, although taxpayers' experiences during system disruptions were not explored. Research on frontline digital work shows that perceived control and digital discretion shape whether officials cope productively with new systems (Afzal & Panagiotopoulos, 2024), and that digitalisation tends to reduce work to codifiable steps that omit personal contact (Andersson et al., 2022). These practices are summarised in Table 4.

Table 4. Improvised practices at Bapenda Kendari City during service disruptions

Situation	Improvised practice	Actor	Formal status
Network failure during tax reporting	Manual forms and offline records re-entered after recovery	Registration subdivisions	Practised; not written
Full server storage (April 2025)	Temporary transfer of data to an external hard disk	Systems analyst	Recorded in logs; not written
Web service failure	Independent restart of web services before vendor repair	Systems analyst	Practised; no technical IT SOP
System slowdown at the counter	Reassignment of counter staff to manage queues	General affairs and personnel	Practised; not written
Taxpayers with low digital literacy	Hand-holding, printing virtual accounts, transactions on officers' devices	Frontline officers	Practised; not written

Source: Interviews and server logs of Bapenda Kendari City 2025, processed by the authors (2026).

These findings show that improvisation at Bapenda Kendari City is moderate: it exists and sustains services, but it is constrained and not yet institutionalised. Improvisation refers to the creative use of available competences and resources when standard procedures are inadequate (Andersson et al., 2019), and the agency's manual records, temporary data transfers, and counter-level assistance correspond to the bricolage through which organizations make sense of and recover from unexpected events (Weick, 1993). In a public revenue agency, however, improvisation is limited by legal accountability, producing a form of controlled improvisation in which initiative is valued only when it remains reportable and close to procedure. This balance does not depart from the framework but reflects, in a public sector setting, the balance between decentralised initiative and shared norms that sustains resilience. The problem is that the balance currently rests on individual judgement rather than written rules. The agency should codify proven workarounds into written emergency procedures that define the scope of permitted discretion and the reporting obligations attached to it, since clear digital discretion and perceived control have been shown to channel frontline coping toward productive use of public digital systems (Afzal & Panagiotopoulos, 2024).

5. CONCLUSION

The organizational traits for resilience of Bapenda Kendari City are clearly present in daily practice, but they are stronger in recognising risks, coordinating with partners, and adjusting procedures than in sustaining follow-up through adequate supporting capacity. Risk awareness is moderate to strong, as risks are recognised from revenue decline and under-reporting to network failures, full storage, and cyber incidents, yet monitoring remains manual and disruptions recur. Preference for cooperation is moderate to strong, as partnerships with banks, infrastructure providers, and vendors are well established, but internal expertise is concentrated in a single analyst and the main infrastructure partner is also the most frequent source of disruption. Agility is moderate to strong, with procedures and services adjusted within days to weeks, although technical recovery is slower when external partners are involved. Improvisation is moderate, as controlled workarounds keep services running but remain unwritten and dependent on managerial interpretation. The continuity of tax services is also supported by conventional bank and counter channels, which most taxpayers still prefer.

Resilient practices in the agency therefore outpace its supporting capacity. Strengthening technical staffing and appointing trained substitutes for each core system, installing automated real-time monitoring and a dedicated network connection, documenting service-level standards and incident records, reinforcing cybersecurity, and codifying emergency workarounds into written procedures are required to make these traits durable. The agency should also address taxpayers' unawareness of digital services, perceived complexity, and fear of incorrect payment. This study is limited to a single case, to self-assessment by agency informants, to server logs without exact dates, and to taxpayer interviews that did not explore experiences during disruptions. Further research should compare several revenue agencies and examine the relationship between organizational traits and measurable service continuity outcomes.

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