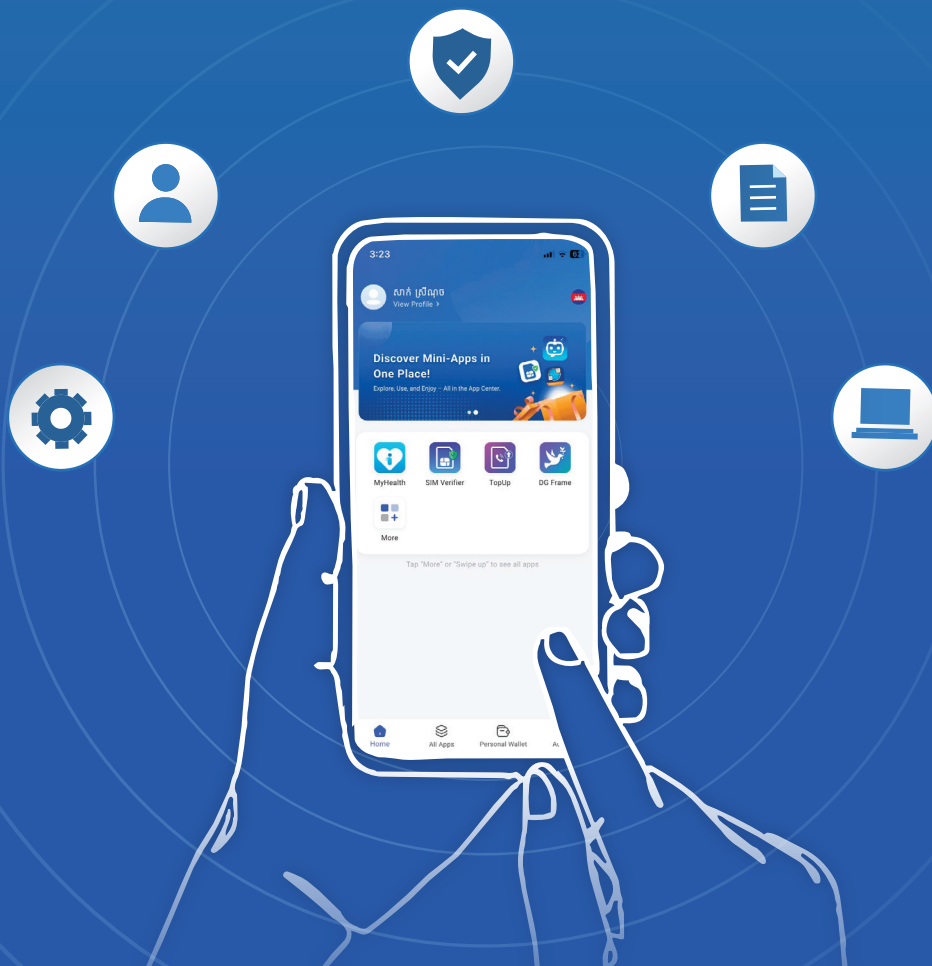


Autonomists, Delegators, and Traditionalists

How Cambodian Citizens Engage with
Digital Government Services



Chunly Sereyvicheth, Khath Bunthorn, and Sak Sreynoch

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Autonomists, Delegators, and Traditionalists: How Cambodian Citizens Engage with Digital Government Services

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List of acronyms and abbreviations

ASYCUDA	Automated System for Customs Data
CamDX	Cambodia Data Exchange
CAPI	Computer-Assisted Personal Interviewing
CDRI	Cambodia Development Resource Institute
DMIL	Digital, Media and Information Literacy
ICT4D	Information and Communication Technologies for Development
MISTI	Ministry of Industry, Science, Technology, and Innovation
MPTC	Ministry of Post and Telecommunications
ODI	Overseas Development Institute
OWSOs	One Window Service Offices
PPS	Probability Proportional to Size
RGC	Royal Government of Cambodia
UNESCO	United Nations Educational, Scientific and Cultural Organisation
UTAUT	Unified Theory of Acceptance and Use of Technology

Executive summary

Over the past decade, Cambodia has invested substantially in the digital transformation of public administration. Foundational digital infrastructure has been deployed, mobile penetration extends across nearly all populated areas, and Cambodian society has rapidly adopted commercial digital platforms for banking and payments. The digitalisation of citizen-facing services themselves, however, remains limited and uneven, and whether and how citizens engage with the digital channels of the state has received remarkably little systematic empirical attention.

This working paper provides the first nationally representative empirical account of citizen engagement with government digital services in Cambodia. Drawing on a CDRI survey of 1,200 adults sampled through a multi-stage stratified random design, the analysis combines descriptive statistics with three regression specifications—binary, multinomial, and ordered logistic—to identify the factors that shape citizens’ patterns of engagement.

Key findings

Use of government digital services is low, and the barrier is capability, not access or attitude.

Some 76.9 percent of Cambodian adults report having never used a government digital service in the preceding twelve months—a striking contrast to their rapid uptake of commercial platforms such as mobile banking. The factors that separate users from non-users are overwhelmingly capability-related: education, the ability to install and use applications independently, and confidence in handling administrative tasks online are the strongest predictors of use.

Non-engagement reflects two distinct barriers—a lack of skills and a lack of awareness—that fall on different citizens. Among those who have never used a government digital service, 57.1 percent say they do not know how to use such applications and a further 35.0 percent were unaware the services existed at all; concerns about data security or connectivity are marginal. These two barriers are not felt equally across the population. Younger and better-educated non-users overwhelmingly do not know the services exist—an awareness problem—whereas older and less-educated non-users cannot use services they may well know about—a skills problem. What looks in aggregate like a single capability gap is in fact two, each requiring a different response.

The gender gap in engagement is a gap in capability. Women are less likely than men to have used government digital services, but the difference is far wider in underlying digital capability than in engagement itself, and it disappears once capability is taken into account. The gap is therefore not a matter of preference, but of the digital skills women have had less opportunity to acquire.

Citizens divide into three modes of engagement, and reliance on intermediaries is structural, not transitional. Asked what they would do if they could complete a government service online, 11.4 percent would do it themselves on their phones (Autonomists), 19.4 percent would turn to a human intermediary—a relative, a local official, or a paid agent (Delegators)—and 69.2 percent would still go in person (Traditionalists). Delegators are drawn disproportionately from citizens with lower education than even the go-in-person majority, indicating that delegation is not a stepping-stone to digital independence but the means by which lower-capability citizens would reach the digital state at all. The proxy ecosystem is a permanent feature of the landscape, not a phase to be designed out.

Digitalisation is incomplete on the supply side as well as the demand side. Some 64.5 percent of respondents believe that even after applying online they would still have to visit a government office in person. This perception is widely held—by users and non-users alike—and most plausibly reflects a real institutional condition rather than a misconception: digital front-ends have been built faster than the legal and procedural back-ends that authorise civil documents have been reformed. The result is a front-end/back-end gap, in which an online application does not remove the physical steps that complete the transaction.

Two binding constraints define the next phase of transition. On the demand side, citizens' capability and awareness have not kept pace with the platforms being built. On the supply side, the digitalisation of front-end services has outpaced reform of the workflows that complete them. Addressing both—citizen capability and back-end institutional reform—is the distinctive challenge of Cambodia's digital government transition.

Policy recommendations

Close the awareness gap. A substantial share of non-use reflects citizens, particularly younger and more educated ones, simply not knowing that services exist. Targeted public communication is a low-cost, high-return measure, distinct from and prior to skills-building.

Build capability, and make it gender-responsive. For the older and less-educated citizens held back by a skills barrier, sustained digital-literacy support is required; because the gender gap in engagement is a capability gap, that support should be designed to reach women in particular.

Work with intermediaries, not around them. Because delegation is a structural mode of engagement for lower-capability citizens, the relatives, officials, and agents who mediate access should be recognised and supported—through assisted-digital and digital-by-proxy service models—rather than treated as a problem to be eliminated.

Synchronise back-end reform with front-end scaling. Expanding online services will yield limited returns while physical requirements such as wet stamps and in-person verification remain conditions for the legal validity of civil documents. Progressive reform of these workflows, including the legal status of digital signatures and interoperability between ministry systems, is needed to close the front-end/back-end gap.

Differentiate interventions by engagement mode. The three modes face different binding constraints: Autonomists need the back-end gap closed, Delegators need the intermediary network supported, and Traditionalists need the awareness and capability barriers lowered before digital engagement becomes a realistic option at all. In addition, the legal and procedural back-end should be reformed through Business Process Reengineering of civil document workflows—the legal status of digital signatures, the integration of physical authentication steps, and inter-ministerial interoperability—in synchronisation with further front-end scaling.

1. Introduction

Cambodia has, over the past decade, made substantial public commitments to the digital transformation of state administration. Successive national development frameworks—culminating in the Pentagonal Strategy–Phase I and the Cambodia Digital Government Policy—have positioned the digitalisation of citizen-facing public services as a central pillar of the country’s economic modernisation agenda (RGC 2023; MPTC 2022).

Across ministries, line agencies, and the One Window Service Office (OWSO) system, digital platforms and online application systems have been launched with the stated aim of reducing administrative friction, improving service responsiveness, and bringing the state closer to its citizens. Important supply-side foundations for digital public service delivery have been established. Mobile network coverage extends across nearly all populated areas of the country, and active cellular subscriptions exceed the total population (DataReportal 2024). Cambodian society is frequently cited as a prominent example of digital ‘leapfrogging’ in the financial sector, having rapidly transitioned from a cash-dominated economy to a highly digitised financial ecosystem (UNCDF 2021; Santosdiaz 2026; Wee-Oon 2025).

Whether and how citizens are engaging with the digital channels of the state, however—as opposed to those of private financial institutions—has received little systematic empirical attention. The question matters for two reasons. The effectiveness of the government’s digital investments depends not only on what is built on the supply side, but on whether citizens are positioned, willing, and able to engage with what is built. And the magnitude of demand-side investment that may be required to translate digital infrastructure into widespread citizen adoption is a strategic question for both government and development partners, the answer to which depends on a baseline understanding of where citizens currently stand.

International evidence consistently shows that digital government initiatives in lower- and middle-income contexts frequently produce a gap between supply-side readiness and demand-side uptake (United Nations 2022; World Bank 2016). Heeks (2002) characterises this as the “Design–Reality Gap”: the divergence between systems designed around assumptions imported from high-income contexts and the lived institutional and socio-economic realities of citizens in the implementation environment. The conceptual frameworks most frequently applied to e-government adoption, particularly the Unified Theory of Acceptance and Use of Technology (UTAUT) developed by Venkatesh et al. (2003) were originally formulated in institutional contexts characterised by relatively mature digital infrastructures and higher baseline levels of technological familiarity. While these models remain analytically useful, their direct application to transitional contexts such as Cambodia may understate the importance of structural constraints—including uneven digital literacy, infrastructural limitations, bureaucratic fragmentation, and reliance on intermediaries—that shape citizen interaction with digital government systems.

A specific intellectual debate animates this investigation: the role of human intermediaries—relatives, local officials, and paid agents—in facilitating engagement with the digital state. Information and Communication Technologies for Development (ICT4D) and digital inclusion scholarship increasingly recognise the importance of such intermediaries or “warm experts” in enabling access for citizens with limited digital (Bakardjieva 2005; Sharma and Mishra 2017), but debate persists over whether intermediated engagement is transitional or a more durable feature of digital governance (Helsper and Reisdorf 2017). Cambodia, where village chiefs and commune authorities have historically mediated everyday interactions between citizens and the state (Öjendal and Kim 2006), offers a useful setting through which to examine this question.

Existing empirical research on digital adoption in Cambodia has focused predominantly on supply-side readiness and macro-infrastructure metrics (ODI and CDRI 2020; United Nations 2024), or has been restricted to specific user populations such as urban youths, university students, and small business owners (Por, Say, and Mov 2024; UNDP 2020; Kanayama et al. 2025; Chan, Chhem, and Nay 2021). A notable deficit of demand-side evidence remains, capturing the engagement patterns of the broader citizen population. To the best of the authors' knowledge, no nationally representative empirical account of citizen interaction with the digital state has previously been produced. The present study aims to address this gap.

1.1. Research objectives

The study examines how Cambodian citizens engage with government digital services and identifies the structural, cognitive, and attitudinal factors that shape their patterns of engagement. Drawing on a nationally representative survey of 1,200 Cambodian citizens conducted by CDRI, it seeks to provide the first systematic empirical account of demand-side engagement with the digital infrastructure of the Cambodian state.

The study has four specific aims: (i) to describe the current landscape of citizen engagement with government digital services across Cambodia; (ii) to identify and characterise distinct modes through which citizens engage with the state on digital matters; (iii) to examine the structural and capability factors associated with each mode of engagement; and (iv) to draw policy implications for the design of Cambodia's continuing digital government transition.

1.2. Research questions

The study addresses four research questions:

1. What is the current state of citizen engagement with government digital services in Cambodia, and how do citizens distribute across distinct modes of state interaction?
2. What structural and capability factors are associated with the likelihood of having engaged with government digital services at all?
3. Among citizens engaging with the state on digital matters, what factors distinguish the different modes of engagement from one another and from non-engagement?
4. What do these patterns imply for the design of Cambodia's digital government transition, particularly regarding capability building, intermediary engagement, and the structural redesign of state digital services?

1.3. Significance of the study

The study contributes to scholarship and policy in three respects. First, it provides a nationally representative demand-side baseline against which future progress in Cambodia's digital government transition can be measured—a reference point for evaluating policy interventions and for tracking change over time as the supply of digital services continues to expand. Second, it contributes to the e-government adoption literature in transitional economies by bringing demand-side Cambodian evidence to bear on the international debate about the role of administrative burden in citizen engagement. Third, it contributes to the digital divide literature by examining whether the intermediated mode of engagement, central to citizen-state interactions in many transitional contexts, is best understood as a transitional category or as a structurally embedded form of digital inclusion—a distinction with direct implications for the design of differentiated policy responses.

1.4. Organisation of the paper

The remainder of the paper is organised as follows. Chapter 2 reviews the e-government policy context in Cambodia and the international scholarly literatures on digital government adoption, the digital divide, administrative burden, and intermediated access, and develops the analytical framework. Chapter 3 describes the research methodology, including the survey design, variable construction, and regression specifications. Chapter 4 presents the empirical findings, organised around the research questions on engagement landscape, predictors of engagement, and the typology of engagement modes. Chapter 5 interprets the findings through the analytical framework and develops the diagnostic implications for Cambodia's digital government transition. Chapter 6 presents the principal contributions and policy recommendations. Chapter 7 sets out the limitations of the study and identifies an agenda for future research.

2. Literature review and theoretical framework

The transition towards digital public administration in the Global South requires an analytical framework capable of reconciling ambitious policy commitments and emerging digital infrastructures with the uneven realities of citizen capabilities, administrative practices, and institutional legacies. This chapter synthesises five bodies of scholarship to develop an analytical vocabulary for interpreting patterns of digital engagement in Cambodia: the macro-policy literature on national digital transitions; information systems adoption research in the Global South; scholarship on the evolving digital divide; administrative burden theory; and ICT4D research on social intermediation. Rather than testing a formal theoretical model, the chapter uses these perspectives to develop an analytical framework for examining the patterns observed in the Cambodian survey data. The chapter concludes by presenting the framework that guides the empirical analysis in Chapter 4.

2.1. Cambodia's e-government policy context

Cambodia's digital government transition is structurally ambitious in design (Cheng and Oum 2023) but, as of early 2026, remains uneven in its operational maturity—a configuration that conditions how the demand-side patterns reported later in this paper should be interpreted.

Cambodia's contemporary digital governance framework is anchored in three key policies: the Cambodia Digital Economy and Society Policy Framework 2021–2035, which outlines a phased roadmap for digital transformation (RGC 2021); the Cambodia Digital Government Policy 2022–2035, which operationalises state modernisation through inter-ministerial interoperability (MPTC 2022); and the Pentagonal Strategy – Phase I, which elevates the digital economy as a national development priority (RGC 2023). At the institutional level, implementation is coordinated through the National Council for Digital Economy and Society, alongside the Ministry of Post and Telecommunications (MPTC) and the Ministry of Industry, Science, Technology, and Innovation (MISTI).

At the level of digital public infrastructure, several foundational components have been deployed. The Cambodia Data Exchange (CamDX), modelled on Estonia's X-Road, functions as the national interoperability layer and had processed over seventeen million digital transactions by late 2024 (David 2024b). CamDigiKey, an electronic Know Your Customer authentication application built atop CamDX, provides single sign-on access to integrated government portals (David 2024a), while Verify.gov.kh applies blockchain-backed QR codes to authenticate official documents (MPTC 2025a). The most recent addition is the DG SuperApp, which entered pilot deployment in March 2025 and consolidates previously separate digital government platforms into a single mobile interface (MPTC 2025b).

Despite these achievements at the infrastructure level, the digitalisation of citizen-facing public services themselves remains limited. As of early 2022, the government reported the launch of 3,508 public services across ministries, but the delivery mechanisms illustrate the early stage of the transition: 77.5 percent are processed directly through physical OWSOs, 10.6 percent involve citizens downloading online application forms for manual submission, and only 11.9 percent are processed entirely via end-to-end online applications (RGC 2022). Fully digital services are therefore the exception rather than the norm.

The most prominent digital public services in Cambodia are concentrated in business and transactional domains. The Single Portal for online business registration, launched in 2020, had facilitated the registration of more than 53,000 businesses representing approximately USD21.4 billion in registered capital by the end of 2025 (Hin 2026). Other comparatively mature digital services include the Cambodia e-Visa system, the Tax on Income e-Filing system, and electronic customs and trade facilitation platforms such as the National Single Window and Automated System for

Customs Data (ASYCUDA)-based customs systems. These successful cases tend to involve users with relatively strong incentives, higher digital capacity, or clearer transactional objectives compared to the broader citizen population.

The OWSO system itself, which handles the bulk of routine citizen-facing transactions—civil registration, residency documentation, identification, and local permits—has only recently begun a structured digitalisation programme. The Ministry of Interior first piloted online OWSO functions in early 2024, with training commencing in four provincial capitals (Phnom Penh, Kandal, Battambang, and Kampong Cham) (Phnom Penh Post 2024). By early 2025, the ministry reported that this pilot had been expanded to 12 provincial capitals, alongside preparations to implement a unified Payment Hub system across capital and provincial OWSOs (Sen 2025). Early implementation experience has been mixed: provincial OWSO officials reported initial system instability that took roughly two weeks to stabilise, and noted that citizens were either “sticking to old habits or relying on children to apply for the online support” (Phnom Penh Post 2024).

Taken together, these features describe a digital government environment that is structurally ambitious but operationally nascent—one in which front-end infrastructure and high-level policy frameworks have advanced more rapidly than the underlying digitalisation of citizen-facing services. This is the policy moment in which the present study is situated.

2.2. E-government in the Global South: The design–reality gap

The behavioural determinants of digital public service adoption have been studied primarily through Information Systems frameworks, of which the UTAUT is the most widely applied. UTAUT posits that adoption intention is shaped by four core constructs: Performance Expectancy (perceived usefulness), Effort Expectancy (perceived ease of use), Social Influence (normative peer pressure), and Facilitating Conditions (the availability of infrastructure and support) (Venkatesh et al. 2003). These constructs provide a useful psychological baseline, and the present study draws on them selectively to organise its analysis of attitudinal predictors.

The direct application of UTAUT to public-sector contexts in transitional economies, however, presents recognised limitations. The framework was developed largely to explain voluntary technology adoption in Western organisational and commercial environments, which assume a high baseline of digital literacy, integrated institutional ecosystems, and fully digitised back-end workflows (Schuppan 2009). E-government interaction differs fundamentally from commercial application adoption: it involves legal authority, limited exit options, mandatory compliance, and institutionalised power asymmetries between citizen and state (Seifert and Chung 2009).

To explain why digital government initiatives frequently underperform in lower- and middle-income contexts, Heeks (2002) introduced the concept of the Design–Reality Gap: the divergence between how a digital system is designed—often modelled on advanced-economy assumptions—and the institutional, organisational, and socio-economic realities of the implementation context. E-government failures in the Global South frequently arise not from flawed technology but from this mismatch: systems assume universal digital literacy, frictionless interoperability between government agencies, and fully digitised back-end workflows that do not yet exist (Heeks 2002; Gil-García and Pardo 2005; Savoldelli, Codagnone, and Misuraca 2014). The Cambodian context, characterised by ambitious digital architecture overlaid on still-substantially-physical service delivery (as described in Section 2.1), is an instructive case for examining this gap empirically.

The present study adopts the Design–Reality Gap as its primary contextualising lens. Rather than testing a formal adoption model, it uses survey evidence to identify where the gap between Cambodia’s digital government ambitions and citizens’ lived administrative realities is most acute.

2.3. Beyond first-level access: The skills and confidence divide

Early digital divide scholarship focused on the first-level divide: unequal access to connectivity and hardware (Norris 2001; van Dijk 2006). In Cambodia, this access gap has narrowed considerably—active cellular subscriptions now exceed the total population (DataReportal 2024)—though disparities in connectivity quality and affordability persist. High device ownership does not, however, imply high functional digital capability, particularly in respect of interactions with the state.

Subsequent scholarship identifies a second-level divide: significant inequality in the skills, confidence, and structural resources that citizens bring to digital interaction, even among connected populations (Hargittai 2002; van Deursen and van Dijk 2014). The present study examines this second-level divide through three components—basic digital capability, technological self-efficacy, and socio-economic position—each discussed in turn below.

2.3.1. Basic digital capability

The first component is basic digital capability: the practical ability to operate a device and carry out the foundational tasks that any digital service interaction presupposes. Digital capability is distinct from access. A citizen may own a smartphone and yet lack the competence to use it for anything beyond pre-installed or socially mediated functions. A growing body of research demonstrates that digital literacy and digital skills are significant predictors of e-government adoption and usage, particularly in contexts characterised by uneven technological capability (Rodríguez-Hevíá, Navío-Marco, and Ruiz-Gómez 2020; AbdulKareem and Oladimeji 2024; Duan and Dong 2025). Citizens with higher levels of digital capability are generally more likely to perceive digital government services as usable, useful, and trustworthy. In Cambodia, the dominant mode of smartphone use—social media, messaging, and video—does not generalise to the multi-step procedural logic of government portals. Baseline assessments found that only five percent of Cambodians possessed intermediate digital skills and approximately one percent held advanced capabilities (UNESCO 2024). The Digital, Media and Information Literacy (DMIL) competency framework launched in 2024 represents a systematic attempt to address this gap, though its effects in the general population will take time to materialise (UNESCO 2024).

The present study uses a single behavioural indicator of this capability—whether the respondent can independently install an application—and Chapter 4 examines its association with citizens' engagement with the digital state. The construction and limitations of this measure are discussed in Chapter 3.

2.3.2. Technological self-efficacy

A relevant sub-component of the skills divide is technological self-efficacy: an individual's confidence in their ability to perform specific digital tasks (Bandura 1997; Compeau and Higgins 1995). Literature on the psychological dimensions of the digital divide demonstrates that low self-efficacy shapes behaviour independently of actual skill: a citizen who does not believe they can navigate a government form correctly will experience heightened technological anxiety and will not attempt the task, regardless of whether the infrastructure is available (Eastin and LaRose 2000; Venkatesh 2000). A growing body of empirical work has since associated higher digital self-efficacy with greater use of online public services in a range of developing-country settings (Hsu and Chiu 2004; Wangpipatwong, Chutimaskul, and Papisratorn 2008; Mensah, Luo, and Thani 2022). Consequently, the present study uses citizens' self-reported confidence in reading administrative language, entering data, and recovering from errors as indicative measures of this dimension. Task-specific confidence measures are widely used in digital divide research as proxies for user capability in large-scale surveys (Hargittai 2005; Litt 2013). Chapter 4 examines whether technological self-efficacy is associated with citizens' engagement with the digital state, and whether it operates differently across the modes of engagement.

2.3.3. Socio-economic and demographic factors

The third component concerns the structural position from which citizens approach digital state interaction. Studies have shown that education, age, gender, household income, and urban–rural location shape the skills and confidence discussed above and, through them, citizens’ baseline capacity to engage (Tremblay-Cantin et al. 2023; van Deursen and Helsper 2015). Household income remains a recognised correlate of digital engagement (van Deursen and Helsper 2015), although its independent role may diminish where basic mobile connectivity has become widespread and educational inequalities emerge as the more significant capability constraint. In transitional contexts, these structural factors may function less as simple moderating variables—as treated in UTAUT—and more as foundational conditions shaping citizens’ baseline capacity to engage with digital state services, reflecting broader findings from the digital inequality literature (van Dijk 2005; van Deursen and van Dijk 2019). Chapter 4 examines education, age, gender, household income, and urban–rural location as structural correlates of engagement, and considers whether their influence is better understood as foundational rather than marginal. .

2.4. Interface Friction: Trust and administrative burden as predictors of engagement

Once citizens possess the baseline capability to attempt digital state engagement, they encounter a second category of potential barriers: the structural and psychological frictions embedded in the citizen-state interaction itself. Rather than relying on the relatively narrow construct of Effort Expectancy found in the UTAUT, this study theorises these interaction barriers through two primary sets of predictors: **institutional trust** and **administrative burden** (specifically driven by institutional redundancy).

2.4.1. Institutional trust

Because e-government platforms require citizens to transmit sensitive personal information through technologically mediated channels, adoption is assumed to depend on more than just the perceived usefulness of the technology. A robust body of e-government literature identifies institutional trust, perceived data security, and confidence in technological reliability as foundational predictors of digital public service adoption (Bélanger and Carter 2008; Carter and Bélanger 2005; Warkentin et al. 2002). Theoretically, citizens must believe that government institutions can manage digital interactions securely and competently.

In the Cambodian context, this study posits that this dimension of trust is increasingly evaluated against private-sector benchmarks. As citizens, particularly digitally experienced urban cohorts, gain exposure to highly efficient, seamless digital banking and payment platforms, their expectations regarding digital service quality likely rise. Where government applications are perceived as less reliable or less secure than these commercial alternatives, a “data security trust gap” is hypothesised to emerge. This deficit in institutional trust may act as a primary deterrent to digital state engagement. Chapter 4 will empirically examine whether this competence-based trust gap manifests in practice, testing the extent to which institutional trust actually predicts citizens’ engagement with the state’s digital platforms.

2.4.2. Administrative burden and institutional redundancy

Beyond trust, this framework assumes that citizen engagement is heavily mediated by the frictions of public service design. Administrative Burden Theory (Moynihan, Herd, and Harvey 2015) offers a contextually grounded lens for understanding these frictions, decomposing the citizen’s effort into three distinct cost types:

- **Learning costs:** The cognitive effort required to locate information, understand eligibility, and navigate procedural logic (e.g., basic awareness of whether Cambodian e-government services exist).

- **Psychological costs:** The stress, anxiety, or fear associated with state interactions. Unlike commercial platforms where digital errors are easily reversed, citizens may perceive that mistakes on official documents could delay civil registration, trigger rejected applications, or carry financial penalties (Herd and Moynihan 2019). This procedural fear is theorised to act as a distinct and paralysing barrier..
- **Compliance costs:** The time, financial, and physical demands of meeting procedural requirements.

In many Global South contexts, including Cambodia, we expect that compliance costs are severely exacerbated by **institutional redundancy**. A critical limitation of applying commercial technology models to the public sector is the assumption that introducing a digital interface automatically simplifies a process. In reality, digital front-ends are frequently layered onto legacy analogue workflows without a corresponding reorganisation of back-end legal and administrative procedures—a phenomenon Savoldelli, Codagnone, and Misuraca (2014) define as the *e-government paradox*.

The present study refers to this phenomenon as the front-end/back-end gap: the mismatch between digitalised points of entry and the physical, legal, and procedural requirements that persist in the back-end. This gap is not tied to any single delivery channel. It arises wherever an online front-end is layered onto a procedure whose legal completion still requires a physical step. Cambodia's One Window Service Offices are one such setting, and a salient one as their transactions digitalise: available evidence suggests that where digital platforms are introduced at the OWSO and similar agencies, they often fail to replace physical requirements, such as wet-stamp mandates and the in-person collection of civil documents (Phnom Penh Post 2024). Consequently, applying digitally may not eliminate the physical visit; it is hypothesised to merely create system redundancy.

Public administration and e-government research suggests that digitising existing administrative processes without Business Process Reengineering (Hammer and Champy 1993)—the redesign of core workflows—often limits the benefits of digital government (e.g., Indihar Stemberger and Jaklic 2007). Digital services may therefore become an additional administrative layer rather than a more efficient alternative. Whether citizens actually experience this redundancy as a barrier, and how strongly it deters their engagement, remains an empirical question that Chapter 4 will examine.

2.5. Social intermediation and the proxy ecosystem

Standard UTAUT models address the social environment primarily through *Social Influence*—the normative pressure exerted by peers and social networks. While relevant in horizontal social contexts, this construct may inadequately capture how structurally constrained citizens navigate complex state bureaucracies in developing-country settings. A growing body of ICT4D literature identifies *infomediaries*—information intermediaries—as indispensable actors in public service delivery in lower-resource settings (Toro-Maureira et al. 2026; Kumar, Mukherjee, and Sachan 2023; Sharma and Mishra 2017; Sein 2011). In environments where digital autonomy is unevenly distributed, successful state interaction often depends on access to human proxies who possess both technical capability and social or institutional authority. Bakardjieva (2005) describes such figures as *warm experts*: community-embedded individuals who mediate the citizen-technology relationship.

In Cambodia, village chiefs and commune-level officials hold a formal role in matters of identity, residency, and civil status (RGC 2001). This structure leads the present study to expect that local officials, alongside family members and—in a small number of cases—paid agents, may function as a structural pathway through which citizens reach the digital state, rather than only as the peer-level influence standard adoption models describe. The study characterises this expected pattern as a *functional analogue interface*, a mode of engagement that, if borne out in the data, would reflect

rational citizen behaviour under conditions of high cognitive friction and uncertain digital payoff. On this view, bypassing the intermediary layer would risk removing a coping mechanism before a genuine alternative is in place.

The present study operationalises social intermediation through a survey item on proxy reliance and through the channel-of-engagement item that identifies the mediated mode directly. Chapter 4 examines the demographic and capability profile of citizens who rely on intermediaries.

2.6. Citizen segmentation in digital state engagement

The four barrier categories developed in Sections 2.3 through 2.6 are unlikely to affect all citizens uniformly. Digital divide and e-government scholarship increasingly argues that digital inequality cannot be adequately understood through binary user/non-user distinctions, but instead requires differentiated typologies of engagement shaped by uneven access, capability, and institutional context (Brandtzæg 2010; Helsper and Reisdorf 2017). Taken together, the barriers identified in the preceding sections suggest that citizens are likely to adopt different strategies for navigating the digital state rather than converge towards a single mode of interaction.

Three structural features of Cambodia's digital government landscape support this expectation. First, the limited supply of fully digital public services (Section 2.1)—with only 11.9 percent of services currently delivered as end-to-end online applications—places a structural limit on the extent to which state interaction can occur entirely online. Second, longstanding administrative hierarchies in Cambodia, particularly the role of village chiefs, commune officials, and informal brokers in facilitating access to state services, create an institutionalised intermediary pathway for interacting with the state. Third, substantial variation in educational attainment, digital literacy, and administrative confidence across the population (Section 2.3) makes uniform patterns of digital adoption unlikely.

These conditions suggest the potential emergence of three distinct modes of digital state engagement. The first, *autonomous engagement*, comprises citizens who interact directly with digital government platforms without human assistance. This mode is most likely accessible to citizens with higher levels of education, technical capability, and administrative confidence (Alsalem, Yahya, and Elias 2026; Lindgren et al. 2019).

The third, *offline-default engagement*, comprises citizens who continue to rely primarily on in-person interaction despite the existence of digital channels. Channel-choice research suggests that this behaviour does not necessarily indicate exclusion from the digital state, but may instead reflect a deliberate preference for the reassurance, flexibility, and interpretive support provided by face-to-face interaction with officials (Ebberts, Pieterse, and Noordman 2008; Reddick 2005). Alternatively, it may represent a rational response to the barriers outlined in Sections 2.3 through 2.6, particularly where digital systems impose high cognitive demands or fail to eliminate physical administrative requirements (Peeters 2023; Savoldelli, Codagnone, and Misuraca 2014).

Importantly, these three modes should not be understood as sequential stages along a linear pathway towards fully autonomous digital participation. Mediated engagement, in particular, may persist as a stable and structurally embedded form of state interaction among citizens with limited formal education or lower acquired digital capability, reflecting broader patterns of social and institutional inequality (Selwyn 2004; J. van Dijk 2005; Toro-Maureira et al). Rather than representing a temporary transitional condition, mediated and offline engagement may constitute enduring features of Cambodia's hybrid digital governance landscape. The present study therefore proposes this three-mode typology as a conceptual framework for analysing patterns of citizen engagement with the digital state in Cambodia. Chapter 4 empirically assesses whether these distinct modes of engagement can, in fact, be identified in the Cambodian context.

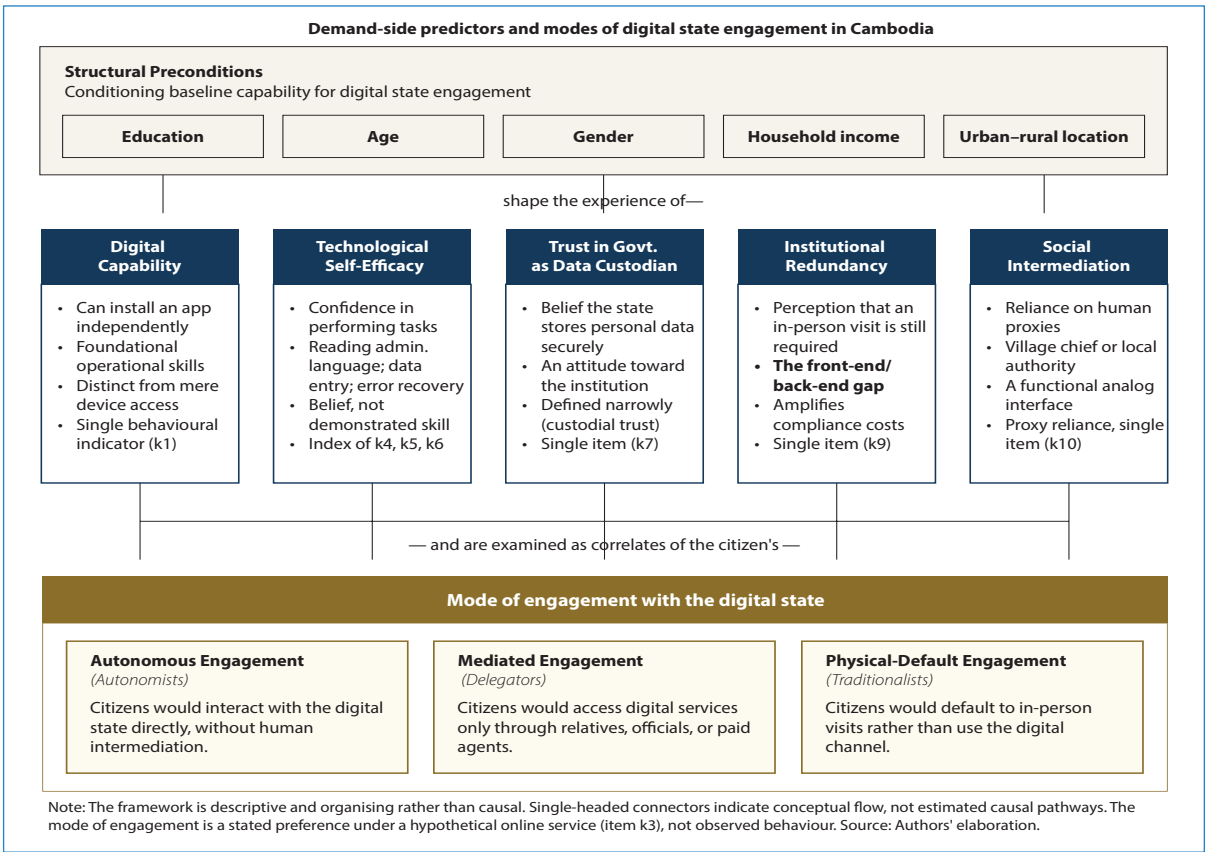
2.7. Analytical framework

Drawing on the literature reviewed in this chapter, the present study examines patterns of digital state engagement through a contextualised analytical framework for Cambodia. The framework is descriptive and organising rather than causal: it identifies where barriers cluster and how they relate to observed patterns of engagement, rather than estimating causal relationships between variables. The framework identifies four categories of demand-side barriers and a proposed outcome dimension.

- *Structural preconditions*—education, age, gender, household income, and urban–rural location—are expected to shape the baseline capability that citizens bring to any digital state engagement, bearing on whether a citizen is positioned to attempt independent engagement at all.
- *Cognitive and interface friction*—the learning, compliance, and psychological costs of state interaction, including linguistic barriers and the fear of unrecoverable errors—corresponds to the administrative burden framework (Moynihan, Herd, and Harvey 2015).
- *Institutional constraints*—the perception of system redundancy rooted in incomplete back-end transformation—capture the front-end/back-end gap of Section 2.5.
- *Social intermediation* describes how citizens who encounter the preceding barriers may adapt by routing their state interactions through human intermediaries rather than disengaging from the state.
- The framework proposes that these four categories, interacting with citizens’ structural positions, are associated with the *mode of engagement*—autonomous, mediated, or physical-default—which is the principal outcome dimension the empirical analysis examines.

Figure 1 summarises the structure of this framework. Each barrier category maps onto specific variables described in Chapter 3 and is examined in the descriptive and regression analyses of Chapter 4: the framework provides the organising blueprint that links the literature reviewed here to the empirical analysis that follows.

Figure 1: Structure of study’s analytical framework



Source: Authors

3. Research methodology

Moving from the conceptual frameworks of Chapter 2 to empirical diagnostics, this chapter details the quantitative machinery of the study. We begin by outlining the cross-sectional survey design and the stratified random sampling protocol that secured a balanced sample of 1,200 Cambodian citizens across five ecological regions. The discussion then transitions to construct operationalisation—highlighting the creation of the Cognitive Self-Efficacy Index and the three-mode engagement typology—before defining the logistic regression specifications that drive the analysis in Chapter 4. Finally, a brief discussion of boundaries sets up the methodological limitations examined in full at the study's conclusion.

3.1. Research design

The study employs a cross-sectional quantitative survey design, drawing on a nationally representative sample of 1,200 Cambodian adults. The analytical strategy combines descriptive statistics, cross-tabulations, and three regression specifications: binary logistic, multinomial logistic, and ordered logistic. The overall aim is exploratory and diagnostic rather than confirmatory: the analysis seeks to identify patterns of association between citizens' structural positions, capabilities, attitudes, and their modes of engagement with government digital services, rather than to estimate causal parameters.

This design reflects the descriptive character of the research questions, the absence of any prior nationally representative baseline against which longitudinal change could be measured, and the working-paper format's convention of preliminary findings designed to stimulate further investigation. Coefficients are accordingly interpreted as *associations* between predictors and outcomes, not as estimated causal effects. Statistically significant predictors identify conceptual locations where future explanatory research—using validated multi-item instruments, panel data, and richer demographic variation—would be most productive.

3.2. Survey design and administration

The digital government items analysed in this paper were administered as a thematic module within a larger CDRI omnibus survey of approximately 90 questions on a separate primary topic. The full instrument was designed to capture a highly representative cross-section of the Cambodian population, and the digital government module was embedded within it to leverage the larger survey's national reach.

Sampling design. A multi-stage stratified random sampling technique was used, anchored on demographic data from the most recent General Population Census. Twelve provinces were randomly selected from Cambodia's five primary ecological regions used by Cambodian national statistics: the Capital and Surrounding Plains, the Central and Mekong Plains, the Coastal Region, the Northeastern Plateau, and the Western Uplands and Foothills. Within these provinces, 100 villages (enumeration areas) were identified using Probability Proportional to Size (PPS) methodology, ensuring that more populous areas were appropriately weighted. Within each village, field teams collaborated with local leadership to access updated resident lists and selected approximately 12 households per location through systematic random sampling. At the household level, the “*next birthday*” method was strictly enforced: enumerators identified all eligible members aged 16 and older and interviewed the individual whose birthday was approaching next. This protocol eliminates enumerator selection bias at the within-household stage.

To preserve the structural integrity of the sample in the event of non-response, a strict replacement protocol was applied. If a selected household refused participation or the designated respondent was repeatedly unavailable after multiple contact attempts, the field team replaced them with the next household on the systematically generated village list. The geographic and demographic distribution of the achieved sample was thereby preserved.

Data collection. Primary data were gathered through structured face-to-face interviews conducted at respondents' residences. In-person administration was essential given the technical and procedural content of the instrument and ensured the inclusion of demographics—particularly elderly respondents and rural citizens with limited formal education—who are frequently missed by telephone or online survey methods. All interviews were administered in Khmer using tablets equipped with Computer-Assisted Personal Interviewing (CAPI) software, which automatically applied skip-logic, ran real-time validation checks to prevent illogical responses, and captured GPS coordinates to verify interview locations.

Fieldwork, quality assurance, and ethics. Following a pilot-testing phase from 9 to 13 January 2026, a dedicated team of sixteen experienced enumerators conducted fieldwork continuously from 15 January to 15 February 2026. Team supervisors carried out unannounced real-time spot-checks accompanying enumerators during live interviews, and ten percent of completed surveys were randomly flagged for back-checks, in which supervisors re-visited the household or made follow-up calls to verify the interview's occurrence and confirm core data points. Participation was strictly voluntary; enumerators secured informed consent prior to each interview and guaranteed the anonymity and confidentiality of all personal data. Respondents received a modest acknowledgement for their participation.

Achieved sample. The achieved sample of 1,200 respondents is balanced by gender (600 female and 600 male) by design. The age range spans 16 to 82 years, with a mean age of approximately 37. The largest educational categories are respondents who did not complete primary school (27.8 percent) and those who completed primary school at Grade 6 (24.2 percent); approximately 5.8 percent hold a bachelor's degree or higher. Self-employed and small business owners constitute the largest occupational category (46.6 percent), followed by unemployed and student respondents (14.4 percent) and labour workers (11.9 percent). Monthly household income distributes as low under USD250 (11.7 percent), lower-middle USD250–500 (33.7 percent), upper-middle USD501–1,000 (30.1 percent), and high above USD1,000 (18.2 percent). These distributions are broadly consistent with national household statistics for the relevant period (NIS 2025).

3.3. Variables and construct operationalisation

The digital government module comprises twelve items (k1–k12) grouped into conceptual blocks—digital capability, engagement with government digital services, cognitive confidence in administrative interfaces, trust in the digital state, and attitudinal predictors of engagement—alongside the demographic variables captured by the broader omnibus survey. Each analytical variable used in the regressions is constructed from one or more of these items. The sub-sections below describe each construct in turn, stating what it measures, the source item, its coding, and the basis of the survey item; the full instrument is reproduced in Appendix A. Single-item indicators are flagged explicitly, and their limitations are discussed at the end of this section.

Outcome variables. Three outcome variables anchor the regression analyses. *Ever used a government digital service* is a binary recode of the usage-frequency item (k2): respondents reporting any frequency above “never” are coded 1, those reporting “never” coded 0, and respondents selecting “don't know” excluded, yielding a working sample of 1,180 valid responses. *Mode of engagement* operationalises the three-mode typology developed in Section 2.7 from the stated-preference item (k3): respondents who would do the task themselves on a phone are coded Autonomists; those who would delegate to relatives, officials, or paid agents, Delegators; and those who would default to an in-person visit, Traditionalists. Because the typology is derived from a single forced-choice item, it classifies each respondent by the channel they would prefer when required to choose one—a dominant or modal orientation rather than a profile of mixed use. A citizen who in practice completes some tasks autonomously and delegates others is assigned to the mode they nominate; capturing

intra-individual mixing would require either service-specific channel items or behavioural records, both noted in Section 7.2. *Usage frequency* retains the original five-level ordinal structure of k2 and is used in a robustness specification. The k3 item records a stated preference under a hypothetical online option rather than observed behaviour; this distinction is maintained throughout the analysis.

Basic digital capability. Basic digital capability is operationalised through a single behavioural item (k1): whether the respondent reports being able to download and install an application on a smartphone independently, coded 1 for “can” and 0 for “cannot (needs help).” The item is adapted from the basic digital-literacy item format used by Ali, Raza, and Qazi (2023), whose validated module measures capability through concrete, self-reported “are you able to...” task questions. The constraints of a multi-topic survey instrument precluded a longer multi-item module. Installing an application is a defensible proxy because it bundles several foundational sub-skills—locating the correct application, judging which result to trust, completing the installation, and granting permissions—and is a discrete action respondents can report on reliably. It remains a single-item indicator rather than a full measure of digital literacy, and is interpreted with corresponding caution; this limitation is noted again in Chapter 7.

Cognitive Self-Efficacy Index. Cognitive self-efficacy—citizens’ confidence in performing the specific tasks a government digital interaction requires—is captured by three items (k4, k5, k6): confidence in reading administrative language, entering or uploading documents without error, and recovering from errors. Each item is coded on a five-point scale (1 = “not confident **at all**” to 5 = “completely confident”), with “don’t know” responses treated as missing. The index is the unweighted mean of the three items, and internal consistency is high (Cronbach’s $\alpha = 0.849$, $N = 1,039$), well above the conventional 0.70 threshold. It is the only multi-item composite construct in the analysis. The items were substantially revised and adapted from prior instrumentation developed by Cheng (2011) and Mensah, Luo, and Thani (2022).

Trust in the digital state. Institutional trust is measured by a two-item index. K7 captures respondents’ agreement that the government stores their personal data securely; K8 captures their agreement that using a government app feels as secure as using a familiar banking app (ABA or ACLEDA). Both are rated on a five-point agreement scale, with “don’t know / no opinion” responses treated as missing, and the index is their unweighted mean (inter-item $r = 0.54$, $N = 898$) (Eisinga, Grotenhuis, and Pelzer 2013). Consistent with Section 2.4, the construct is defined narrowly as trust in the state as a custodian of citizens’ personal data and as a secure digital operator, rather than as a generalised or reliability-based disposition. The items were substantially revised from measures used in studies of e-government adoption in sub-Saharan Africa (Verkijika and De Wet 2018), Turkey (Kurfalı et al. 2017), and Indonesia (Al-Kautsar Maktub, Handayani, and Sunarso 2025).

Perceived institutional redundancy. This construct is operationalised as a single item (k9): respondents’ agreement that an in-person visit remains necessary even after a service has been requested digitally, again on a five-point agreement scale. The item was developed specifically for this study to capture the front-end/back-end gap described in Section 2.5, drawing conceptually on Moynihan, Herd, and Harvey’s (2015) framework of administrative burden and Savoldelli, Codagnone, and Misuraca’s (2014) analysis of partial digitalisation and the e-government paradox. In this paper, the terms ‘institutional redundancy’ and ‘system redundancy’ are used interchangeably to describe the duplication of administrative processes—specifically, the phenomenon where digital platforms are layered onto legacy workflows without replacing physical compliance requirements, thereby exacerbating the burden on the citizen.

Proxy reliance. Proxy reliance is operationalised as a single item (k10): respondents’ agreement that they would rather wait for the village chief or a local authority to advise them than seek out and complete a state service themselves on a smartphone, rated on a five-point agreement scale.

The construct draws conceptually on the infomediary and “warm expert” literatures (e.g. Bakardjieva 2005; Sharma and Mishra 2017), with the item itself developed by the authors.

Structural controls. Age is retained as a continuous variable (range 16–81). Gender is binary (1 = male). Education is an eight-level ordinal variable (0 = no formal education to 7 = postgraduate). Household income is a four-level ordinal variable (1 = low to 4 = high). Urban–rural location is binary (1 = urban, including Phnom Penh). These variables are drawn from the demographic block of the omnibus survey.

Single-item indicators. Two predictors—perceived institutional redundancy (k9) and proxy reliance (k10)—and the basic digital capability indicator (k1) are each measured by a single survey item. Single-item indicators are common in exploratory survey research and in space-constrained instruments, but they cannot be assessed for internal consistency and are more vulnerable to measurement error than validated multi-item scales (Diamantopoulos et al. 2012; Wanous, Reichers, and Hudy 1997; Bergkvist and Rossiter 2007). The interpretation of regression coefficients on these indicators in Chapter 4 is correspondingly cautious. A summary of all analytical variables is provided in Table 1.

Table 1: Summary of analytical variables

Variable	Type	Source item	Coding
Ever used government digital service	Binary outcome	k2	1 = any use; 0 = never
Mode of engagement (typology)	Categorical outcome	k3	Autonomist / Delegator / Traditionalist
Usage frequency	Ordinal outcome	k2	1 (never) to 5 (very often)
Basic digital capability: can install apps independently	Binary predictor	k1	1 = can; 0 = cannot
Cognitive Self-Efficacy Index	Composite predictor	k4, k5, k6 mean	1 (low) to 5 (high), $\alpha = 0.849$
Trust in the Digital State Index	Composite predictor	k7, k8 mean	1 to 5 agreement, $r = 0.54$
Perceived institutional redundancy	Single-item predictor	k9	1 to 5 agreement
Proxy reliance	Single-item predictor	k10	1 to 5 agreement
Age	Continuous control	Demographic	Years (16–82)
Gender	Binary control	Demographic	1 = male; 0 = female
Education	Ordinal control	Demographic	0 (none) to 7 (postgraduate)
Household income	Ordinal control	Demographic	1 (low) to 4 (high)
Urban location	Binary control	Demographic	1 = urban; 0 = rural

Source: Authors

3.4. Analytical strategy

The empirical analysis proceeds in three stages. The first stage presents descriptive statistics on the distribution of engagement modes, usage frequency, channel preferences, and reasons for non-engagement, alongside cross-tabulations of the bivariate associations between key predictors and outcome variables. The second stage estimates a binary logistic regression with *Ever Used a Government Digital Service* as the outcome and the full set of structural, capability, and attitudinal predictors specified in Section 3.3; this addresses the question of which factors are associated with any engagement with the digital state. The third stage estimates a multinomial logistic regression on the three-mode engagement typology, with Traditionalist as the reference category, producing two pairwise contrasts (Delegator vs. Traditionalist and Autonomist vs. Traditionalist). This multinomial model constitutes the central empirical contribution of the study.

Two robustness analyses are reported alongside the main results. An ordered logistic regression is estimated on the five-level usage frequency variable, providing a robustness check on the binary specification by exploiting the ordinal structure of the outcome. Predicted probabilities at illustrative respondent profiles are computed from the multinomial regression to facilitate substantive interpretation of the typological contrasts.

All regression analyses are estimated on complete-case observations: respondents who selected non-substantive response options on any predictor in a given specification are excluded from that specification, and working sample sizes therefore vary slightly across models. All analyses are conducted in Stata; the replication code and underlying data extract will be made available through CDRI's research repository upon publication.

3.5. Methodological limitations

The methodology has known limitations: the analysis is cross-sectional and therefore identifies associations rather than causal effects; several attitudinal constructs are measured by single survey items rather than validated multi-item scales; the engagement typology is operationalised from a single behavioural item; and all outcome and predictor variables are self-reported, with the associated risks of social desirability bias, recall error, and item-interpretation bias. These limitations are addressed in full in Chapter 7, where each is paired with a corresponding suggestion for future research.

4. Key findings

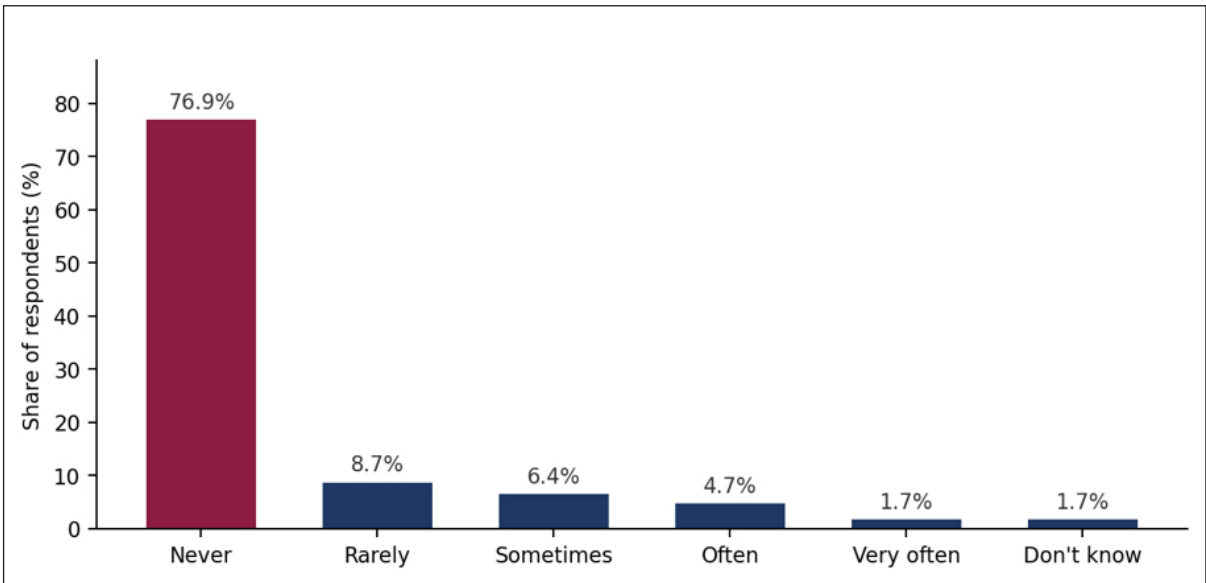
What drives a citizen to interact with a digital state, and who gets left behind? This chapter answers these questions by presenting our empirical findings in four parts. We start by mapping the current landscape of citizen digital engagement, highlighting an intriguing adoption asymmetry between Cambodia’s public and private digital sectors (Section 4.1). We then move to multivariate testing, using a binary logistic model to isolate the predictors of any digital service use (Section 4.2). From there, we execute a multinomial logistic regression on the three-mode engagement typology to demonstrate that “Delegators” are a structurally distinct population rather than a temporary, transitional group (Section 4.3). Finally, Section 4.4 subjects these models to ordinal robustness checks to ensure statistical reliability.

4.1. The landscape of citizen engagement with government digital services

4.1.1. Frequency of engagement

The descriptive baseline establishes the scale of the demand-side challenge. When asked about their use of government applications or websites over the preceding twelve months, 76.9 percent of respondents reported having never engaged with such services, and a further 8.7 percent reported only rare engagement (one or two occasions across the entire year) (Figure 2). Combining rare, occasional, monthly, and very frequent users, and reported on a common base of all 1,200 respondents, 21.4 percent of respondents had used government digital services at some frequency over the past year. A small additional category (1.7 percent) selected “don’t know” and is excluded from binary recodes.

Figure 2: Frequency of engagement with government digital services (n = 1,200)



Source: Authors’ survey data, 2026.

This pattern contrasts sharply with the rapid adoption of private-sector digital services in Cambodia (e.g., ABA, ACLEDA, Wing). This asymmetry demonstrates that low public-sector uptake is not due to infrastructural constraints or technology aversion. Citizens who bank digitally simply have not extended that behaviour to the state. Two factors may explain this gap. The first is structural: commercial platforms serve daily necessities that generate sustained pressure to adopt, whereas government services (e.g., requesting a birth certificate) are ad hoc. This infrequency may alter the calculus of learning. Because the fixed cost of mastering a state platform is not repaid through repeated use, citizens rationally default to familiar in-person channels. The second factor is individual.

As the next section details, it is precisely these resulting gaps in digital capability and awareness—rather than absent demand, distrust, or poor connectivity—that respondents overwhelmingly cite as their primary barriers to engagement

4.1.2. Reasons for non-engagement

For respondents who reported never having used government digital services, a follow-up item asked them to identify the primary reason. A small group (2.4 percent) reported, through the open-ended option, that they had simply had no need to transact with government during the reference year—no licence to renew, certificate to obtain, or registration to file. Among the remaining non-users, the reasons are overwhelmingly capability- and awareness-related, as Table 2 shows: 57.1 percent report that they do not know how to use such applications, and a further 35.0 percent that they were unaware government applications or websites existed at all. By contrast, concerns associated with institutional trust (fear of data theft, 1.3 percent) and infrastructure (poor connectivity, 1.0 percent) are quantitatively marginal. This descriptive evidence aligns closely with the regression findings reported in Section 4.2: for citizens who had reason to engage, the binding constraints were capability and awareness, not an absence of service demand, distrust, or infrastructure constraints.

Table 2: Reasons for non-engagement among never-users (n = 923)

Reason	Frequency	Percent of non-users
Do not know how to use them	527	57.1
Did not know government applications or websites existed	323	35.0
No need to use government services	22	2.4
Other (specified)	18	1.9
Afraid of data theft	12	1.3
Phone or internet quality is poor	9	1.0
Prefer physical paper or wet stamp	3	0.3
No opinion or refused to answer	9	1.0
Total	923	100

Source: Authors' survey data, 2026.

4.1.3. Channel of engagement and the empirical typology

The survey asked respondents what they would do if they had the option to complete a government service online. The distribution of responses, presented in Table 3, establishes the empirical basis for the three-mode engagement typology developed in Section 2.7. Only 11.4 percent of respondents say they would handle such a task themselves on their phones (the autonomous mode); 19.4 percent would engage through a human intermediary—relatives and friends, state officials, or paid agents (the mediated mode); and the remaining 69.2 percent would still choose to go in person (the physical-default mode). The typology therefore reflects citizens' stated channel preferences under a hypothetical online option rather than observed use of services that, as Section 2.1 noted, are not yet widely available; this is the appropriate measure for an early-stage digital service environment,

though it should be read as preference rather than behaviour.

Table 3: Distribution of citizen engagement modes (n = 1,200)

Engagement mode	Survey response	Frequency	Percent
Autonomist	Do it myself on phone	137	11.4
Delegator	Ask relatives / friends (unpaid)	115	9.6
Delegator	Ask state official	101	8.4
Delegator	Pay someone (informal market)	17	1.4
Delegator (combined)	—	233	19.4
Traditionalist	Go in person, do not use online	830	69.2
Total		1,200	100.0

Source: Authors' survey data, 2026.

The typology is thus empirically grounded rather than analytically imposed: the three modes correspond to qualitatively distinct citizen-state relationships—direct digital interaction, intermediated digital access, and continued physical engagement. As Section 4.3 demonstrates, the three modes also exhibit substantively different demographic and capability profiles.

4.1.4. Descriptive statistics of engagement

The bivariate associations between citizens' structural and capability characteristics and their likelihood of having used government digital services are presented in Table 4. Three patterns stand out. The educational gradient is steep: respondents with at most primary education have a 9.9 percent likelihood of having used government digital services, against 73.7 percent for those with post-secondary qualifications.

Table 4: Engagement rates by subgroup (ever used a government digital service)

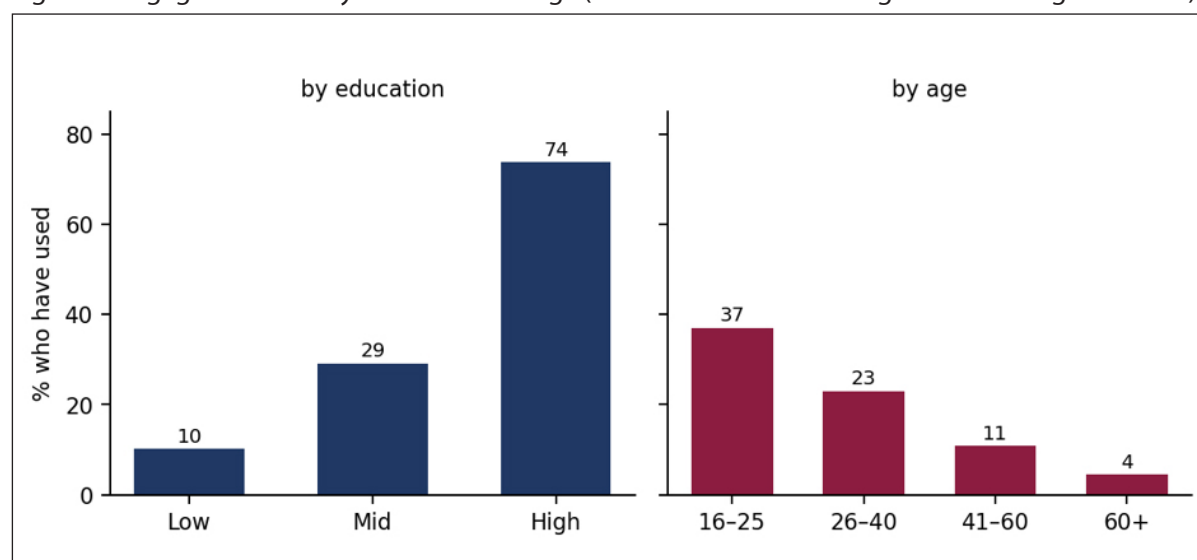
Subgroup	n used	n (valid)	% used
By education			
No formal – primary	69	679	10.2
Lower – upper secondary	118	406	29.1
Post-secondary and above	70	95	73.7
By age group			
16–25	119	322	37.0
26–40	99	430	23.0
41–60	34	316	10.8
60+	5	112	4.5
By digital capability			
Can install apps independently	205	509	40.3
Needs help	52	671	7.7
By location			
Rural	112	471	23.8
Urban	145	709	20.5
Total (valid responses)	257	1,180	21.8

Note. Engagement rates are computed on the 1,180 respondents with a valid usage response; 20 “don't know” responses are excluded.

Source: Authors' survey data, 2026.

The age gradient is similarly steep but inverse, declining monotonically from 38.6 percent among adults aged 16–25 to 3.7 percent among those over 60 (Figure 3). The urban-rural difference, by contrast, is small and runs counter to expectation: rural respondents are marginally *more* likely to report engagement (23.3 percent) than urban respondents (20.1 percent), consistent with mobile penetration and digital exposure now being sufficiently widespread that geography per se is not a

Figure 3: Engagement rate by education and age (% who have ever used a government digital service)



Source: Authors' survey data, 2026.

4.1.5. Who faces which barrier? Disaggregating non-engagement

The aggregate barriers in Table 2 mask a sharp divergence in who faces which obstacle. Disaggregating the 923 non-users by age and education (Table 5; Figure 3) reveals a systematic crossover. Among the youngest non-users (16–25), three in five had simply not known that government digital services existed, while only about a quarter cited an inability to use them; among those aged 60 and over the pattern is almost exactly reversed—nearly nine in ten cite a skills barrier and awareness is all but absent. The same gradient runs across education, from a skills-dominated profile among the least educated to an awareness-dominated one among the most educated. Both associations are highly significant ($\chi^2 p < 0.001$).

Table 5: Reasons for non-engagement, by age and education (non-users, n = 923)

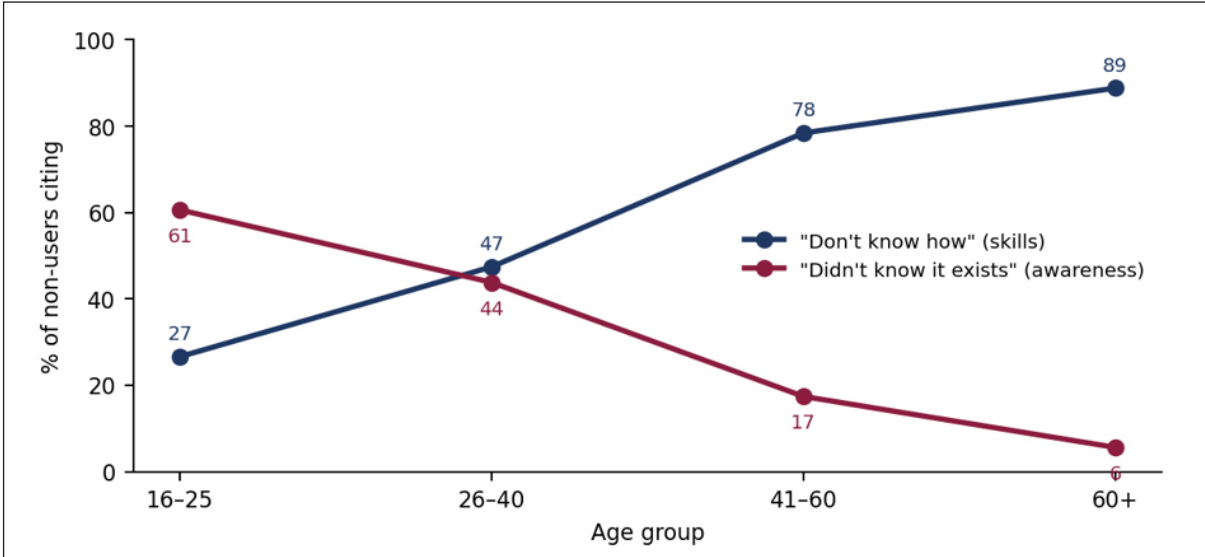
Subgroup	n	Skills: "don't know how" (%)	Awareness: "didn't know it exists" (%)	Other (%)
By age group				
16–25	203	26.6	60.6	12.8
26–40	331	47.4	43.8	8.8
41–60	282	78.4	17.4	4.3
60+	107	88.8	5.6	5.6
By education				
Low ($\leq$ primary)	610	67.9	27.0	5.1
Mid (secondary)	288	38.5	49.7	11.8
High (post-sec.)	25	8.0	60.0	32.0

Note: The high-education non-user cell is small (n = 25) and is reported for completeness. Barrier mix does not differ by location (p = 0.58) or sex (p = 0.26).

Source: Authors' survey data, 2026.

Substantively, non-engagement among younger and more educated citizens is predominantly an awareness problem—a communication task—whereas among older and less educated citizens it is predominantly a capability problem (Figure 4). Because the barrier mix does not vary by location or sex, the content of intervention can be uniform nationally even though its targeting must be differentiated by age and education.

Figure 4: The barrier crossover: younger non-users lack awareness, older non-users lack skills



Source: Authors’ survey data, 2026.

A gender dimension runs through the capability constraint (Figure 5). Women are somewhat less likely than men to have engaged with government digital services (19.7 versus 23.9 percent), but the gap is far wider on the underlying capability measure: 35.8 percent of women report being able to install an application independently, against 49.2 percent of men.

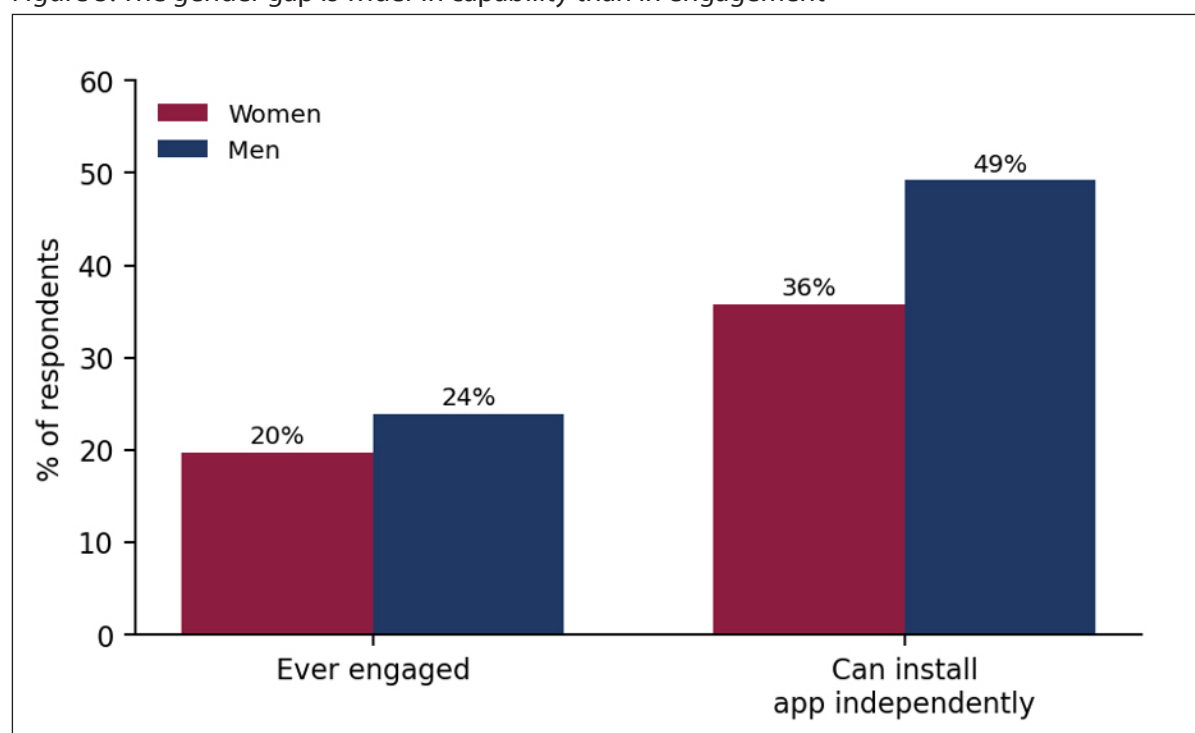
Table 6: Engagement, capability and stated self-service, by sex

Indicator	Women (%)	Men (%)
Ever engaged with a digital service	19.7	23.9
Can install an app independently	35.8	49.2
Would self-serve (Autonomist)	10.0	12.8
n (valid)	585	595

Source: Authors’ survey data, 2026.

The engagement gap persists within younger and more educated respondents, yet in the multivariate models gender is not a significant predictor once capability is controlled (Section 4.2). The most defensible reading is therefore that the gender gap in digital engagement is, in substance, a gender gap in digital capability—locating the lever for gender-responsive digital inclusion in skills provision rather than in service design.

Figure 5: The gender gap is wider in capability than in engagement



Source: Authors' survey data, 2026.

Whether these bivariate gradients survive multivariate control—and in particular whether the age gradient is independent of education—is the question the regression analysis addresses.

4.2. Predictors of any digital engagement: A binary logistic analysis

A binary logistic regression was estimated with *ever used a government digital service* as the outcome variable, on a predictor set comprising five demographic controls (age, gender, education, income, urban-rural location), a binary digital capability indicator, the composite Cognitive Self-Efficacy Index, and three attitudinal predictors (the two-item Trust in the Digital State Index, perceived system redundancy, and proxy reliance). After excluding non-substantive responses, the working sample comprises **928** observations. The McFadden pseudo R^2 of **0.230** is moderate and within the range typically observed for adoption models in this literature. Full results are presented in Table 7.

Table 7: Binary logistic regression—ever used a government digital service

Predictor	Coefficient	Std. error	p-value	Marginal effect
Education (ordinal)	0.474	0.073	<0.001 ***	+6.5 pp
Can install apps independently	0.733	0.255	0.004 **	+10.0 pp
Cognitive Self-Efficacy Index	0.364	0.108	0.001 ***	+5.0 pp
Proxy reliance	−0.270	0.085	0.002 **	−3.7 pp
Perceived system redundancy	0.185	0.087	0.034 *	+2.5 pp
Household income (ordinal)	−0.187	0.104	0.073	−2.6 pp
Trust in the Digital State Index	−0.016	0.117	0.889	−0.2 pp
Age	−0.010	0.009	0.270	−0.13 pp
Urban (ref: rural)	−0.031	0.183	0.864	−0.3 pp
Male (ref: female)	−0.101	0.185	0.585	−1.4 pp

Note: **N** = 928; Pseudo R^2 = **0.230**; LR χ^2 = **236.8**, $p < 0.001$; Log-likelihood = **−395.6**. Marginal effects are average marginal effects, in percentage points. *** $p < 0.001$; ** $p < 0.01$; * $p < 0.05$.

Source: Authors' calculation.

Five predictors are statistically significant. The three capability-related predictors carry the largest effects: education (each one-level increase on the eight-point scale corresponds to a 6.5 percentage-point increase in the predicted probability of engagement), the ability to install applications independently (a 10.0 percentage-point effect, the largest single-variable marginal effect in the model), and the Cognitive Self-Efficacy Index (5.0 percentage points per scale unit). The educational gradient observed descriptively in Table 7 therefore persists after controlling for age, income, capability, and attitudes—it is not an artefact of correlated demographic factors.

The two significant attitudinal predictors are proxy reliance and perceived system redundancy. Respondents who express a stronger preference for receiving guidance from local authorities are significantly less likely to have engaged with digital services ($p = 0.002$), consistent with proxy reliance reflecting an entrenched alternative to digital engagement rather than a transitional stepping stone. Perceived system redundancy carries a counterintuitive positive coefficient ($p = 0.034$): respondents who agree that they would still need to visit in person even after applying online are more, not less, likely to have engaged with the digital channel. The most plausible interpretation is that respondents who have actually tried the digital channel are those most likely to have directly encountered the redundancy in the back-end process. For the minority who have engaged, the front-end/back-end gap may therefore be experienced in practice rather than merely anticipated.

Equally informative are the predictors that are *not* significant. Institutional trust—measured by the two-item Trust in the Digital State Index—has effectively no association with engagement ($p = 0.889$; the bivariate correlation between the trust index and ever-use is $r = 0.080$, a statistically significant but substantively negligible association accounting for well under one percent of variance). This is theoretically important: the dominant assumption in much of the e-government adoption literature is that distrust in government data handling is a primary barrier to citizen engagement, and the Cambodian evidence does not support it. Urban location is similarly non-significant ($p = 0.864$), confirming that geography per se is not a primary barrier once other factors are controlled. Age ($p = 0.270$) is also non-significant in the multivariate context: the steep bivariate age gradient observed in Table 7 is explained by education and capability variables correlated with age. Gender shows no association ($p = 0.585$).

The combined picture is one in which engagement with the digital state in Cambodia is shaped predominantly by *capability*, structured by *attitudinal orientation towards intermediaries*, and informed by *experience with the institutional reality*—but largely unrelated to *trust* in the institution itself.

4.3. The mode of engagement: A multinomial logistic analysis

The binary analysis establishes which factors are associated with any digital engagement. Of equal analytical interest is what distinguishes the *modes* of engagement. A multinomial logistic regression was therefore estimated with the three-mode typology as the outcome variable and Traditionalist—the largest category, and the theoretically meaningful baseline of non-engagement—as the reference category. The model produces two pairwise contrasts, presented in Table 8.

Table 8: Multinomial logistic regression—mode of engagement (reference: Traditionalist)

Predictor	Delegator vs. Traditionalist			Autonomist vs. Traditionalist		
	Coef.	SE	p	Coef.	SE	p
Education (ordinal)	−0.305	0.083	<0.001 ***	0.297	0.089	0.001 **
Cognitive Self-Efficacy	0.595	0.114	<0.001 ***	0.937	0.142	<0.001 ***
Can install apps	−0.812	0.248	0.001 ***	1.072	0.421	0.011 *
Urban (ref: rural)	0.010	0.180	0.956	0.529	0.247	0.032 *
Age	0.016	0.007	0.021 *	−0.027	0.013	0.038 *
Household income	0.125	0.096	0.193	−0.221	0.140	0.116
Trust in the Digital	0.087	0.102	0.395	0.136	0.155	0.380
Perceived redundancy	0.087	0.088	0.320	−0.190	0.103	0.065
Proxy reliance	−0.103	0.094	0.276	−0.179	0.102	0.080
Male (ref: female)	−0.094	0.179	0.601	−0.092	0.243	0.706

Note: **N** = 932; Pseudo R^2 = 0.175; LR χ^2 = 278.5, $p < 0.001$. *** $p < 0.001$; ** $p < 0.01$; * $p < 0.05$.

Source: Authors' survey data, 2026.

The most striking finding concerns education. It is significantly associated with both non-Traditionalist modes relative to Traditionalist non-engagement—but with *opposite signs*. Higher education predicts Autonomist membership ($\beta = +0.297$, $p = 0.001$), while *lower* education predicts Delegator membership ($\beta = -0.305$, $p < 0.001$). The two coefficients are nearly equal in magnitude and opposite in sign.

This pattern carries substantial theoretical and policy significance. The conventional intuition would treat Delegators as a transitional category occupying a middle position between Traditionalists and Autonomists—citizens who have begun to engage but have not yet acquired full autonomy. The Cambodian data refute this interpretation. Delegators are a distinct population, drawn from precisely the segments of the citizenry with *lower* educational attainment than the Traditionalist baseline. They engage with digital state services not because they are gradually acquiring digital autonomy, but because they have access to a human intermediary who can navigate the digital channel on their behalf. Rather than a temporary obstacle that will dissolve as digital literacy improves, the intermediated mode appears to be a structurally embedded form of state interaction that provides digital access to citizens who would otherwise be excluded entirely—a re-characterisation whose theoretical and policy implications are developed in Chapter 5.

Cognitive self-efficacy is significantly associated with both non-Traditionalist categories, but more strongly with the Autonomist contrast ($\beta = +0.937$) than with the Delegator contrast ($\beta = +0.595$). Even Delegators—who by definition rely on intermediaries—require a baseline level of confidence in administrative procedures, perhaps to recognise when state services are needed and to communicate effectively with intermediaries; autonomous engagement demands substantially higher self-efficacy. Two further patterns are worth noting. Urban location is significantly associated with the Autonomist mode ($\beta = +0.529$, $p = 0.032$) but not with the Delegator mode: the limited urban-rural difference observed in the binary analysis masks a sharper contrast, in which urban citizens are not more likely to engage in any form, but conditional on engagement are more likely to engage autonomously. Age operates similarly—younger Cambodians are more likely to be Autonomists ($p = 0.038$), older Cambodians more likely to be Delegators ($p = 0.021$)—though the age coefficients

are small in absolute terms. Trust in the digital state shows no significant association with either mode, replicating the null trust effect from Section 4.2. Gender is not associated with the mode of engagement (both contrasts $p > 0.6$), mirroring its null effect on the decision to engage in Section 4.2. The gender differences evident in the descriptive data operate through digital capability—which the model already controls—rather than through an independent effect of gender on how citizens interact with the digital state.

Predicted probabilities computed at illustrative respondent profiles (Table 9) render the substantive implications concrete. The contrast between low-resource and high-resource profiles is dramatic: a high-resource citizen is more than one hundred times more likely to engage autonomously than a low-resource citizen, while the latter’s only realistic digital pathway runs through human intermediation.

Table 9: Predicted probabilities at illustrative respondent profiles (%)

Respondent profile	Traditionalist	Delegator	Autonomist
Low-resource (50 yrs, primary education, female, rural, cannot install apps)	71.8	27.6	0.6
Middle-resource (35 yrs, lower secondary, male, urban, can install apps)	70.3	13.3	16.4
High-resource (28 yrs, bachelor’s degree, female, urban, can install apps)	24.1	4.5	71.4

Source: Authors’ survey data, 2026.

4.4. Robustness analyses

The robustness of the main findings is examined through two analyses. First, an ordered logistic regression was estimated on the full five-level usage frequency variable, exploiting the ordinal structure of the outcome rather than collapsing it into a binary recode ($N = 928$; pseudo $R^2 = 0.151$; $LR \chi^2 = 242.0$, $p < 0.001$). The substantive findings are fully replicated: all five predictors significant in the binary model (education, digital capability, cognitive self-efficacy, proxy reliance, and perceived system redundancy) remain significant with consistent direction, and none of the non-significant predictors (trust, age, urban, gender, income) become significant. Across all ten predictors, the two specifications produce identical significance categories at conventional thresholds, and every predictor retains its sign across the two specifications.

Second, the multinomial regression in Section 4.3—itself a primary analysis rather than a robustness check—provides convergent evidence consistent with the binary analysis: the same capability and structural variables that predict any engagement also distinguish the modes of engagement, with the one theoretically interesting nuance that education shifts direction between the Delegator and Autonomist contrasts while self-efficacy maintains a consistent positive direction. Taken together, the triangulation across the binary, multinomial, and ordered logistic specifications provides convergent evidence for the study’s central findings: that digital state engagement in Cambodia is shaped predominantly by capability and structural factors rather than by institutional trust; that the three engagement modes are distinguishable along structural lines; and that the Delegator mode represents a distinct population rather than a transitional category.

It is worth noting that average marginal effects are not reported for the multinomial model because, unlike the binary model, they require a separate set of estimates for each outcome category; the predicted-probability profiles in Table 9 convey the substantive magnitudes. A quadratic age term was also tested (Appendix B): it is non-significant in the binary and ordered models, and although the Autonomist contrast shows a significant quadratic, the implied curve is U-shaped rather than inverted-U and rests on sparse older-age cells, so age enters the models linearly.

5. Discussion

This chapter interprets the empirical findings presented in Chapter 4 through the analytical framework developed in Chapter 2. It is organised around three substantive themes that emerge across the regression specifications: the predominance of capability and awareness as the binding constraints on digital state engagement (Section 5.1); the structural significance of the intermediated mode of engagement (Section 5.2); and the institutional realities revealed by citizens' encounters with the digital–physical interface, particularly the front-end/back-end gap (Section 5.3). Section 5.4 considers how these themes collectively reposition Cambodia's digital government transition within the comparative literature on e-government adoption in transitional economies.

5.1. Capability and awareness as the binding constraints

A consistent finding across the descriptive analysis, the binary logistic regression, the multinomial regression, and the ordered logistic robustness check is that the strongest predictors of citizens' engagement with government digital services in Cambodia are capability-related: educational attainment, the ability to install applications independently, and cognitive self-efficacy in handling administrative interfaces.

This pattern aligns closely with the framework developed in Chapter 2. Basic access is no longer the primary obstacle in Cambodia, where smartphone ownership is now widespread (Section 2.3); the binding constraint has shifted to the second-level divide, the inequality in skills and confidence that separates those who can use digital services from those who cannot (van Dijk 2006; Hargittai 2002; van Deursen and van Dijk 2014). The prominence of self-efficacy reinforces this reading: as Bandura (1997) argued, engagement depends less on a service's objective availability than on a citizen's belief in their own capacity to use it. Interpreted through Heeks's (2002) design–reality gap, the low uptake observed here is partly a demand-side gap, in which the supply of digital services has outpaced the capability of the citizens expected to use them. The non-users corroborate this from the other direction: 92.1 percent attribute their non-engagement to capability or awareness rather than to lack of interest (Table 5).

The disaggregated evidence in Section 4.1.5 introduces a distinction that the aggregate figures conceal, and that Everett Rogers's (2003) *diffusions of innovation* framework helps to name. Rogers separates two forms of knowledge relevant to adoption: awareness that an innovation exists, and knowledge of how to use it. The present findings map onto this distinction with clarity. Younger, more-educated non-users possess the skills to transact but are unaware that the services exist; older, less-educated non-users are aware of the services but lack the competence to use them. What appears in the aggregate as a single capability constraint therefore resolves into two analytically distinct barriers that fall on demographically different populations, such that an undifferentiated intervention would address only one. Awareness, in particular, is a barrier that the dominant technology adoption models tend to presuppose rather than explicitly theorise, despite its frequent identification in empirical studies of e-government non-adoption (e.g., Alomari, Sandhu, and Woods 2014). Situating it within Rogers's framework is what allows the segmentation in Section 4.1.5 to carry analytical rather than merely descriptive weight.

A gender dimension operates through the skills side of this account. Women are less likely than men to have engaged, but the disparity reflects a difference in capability rather than in gender as such: once digital capability is controlled, gender no longer predicts either engagement or its mode (Section 4.2, Section 4.3). This is consistent with wider evidence that women's disadvantage in the digital domain manifests in skills and confidence rather than in access (van Deursen and van Dijk 2014).

The policy implication follows directly. Expanding engagement requires capability-building, targeted awareness campaigns, and attention to gender in the design of both, with each measure matched to the barrier a given population actually faces. This constitutes the demand-side account. Its supply-side complement, examined in Section 5.3, is the persistent mismatch between digitalised front-end services and the paper-based procedures that continue to sit behind them.

5.2. The Delegator finding and the reconceptualisation of social intermediation

The most theoretically distinctive finding emerges from the multinomial regression (Section 4.3). Education predicts Autonomist membership positively and Delegator membership negatively, with coefficients of nearly equal magnitude and opposite sign.

The implication is that Delegation is not an intermediate step towards autonomous use but a distinct mode of engagement, disproportionately drawn from citizens with lower educational attainment. For these citizens, the relative, local official, or paid agent who navigates the digital channel on their behalf is not merely a source of assistance but the primary mechanism of access.

This complicates the infomediary literature (Sein 2011; Bakardjieva 2005). The “warm experts” of ICT4D scholarship are typically cast as transitional figures who support novice users until they develop their own capabilities. The education gradient observed here points to a different possibility in the Cambodian case: that intermediaries may function less as transitional figures than as a persistent channel through which lower-capability citizens reach the digital state. On this reading, village chiefs, commune officials, and other local figures would act not simply as opinion leaders in the sense of the UTAUT Social Influence construct, but as delegated intermediaries who complete the digital transaction on a citizen’s behalf—the functional analogue interface of Section 2.5. The cross-sectional design cannot establish whether such intermediation is in fact durable; that question would require longitudinal evidence.

A related concern is the small share (1.4 percent) who report paying someone to handle their documents: informal facilitation fees are a regressive burden on low-resource citizens (Nieto-Morales, Peeters, and Lotta 2024), and any policy that engages intermediaries should be structured to minimise this rent-seeking risk. A subtler point follows from the self-efficacy coefficients, which are positive for both non-Traditionalist modes but stronger for the Autonomist contrast ($\beta = +0.937$) than the Delegator one ($\beta = +0.595$). Even mediated engagement therefore requires a baseline of cognitive self-efficacy: Delegators can recognise that a service is needed and communicate with an intermediary, but cannot navigate the digital channel alone. This suggests that delegation is not simply the absence of digital capability, but a distinct mode of engagement requiring a modest level of digital confidence, even if it falls short of autonomous use.

5.3. The front-end/back-end gap and the institutional reality of incomplete digitalisation

The third substantive theme concerns the relationship between digital and physical channels in the Cambodian administrative system. The binary logistic regression in Section 4.2 returned a counterintuitive positive coefficient on perceived system redundancy: respondents who agree that they would still need to visit in person even after applying online are *more*, not less, likely to have engaged with the digital channel. This finding admits a straightforward interpretation. Citizens who have actually attempted to use digital state services are those most likely to have encountered, in practice, the incomplete back-end integration that requires a physical follow-up. The perception of redundancy is not a free-floating attitude that deters engagement; it is, for engagers, the residue of lived experience.

This offers empirical validation of the front-end/back-end gap developed in Section 2.5. The conceptual claim was that Cambodia's digital front-ends are layered onto a legal and procedural back-end that frequently retains physical requirements—wet stamps, ink signatures, in-person biometric verification—as conditions for the legal validity of civil documents. The empirical claim, supported by the regression evidence, is that citizens experience this institutional reality directly when they engage, and that the gap between front-end digitalisation and back-end persistence is widely perceived rather than narrowly held: 64.5 percent of respondents either agree or strongly agree with the redundancy statement.

Two implications follow. The first is that the perception of redundancy is not primarily a communication problem. If citizens simply misunderstood the digital channel's capabilities, the appropriate response would be public information campaigns. The regression evidence suggests instead that the perception is grounded in actual encounters with the institutional system. The appropriate policy response is therefore not communication but *institutional reform*: the redesign of the legal and procedural back-end so that digital application channels constitute genuine end-to-end substitutes for physical visits rather than additional administrative layers.

The second implication concerns the interaction between the front-end/back-end gap and the demand-side capability investments discussed in Section 5.1. Capability-building interventions—digital literacy training, simplified interfaces, plain-language communication—will produce limited returns if the back-end system continues to require physical follow-up. A citizen who has been trained to navigate the digital channel and then discovers, upon attempting to use it, that she must still travel to the OWSO will rationally conclude that the investment of effort was not justified. The two policy investments—capability building and back-end reform—must be sequenced and combined deliberately, not treated as independent tracks.

5.4. Repositioning Cambodia's digital transition in the comparative literature

The findings of the present study invite a re-characterisation of where Cambodia sits within the broader literature on digital government adoption in transitional economies. The standard diagnostic frame in this literature identifies four obstacles to e-government adoption: infrastructural deficits, trust deficits, institutional fragmentation, and skill deficits (Schuppan 2009; Gil-García and Pardo 2005). The Cambodian profile does not map cleanly onto any single category in this frame.

Infrastructural conditions have substantially improved over the past decade. Trust in government data handling is broadly favourable across the sample and does not differentiate engagers from non-engagers in the cross-sectional analysis. The most consistent differentiator of engagement is skills—digital literacy, administrative literacy, and cognitive self-efficacy in state interactions. A further dimension, less prominent in the standard frame, is the incomplete coupling between digital front-ends and physical back-ends.

The picture that emerges is of a country whose digital government transition is neither primarily gated by citizen distrust nor reducible to a basic infrastructure-access problem. Cambodia occupies a distinctive position in the comparative literature: one in which the conventional templates of trust-building campaigns and connectivity expansion, while still warranted in their own right, do not address the principal demand-side dynamics observed in this study. The country's distinctive profile is defined instead by the combination of capability constraints and institutional redundancy that the preceding sections have documented. The implications for policy design follow in Chapter 6.

6. Conclusion and policy recommendations

While the supply of digital platforms has accelerated, citizen engagement remains fundamentally constrained by capability gaps and institutional friction. This concluding chapter draws together the present study's principal contributions to chart a path forward. It translates the diagnostic interpretation developed in Chapter 5 into a set of actionable policy recommendations aimed at synchronising front-end digital scaling with demand-side realities.

6.1. Summary of contributions

Drawing on a nationally representative survey of 1,200 adults, this study makes three contributions. It provides the first nationally representative demand-side baseline of citizen engagement with government digital services in Cambodia—a reference point against which future policy interventions can be evaluated and change tracked over time. It identifies a three-mode engagement typology—autonomous, mediated, and physical-default—and shows that these modes are not stages on a single developmental path: the mediated mode is drawn from citizens with lower educational attainment than the physical-default majority, indicating that reliance on intermediaries is a structurally embedded rather than a transitional form of engagement. And it offers a diagnostic account of what constrains engagement, in which capability—education, technical skill, and cognitive self-efficacy—is the binding constraint on the demand side, while a front-end/back-end gap between digital interfaces and unreformed physical procedures constrains the supply side.

Taken together, the findings suggest that the primary barrier to digital transformation is not simply public scepticism requiring credibility-building communication. Instead, Cambodia is currently facing a *capability-constrained* and an *environment characterised by partial or uneven back-end integration*, where the visible deployment of front-end platforms has outpaced both citizen preparation and the actual streamlining of back-end administrative workflows.

6.2. Policy recommendations

The diagnostic profile yields five recommendations, addressed primarily to the Royal Government of Cambodia and its development partners.

Recommendation 1: Close the awareness gap and build capability: communicate the existence of digital services to the citizens most likely to self-serve once informed, and provide gender-responsive digital-skills support to those who cannot yet use them. Digital literacy programmes should focus on the specific competencies required for state interaction (administrative navigation, formal Khmer comprehension, data entry, error recovery), building on the DMIL competency framework (UNESCO 2024). User interfaces should be designed for citizens with lower-secondary education as the baseline. In addition, public communication should give substantial emphasis to basic awareness of available services, given that over a quarter of non-users are simply unaware that government digital services exist.

Recommendation 2: Engage intermediaries as a structural pillar of the digital transition. The mediated engagement mode is not a transitional category that will dissolve as digital literacy improves; it is a structurally embedded pathway through which a significant population segment accesses public services. Policy that attempts to bypass intermediaries risks removing a critical access mechanism for the most structurally disadvantaged citizens. The constructive response is to recognise and regulate the role of intermediaries—village chiefs, commune clerks, and other local officials—as recognised digital service facilitators, with training, technical support, and clear protocols on personal information handling, the prohibition of informal fees, and the citizen's right to attempt autonomous engagement. Commune-level digital service points, staffed by trained facilitators, would extend access beyond the village chief alone. The small but substantively concerning share of citizens who reported paying informal agents suggests that some forms of assisted access already involve unofficial payments, although the survey does not identify whether these payments were made to public officials or private intermediaries. Accordingly, formalisation should be accompanied by clear prohibitions on informal fees for authorised facilitators and accessible reporting channels.

Recommendation 3: Synchronise back-end institutional reform with front-end scaling. The front-end/back-end gap finding highlights a critical risk for the supply side: as digital interfaces expand, capability investments among citizens may yield diminishing returns if the underlying legal and procedural workflows continue to mandate physical follow-up. Rather than viewing front-end digitalisation and back-end reform as sequential steps, they must be tightly coupled. The priority is Business Process Reengineering (Hammer and Champy 1993) of civil document workflows alongside platform deployment. This includes: the progressive expansion of the legal status of digital signatures so that an increasing range of documents can be issued and validated entirely digitally; the integration rather than duplication of physical authentication steps where these remain legally necessary; advanced interoperability between ministry systems to eliminate redundant data entry; and a repositioning of the physical public service system from the default service channel towards a complementary role supporting digital channels through technical assistance and initial identity verification. In many cases, the scope for process reengineering is bounded by the legal framework itself. Where legislation prescribes inter-ministerial authorisation or fixed procedural sequences, digitalisation cannot eliminate these steps through administrative redesign alone. It requires legal reform, making back-end transformation a legal as much as an operational undertaking.

Recommendation 4: Differentiate policy interventions by engagement mode. A single undifferentiated policy strategy is unlikely to be effective. For more *autonomous users*, the priority intervention is addressing remaining usability and access constraints in digital service delivery. For users who rely on *intermediaries*, policy should recognise and support the role of assisted access mechanisms, including both formal and informal intermediaries. For citizens who continue to rely primarily on *in-person engagement*, priorities include awareness-raising and foundational digital capability-building. Digital government roadmaps and sector plans should therefore account for heterogeneity in engagement patterns rather than treating the citizen base as monolithic.

Recommendation 5: Strengthen the evidence base for ongoing monitoring. The present study constitutes a baseline. Continued progress will require ongoing monitoring of citizen engagement as a demand-side outcome measure, not merely as supply-side performance reporting. Single-item constructs should be expanded into validated multi-item scales where feasible. The survey instrument should be expanded to capture additional dimensions, including disaggregated measures of perceived utility and confirmatory items on engagement mode triangulated across service categories, and the survey should be re-fielded every two to three years. This is particularly important given the rapid pace of supply-side change: as the public service digitalisation programme is scaled, the demand-side patterns observed here will themselves evolve, and panel design—re-interviewing a subset of respondents in successive waves—would substantially strengthen the inferential basis for evaluating policy effects.

6.3. Concluding observations

Cambodia's digital government transition is at an inflection point. The infrastructural and platform-level investments of the past decade have created the conditions under which broad citizen engagement is in principle possible; whether that possibility becomes widespread, equitable, and sustained engagement depends on the demand-side and institutional reforms this study has sought to identify.

The findings give cause for both concern and optimism. The concern is the magnitude of current non-engagement and the structural nature of the constraints behind it. The optimism is that those constraints, once correctly diagnosed, are amenable to deliberate policy action—none is a quick fix, but none is beyond the reach of the instruments available to the Royal Government and its partners. A digital government transition that meets citizens where they are, rather than expecting them to converge on a single model of autonomous engagement, is more likely to be inclusive, effective, and politically sustainable.

7. Limitations and suggestions for future research

While the findings in this study are robust, several methodological limitations warrant acknowledgement. This chapter sets out the principal limitations and identifies a corresponding agenda for future research.

7.1. Limitations

Cross-sectional design. All variables are observed at a single point in time, and the regression analyses identify associations rather than causal effects. The empirical patterns reported in Chapter 4 are consistent with multiple causal interpretations; for example, the association between cognitive self-efficacy and digital engagement may reflect either a pathway in which self-efficacy enables engagement or a reverse pathway in which prior engagement builds self-efficacy. The limitation has been managed throughout by the use of associational rather than causal language, but it bounds the strength of the inferences that can be drawn from the data.

Single-item measurement of two attitudinal constructs. Two of the attitudinal constructs—perceived system redundancy and proxy reliance—are operationalised with single survey items, which cannot be assessed for internal consistency and are more vulnerable to measurement error than validated multi-item scales (Diamantopoulos et al. 2012). The Cognitive Self-Efficacy Index, with Cronbach's $\alpha = 0.849$, is the methodologically strongest construct in the study; the null trust finding, by contrast, is robust within the available measurement but should not be over-generalised to other dimensions of trust that **the two-item index does not capture.**

Single-item operationalisation of the engagement typology. The three-mode typology is constructed from a single survey item (k3) asking respondents what channel they would choose if they had the option to complete a government service online. The item therefore captures a stated channel preference under a hypothetical option rather than observed behaviour—an appropriate measure given that fully digital services are not yet widely available, but one that should be interpreted as preference rather than demonstrated use. The item is concrete and specific, which reduces measurement-error risk relative to attitudinal items, but it does not triangulate against administrative usage records or against confirmatory items framed around particular named services. The multinomial analysis also treats the three sub-types of Delegator (relatives, officials, paid agents) as a single category.

Self-reporting. All outcome and predictor variables are self-reported, which introduces recognised risks of social desirability bias, recall error, and item-interpretation bias. The direction of any residual bias is, in most cases, conservative with respect to the central findings—social desirability bias on trust items, for example, would inflate reported trust and thereby make the null trust effect more striking against a higher baseline—but residual biases cannot be ruled out.

7.2. Suggestions for future research

Longitudinal and panel designs would most directly address the cross-sectional limitation. A panel survey that re-interviews a subset of respondents across multiple waves would permit the analysis of within-individual change and would substantially strengthen the inferential basis for causal claims. This is particularly important given the rapid pace of supply-side change in Cambodia's digital service environment: as the public service digitalisation programme is scaled, the patterns observed here will themselves evolve.

Validated multi-item scales should replace the single-item attitudinal indicators in future iterations of the survey instrument. Institutional trust should be measured along multiple dimensions (data security, administrative efficiency, legal validity of digital documents, equitable treatment by government systems). Perceived system redundancy should distinguish between expectation based on direct experience and expectation based on inference. Proxy reliance should capture the social availability and perceived legitimacy of different intermediary types.

Triangulation of the typology should, where feasible, match survey responses against administrative records of digital service utilisation, with rigorous attention to data privacy. In the absence of administrative matching, future surveys should ask respondents about their channel use for specific named services—civil registration, business registration, tax filing—rather than relying on a single generic channel-preference item.

Qualitative research on the intermediary ecosystem would deepen the understanding of the most theoretically distinctive contribution of the present study, the Delegator finding. Ethnographic observation of how village chiefs and commune officials handle citizen requests, in-depth interviews with citizens about their reliance on intermediaries, and case studies of the informal market for paid intermediation would be particularly valuable for informing the policy recommendations developed in Chapter 6.

These directions, taken together, would substantially strengthen the empirical foundations of Cambodia's digital government strategy, and the unfolding implementation of the public service digitalisation programme over the next several years provides a natural empirical setting within which to pursue them.

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Appendixes

Appendix A: Survey items and measurement

Construct	Survey item (English)	Source
Basic digital capability	k1. Can you download and install new apps on your phone by yourself? <i>(yes / n—needs help)</i>	Item format adapted from Ali, Raza and Qazi (2023)
Digital engagement with government services <i>(outcome)</i>	k2. In the past 12 months, how often have you used a government/ministry app or visited a government/ministry website (e.g. to use public services or seek information)? <i>(never ... most often)</i>	Developed by the authors
Stated channel preference <i>(outcome; engagement typology)</i>	k3. If you have the option to process a government document online, what would you do? <i>(go in person / do it myself on the phone / ask relatives or friends / ask an official / pay someone)</i>	Developed by the authors
Cognitive self-efficacy—reading	k4. How confident are you that you can read and understand the administrative language in an app?	Item format informed by self-efficacy measurement (Bandura 1997; Compeau and Higgins 1995); item content substantially revised and adapted from Cheng (2011) and Mensah, Luo and Thani (2022)
Cognitive self-efficacy—data entry	k5. How confident are you that you can type or photograph and upload documents into an app without error?	As above (Bandura 1997; Compeau and Higgins 1995; Y.-M. Cheng 2011; Mensah, Luo, and Thani 2022)
Cognitive self-efficacy—error recovery	k6. If you make a mistake in an app, how confident are you that you can find a phone number to contact someone for help?	As above (Bandura 1997; Compeau and Higgins 1995; Y.-M. Cheng 2011; Mensah, Luo, and Thani 2022)
Institutional trust <i>(data custodianship)</i>	k7. I trust that the government keeps my personal data securely. <i>(5-point agreement)</i>	Substantially revised from e-government adoption measures in Verkijika and De Wet (2018), Kurfalı et al (2017), and Al-Kautsar Maktub, Handayani, and Sunarso (2025); combined with k8 in the Trust in the Digital State Index
Trust—comparative security <i>(modelled with k7)</i>	k8. I feel as secure using government apps as I do using banking apps (ABA or ACLEDA). <i>(5-point agreement)</i>	Adapted by the authors; combined with k7 in the Trust in the Digital State Index

Perceived institutional redundancy	k9. I think that even after applying for a state service by phone, they still require me to come in person to collect the document. (5-point agreement)	Developed by the authors; informed by Administrative Burden Theory (Moynihan, Herd, and Harvey 2015) and the partial-digitalisation / e-government paradox literature (Savoldelli, Codagnone, and Misuraca 2014)
Proxy reliance	k10. I am content to wait for the village chief or local authority to tell me what to do, rather than seeking out state services and doing it myself through phone (through Apps). (5-point agreement)	Developed by the authors; drawing conceptually on the infomediary and “warm expert” literatures (Bakardjieva 2005)
Conditional adoption intention (not analysed)	k11. I would switch to using state services or apps on my phone immediately if I knew for certain it saves both time and money compared with going in person. (5-point agreement)	Developed by the authors; not analysed in the present study
Primary reason for non-engagement (non-users only)	k12. (If “never” at k2) What is the main reason you do not use government apps? (do not know how to use them / did not know government apps or websites existed / afraid of data theft / phone or internet quality is poor / prefer physical paper or wet stamp / other [specify] / no opinion or refused)	Developed by the authors; reported in Table 3
Primary reason for non-engagement—other (open-ended)	k12.1. Other reason, specified (open-ended; asked when “other” selected at k12)	Developed by the authors; open-ended responses coded and reported in Table 3

Source: Authors

Appendix B: Supplementary robustness analyses

Robustness to categorical coding of education and income. Binary logistic regression on ever-use, entering education as a three-category dummy set (reference: no formal–primary) and income as a four-tier dummy set (reference: lowest). N = 928; McFadden pseudo- R^2 = 0.237 (0.230 for the ordinal specification). The education gradient remains strongly significant and every other conclusion is unchanged.

Predictor	Coef.	p
Education – lower–upper secondary	+0.598	0.005
Education – post-secondary and above	+2.291	<0.001
Income tier 2 (ref: lowest)	–0.261	0.423
Income tier 3	–0.175	0.596
Income tier 4	–0.680	0.063
Can install apps independently	+0.772	0.003
Cognitive Self-Efficacy Index	+0.418	<0.001
Trust in the Digital State Index	–0.023	0.845
Perceived system redundancy	+0.178	0.043
Proxy reliance	–0.276	0.001
Age (years)	–0.012	0.193
Urban (ref: rural)	–0.022	0.907
Male (ref: female)	–0.065	0.729

Source: Authors

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