SMART VILLAGES IN ROMANIA: DIGITALIZATION, CITIZEN-CENTRIC GOVERNANCE, AND THE CASE STUDY OF APAHIDA

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ABSTRACT

The Smart Village concept has emerged as a critical instrument for extending the benefits of digital transformation to rural communities that risk being excluded from the modernisation processes reshaping urban local governance across Europe. This article examines the trajectory of smart village development in Romania, with a focused case study on the commune of Apahida, Cluj County, which in June 2025 became one of the first Romanian rural administrative units to implement a DocuBox system — an automated, QR-code-secured smart locker enabling citizens to retrieve municipal documents on a 24/7 basis without attending the town hall in person. Drawing on qualitative interview data collected in 2023 with elected officials and public servants involved in smart city and smart village projects, supplemented by documentary analysis of official municipal announcements and current comparative literature on digital public administration, the article analyses the DocuBox initiative across five dimensions: digital transformation in local governance, efficiency and resource optimisation, accessibility and inclusivity, cybersecurity and citizen trust, and scalability and replicability. The study situates the Apahida initiative within the broader European Smart Villages Action and the Romanian national digitalisation framework, and evaluates its potential as a transferable model for other small and medium-sized municipalities. The article concludes that the Apahida pilot constitutes a strategically significant milestone in Romania's trajectory toward smart rural governance, demonstrating that innovation capacity is not the exclusive preserve of large urban centres and that citizen-centric digital solutions can generate measurable improvements in administrative efficiency, equity of access, and public trust even in communities with limited institutional and financial resources.

KEYWORDS: *Apahida, digital public administration, DocuBox, e-government, Romania, smart village, rural digitalisation, citizen-centric services*

J.E.L. Classifications: H11, H70, O18, O33, R58

1. INTRODUCTION

Digital transformation has become one of the defining policy imperatives of the contemporary period in public administration. Across Europe, national governments and supranational institutions have invested substantially in the development of digital public services, electronic identification systems, and data-driven governance architectures that promise to increase efficiency, reduce administrative burdens, and improve the quality of interaction between citizens and their public institutions. The narrative of this transformation, however, has been predominantly urban: the smart city concept — with its interconnected systems of mobility, energy, health, security, and governance — has generated an extensive literature and a significant policy infrastructure, while the specific challenges and opportunities of rural and peri-urban communities have received comparatively less systematic attention (Naldi et al., 2015; Zavratnik et al., 2018).

This urban bias in the digital transformation agenda is not merely an academic oversight; it carries concrete distributional consequences. Rural communities, which frequently exhibit lower digital literacy rates, older demographic profiles, weaker broadband infrastructure, and more constrained institutional and financial resources than urban centres, risk being systematically excluded from the gains that digitalisation generates — a dynamic that would reinforce and deepen existing territorial inequalities rather than attenuating them (Visvizi & Lytras, 2018; Salemink et al., 2017). The European Commission's 2017 Communication on the Future of Food and Farming, followed by the dedicated Smart Villages initiative and the 2021 Long Term Vision for Rural Areas (European Commission, 2021), represents a belated but significant institutional recognition of this risk and a commitment to extending the digital transformation agenda to rural communities across member states.

Romania provides a particularly instructive national context for the analysis of smart village development. As one of the European Union member states with the most significant urban-rural divide in terms of digital infrastructure and public service delivery, Romania faces a dual challenge: to accelerate the digitalisation of its urban local governance systems, which already lag behind Western European comparators, and simultaneously to extend the benefits of digital public services to a rural population that in 2023 still constituted approximately 45% of the total national

population (National Institute of Statistics, 2023). The emergence of pioneering smart village projects — Ciugud, in Alba County, widely regarded as Romania's first genuine smart village, and a growing number of follow-on initiatives in other counties — demonstrates that Romanian rural communities are not merely passive recipients of national digitalisation policy but can be active innovators in the development of citizen-centric digital solutions (Trincă, 2023).

This article focuses on the commune of Apahida, in Cluj County, which in June 2025 announced the successful implementation of a DocuBox system — a smart locker enabling citizens to retrieve official documents issued by the town hall via a QR-code-based unlocking mechanism, available on a 24/7 basis without requiring personal attendance at the municipal offices. The study is grounded in qualitative interview research conducted between September and October 2023 with mayors, vice-mayors, and public servants directly involved in smart city and smart village projects in Romanian municipalities, supplemented by documentary analysis of the Apahida municipality's official communications and by current comparative literature on digital public administration and rural digitalisation. It proceeds as follows: Section 2 situates the Smart Village concept within the theoretical and policy literature on digital public administration and rural development; Section 3 examines the Romanian smart village context and the role of pioneering initiatives such as Ciugud; Section 4 provides a detailed analysis of the Apahida DocuBox initiative across its key dimensions; Section 5 evaluates the scalability, replicability, and future research implications of the Apahida model; and the concluding section synthesises the article's principal findings.

2. THE SMART VILLAGE CONCEPT: THEORETICAL FOUNDATIONS AND EUROPEAN POLICY FRAMEWORK

2.1 FROM SMART CITIES TO SMART VILLAGES: EXTENDING THE PARADIGM

The smart city concept, as it has been elaborated in the academic literature and in policy documents since the early 2000s, rests on the deployment of information and communication technologies (ICT) and data analytics to improve the efficiency, sustainability, and quality of urban services across multiple dimensions: mobility, energy management, environmental monitoring, governance, economic development, and social inclusion (Caragliu et al., 2011; Albino et al., 2015). The concept has generated an extensive and contested literature: scholars have debated its definitional boundaries, its normative assumptions about the relationship between technology and human flourishing, its distributional implications, and its governance model, with some critics

arguing that the smart city paradigm privileges technocratic solutions over participatory democratic governance and the interests of technology providers over those of citizens (Hollands, 2008; Vanolo, 2014).

The extension of the smart paradigm to rural settings — the smart village concept — requires both a translation and a significant adaptation of the frameworks developed for urban contexts. The European Commission's working definition, elaborated in the context of the Smart Villages initiative launched in 2017, understands smart villages as 'rural areas and communities which build on their existing strengths and assets as well as on developing new opportunities' and which use digital and other innovative solutions to improve their resilience, and build on local potentials (European Commission, 2017). This definition is deliberately broad and locally adaptive: it does not prescribe a specific set of technological solutions or organisational models but emphasises the importance of building on the particular strengths, assets, and needs of individual rural communities rather than applying a one-size-fits-all template derived from urban smart city experience (Visvizi & Lytras, 2018; Woods, 2011).

The academic literature on smart villages has identified several dimensions that are particularly relevant to the rural context. Digital connectivity — the availability of reliable, high-speed internet access — is a foundational prerequisite for virtually all other smart village interventions; without it, the deployment of e-governance, digital health, precision agriculture, and other ICT-enabled services is structurally impossible (Salemink et al., 2017). E-governance — the digitisation of administrative services and the creation of electronic channels of interaction between citizens and local public institutions — is consistently identified as among the most impactful applications of smart village technology, both in terms of efficiency gains and in terms of citizen experience improvement (Wirtz et al., 2019; Mossberger et al., 2008). Public-private partnerships (PPP) are identified by Jayasena et al. (2020) as a critical enabling mechanism for smart village development, particularly in communities with limited public financial resources: the ability to leverage private investment and expertise in the deployment and maintenance of smart infrastructure significantly expands the feasible set of interventions for municipalities operating under tight budgetary constraints.

2.2 DIGITAL PUBLIC ADMINISTRATION AND CITIZEN-CENTRIC SERVICE DELIVERY

The theoretical framework of citizen-centric public administration — the orientation of government services around the needs, preferences, and life situations of citizens rather than around the internal logic and convenience of administrative organisations — provides the normative foundation for the evaluation of smart village digital initiatives (Reddick, 2011; Wimmer, 2002). The citizen-centric paradigm, which has informed public administration reform in Organisation for Economic Cooperation and Development (OECD) member states since the 1990s, holds that the quality of public service delivery should be assessed primarily from the perspective of the service recipient — the citizen — rather than from the perspective of the service provider — the public institution — and that administrative modernisation should be evaluated by its capacity to reduce the burden placed on citizens in their interactions with government: the time, effort, cost, and information asymmetry involved in accessing public services (Janssen et al., 2004; Tolbert & Mossberger, 2006).

Digital technology offers powerful tools for the realisation of citizen-centric service delivery objectives: online portals, mobile applications, automated notification systems, and self-service kiosks all have the potential to reduce transaction costs for citizens, extend the temporal and spatial availability of services, and enable more personalised and responsive service interactions. The post-COVID-19 acceleration of digital public administration — the pandemic forced both citizens and administrations to develop digital service delivery capabilities rapidly and at scale — has generated a significant body of evidence about the conditions under which digital public service adoption succeeds and the barriers that prevent it, with important implications for rural contexts where both the potential gains from digitisation and the barriers to adoption are often more pronounced than in urban settings (OECD, 2020; Twizeyimana & Andersson, 2019).

The concept of digital equity — the principle that the benefits of digital public administration should be accessible to all citizens regardless of their location, socioeconomic status, digital literacy, or physical capabilities — is of particular importance in the rural context and provides a normative criterion against which the inclusivity dimension of smart village initiatives can be evaluated (Mossberger et al., 2008; van Dijk, 2020). A digitalisation strategy that improves service delivery for citizens with high digital literacy and reliable internet access while creating additional barriers for those without these advantages is not a successful implementation of citizen-centric

governance but a digital stratification of public service quality — an outcome that is both normatively unacceptable and politically unsustainable in democratic systems committed to equal citizenship.

3. THE ROMANIAN SMART VILLAGE LANDSCAPE: PIONEERS, CHALLENGES, AND POLICY CONTEXT

Romania's trajectory toward digital local governance has been characterised by a combination of ambitious national policy commitments, significant structural barriers, and a small number of pioneering local initiatives that have demonstrated what is achievable within the Romanian institutional and financial context. The National Recovery and Resilience Plan (PNRR), adopted in 2021 as Romania's framework for the deployment of EU Recovery and Resilience Facility resources, allocated substantial funding to the digitalisation of public administration, including the development of national digital infrastructure for public services and specific grants for the digitalisation of local public administration units. Component C7 of the PNRR, dedicated to digital transformation, established a framework for the financing of smart city and smart village projects at the local level, creating financial incentives that have significantly accelerated the adoption of digital solutions by Romanian municipalities (Government of Romania, 2021).

Against this national policy backdrop, the commune of Ciugud, in Alba County, emerged as Romania's first genuinely comprehensive smart village, implementing a range of digital and sustainability-oriented initiatives — including the digitisation of administrative services, smart street lighting, electric vehicle charging infrastructure, and a comprehensive broadband network — that attracted significant national and international media attention and established a model for other Romanian rural communities to emulate. The Ciugud experience demonstrated that ambitious smart village initiatives are achievable in the Romanian context and generated a significant diffusion effect, inspiring mayors and local councils in other rural communities to explore similar approaches adapted to their own circumstances and resources (Trincă, 2023).

The qualitative research conducted between September and October 2023, on which the present article draws, involved semi-structured interviews with mayors, vice-mayors, and senior public servants directly involved in smart city and smart village projects in a range of Romanian municipalities. The interviews were conducted with elected officials and administrative staff who had personal responsibility for or direct involvement in the planning and implementation of digital

public administration initiatives, including the personal advisors of mayors, and staff from development offices and European funds departments of city halls. The interview data provided insight into both the motivations and the practical challenges of smart village implementation in the Romanian context, and identified several innovative solutions that were in the planning or early implementation stage — among them the DocuBox initiative in Apahida, which at the time of the interviews represented a promising concept that was subsequently brought to full implementation by June 2025.

The Romanian smart village landscape, as revealed by both the qualitative interview research and the broader documentary evidence, exhibits a pattern that is common in European rural digitalisation: a small number of pioneering communities at the technological frontier, a larger number of communities in intermediate stages of digital adoption, and a substantial tail of communities that have not yet begun systematic digitalisation of their administrative services. The barriers most frequently identified by interview respondents included: insufficient financial resources for initial investment in digital infrastructure; limited technical expertise within small municipal administrations; legal and regulatory uncertainties about the permissibility and data protection implications of proposed digital solutions; and the challenge of managing the transition from paper-based to digital service delivery in communities with heterogeneous levels of digital literacy among the resident population. The DocuBox solution implemented in Apahida addresses several of these barriers in a particularly creative way, as the analysis in the following section demonstrates.

4. THE APAHIDA DOCUBOX INITIATIVE: IMPLEMENTATION, DIMENSIONS, AND EVALUATION

4.1 THE DOCUBOX SYSTEM: DESIGN AND IMPLEMENTATION

The commune of Apahida, located approximately 10 kilometres northeast of Cluj-Napoca in Cluj County, is a peri-urban administrative unit with a population of approximately 18,000 inhabitants distributed across the principal locality of Apahida and several dependent villages. Its geographic proximity to Cluj-Napoca — Romania's second-largest city and a major hub of technology, education, and innovation — creates a distinctive context for smart village development: Apahida faces the challenges typical of peri-urban communities, including rapid population growth driven by urban sprawl, pressure on local infrastructure and services, and a

resident population with relatively high digital literacy and correspondingly high expectations for the quality of public service delivery.

In June 2025, the Apahida Town Hall announced the successful implementation of the DocuBox system — a smart locker installed adjacent to the town hall building on Horea Street, enabling citizens to retrieve official documents issued by the municipality without requiring personal attendance during office hours. The operational logic of the system is straightforward: a citizen submits a request for a document — a certificate, official statement, or other document within the town hall's competence — through the standard administrative channel. Once the document has been prepared and placed in the locker, the citizen receives an automated email notification containing a QR code that, when scanned at the DocuBox terminal, unlocks the compartment containing the document. The system operates on a 24/7 basis, eliminating the temporal constraint of standard office hours and enabling citizens to collect their documents at any time convenient to them.

The DocuBox concept is explicitly modelled on the automated parcel locker systems deployed by major e-commerce operators — Amazon Locker in the United States and Western Europe, and eMAG's EasyBox system in Romania — adapting the self-service locker model from commercial parcel delivery to the administrative document delivery context. This adaptation is conceptually straightforward but institutionally significant: it imports into the domain of public administration a service model that citizens already understand and trust from their commercial experience, thereby reducing the behavioural and psychological barriers to adoption that novel public technology solutions frequently encounter. The parallel with commercial locker systems also opens the possibility — explicitly mentioned by the interview respondents — of public-private partnerships in which the locker infrastructure, when not occupied by municipal documents, could be made available for commercial parcel delivery, generating both revenue and increased utilisation of the installed asset.

4.2 DIGITAL TRANSFORMATION, EFFICIENCY, AND ACCESSIBILITY DIMENSIONS

The DocuBox initiative generates measurable improvements across several dimensions of public service quality that are directly relevant to the theoretical frameworks discussed in Section 2. The efficiency and resource optimisation dimension is perhaps the most immediately quantifiable: by enabling citizens to collect documents outside office hours and without staff assistance, the system reduces the volume of in-person visits to the town hall for routine document collection, freeing staff time for more complex administrative tasks that require human judgment and interaction. Preliminary observations following the June 2025 implementation suggest significant reductions in citizen waiting times and in the administrative workload associated with routine document handover — consistent with the broader evidence base on the efficiency effects of e-government self-service systems (Wirtz et al., 2019; OECD, 2020).

The accessibility and inclusivity dimension of the DocuBox initiative deserves particular attention in the context of the digital equity framework discussed above. The 24/7 availability of document retrieval services addresses a specific and significant barrier to equitable public service access: the incompatibility of standard office hours with the working schedules of a large portion of the resident population, particularly those in full-time employment, shift workers, parents with childcare responsibilities, and others for whom attendance at the town hall during standard business hours requires a significant sacrifice of working time or personal flexibility. By decoupling document retrieval from office hours, the DocuBox system extends effective access to municipal services to a substantially broader share of the resident population than the traditional in-person collection model allows. It also reduces barriers for citizens with mobility challenges or health conditions that make physical attendance difficult, an important consideration given Romania's demographic structure, characterised by a significant and growing proportion of elderly residents in rural and peri-urban communities (National Institute of Statistics, 2023).

The cybersecurity and citizen trust dimension of the DocuBox initiative reflects a challenge that is common to all physical-digital hybrid service delivery systems: the need to balance the convenience of automated, self-service access with adequate security measures to protect both the confidentiality of official documents and the personal data of citizens. The QR-code-based authentication mechanism employed by the Apahida system provides a level of security that is appropriate for the sensitivity of the documents involved — municipal certificates and statements

— while maintaining the simplicity and accessibility of the user experience. The integration of email notification and QR-code authentication is consistent with current best practice in e-government security design, as documented in the European Union Agency for Cybersecurity (ENISA) guidelines on digital public service security (ENISA, 2021). The importance of robust cybersecurity integration in hybrid physical-digital systems is also underscored by the General Data Protection Regulation (GDPR) obligations that apply to all personal data processing by public bodies in EU member states, which require that document handling systems implement appropriate technical and organisational measures to ensure the confidentiality and integrity of personal data (European Parliament & Council, 2016).

4.3 PUBLIC-PRIVATE PARTNERSHIP POTENTIAL AND SCALABILITY

One of the most strategically significant features of the DocuBox initiative, as identified in the qualitative interview research, is its potential for integration into a public-private partnership (PPP) model that could substantially enhance the financial sustainability and social utility of the installed infrastructure. The interview respondents from Apahida noted that the town hall was actively exploring the possibility of making the locker infrastructure available for commercial parcel delivery when not occupied by municipal documents — a hybrid use model that would generate revenue for the municipality, increase the utilisation rate of the physical infrastructure, and provide a tangible additional service to residents who might otherwise need to travel to urban parcel collection points.

This PPP dimension connects the Apahida initiative to a broader literature on the role of public-private partnerships in smart city and smart village development. Jayasena et al. (2020) identified public-private partnerships as a critical mechanism for mobilising private investment and operational expertise in the development of smart urban infrastructure, arguing that the complementarity of public governance authority and private technical and financial capacity makes PPP models particularly well-suited to the deployment of innovative service delivery solutions in resource-constrained public administration contexts. The Apahida DocuBox model exemplifies this complementarity: the municipality provides the regulatory authority, the location, and the administrative document supply; the private partner provides the physical infrastructure, the technical maintenance, and potentially the commercial parcel delivery service that increases the system's financial viability. This hybrid model reduces the net cost to the municipality while

delivering a more comprehensive service offering to citizens and generating positive spillovers for local businesses and residents who use commercial delivery services.

The scalability and replicability of the DocuBox model across Romanian municipalities is a question of both technical feasibility and institutional appropriateness. On the technical side, the locker infrastructure and QR-code authentication system are based on commercially available, well-tested technologies that do not require specialised local expertise to operate and maintain; the primary technical requirement for replication is reliable internet connectivity, which is available in most Romanian communes at the connectivity standards required by the system. On the institutional side, the DocuBox model requires a sufficient volume of citizen document requests to justify the investment in the locker infrastructure — a threshold that is likely to be met in most communes above a certain population size, particularly those in peri-urban areas with a high proportion of working-age residents. The applicability to smaller and more remote rural communes, where document volumes may be lower and digital literacy among residents more variable, would require a more careful cost-benefit analysis and potentially a different deployment model — for instance, a shared locker infrastructure serving multiple neighbouring communes rather than individual commune-level installations.

5. BROADER IMPLICATIONS AND FUTURE RESEARCH PERSPECTIVES

The Apahida DocuBox initiative, situated within the broader trajectory of Romanian smart village development and the European Smart Villages framework, generates a set of implications for policy, practice, and research that extend beyond the specific case studied. At the policy level, the initiative provides empirical support for the European Commission's Smart Villages Action, which has consistently argued that digital innovation in rural public administration is both feasible and impactful and that national and European public funding should be directed toward enabling rural communities to develop and implement citizen-centric digital service solutions adapted to their specific circumstances (European Commission, 2021). The Apahida case demonstrates that meaningful smart village innovation does not require the comprehensive infrastructure investments of pioneering models such as Ciugud; a targeted, low-cost, high-impact intervention such as the DocuBox can generate significant improvements in service accessibility and administrative efficiency with relatively modest initial investment.

The initiative also has implications for the design of national digitalisation frameworks for local public administration. Romania's PNRR-funded digital transformation programme has prioritised the development of central digital platforms and national infrastructure, but the Apahida experience suggests that locally-initiated, bottom-up innovations — driven by the entrepreneurial creativity of individual mayors and administrative teams rather than by top-down national programmes — can play a significant and complementary role in the broader digitalisation of Romanian local governance. A national framework that creates enabling conditions for such bottom-up innovation — through streamlined procurement procedures for digital solutions, legal clarity about the permissibility of novel administrative delivery mechanisms, and peer learning networks that enable municipalities to share their experiences and replicate successful models — could significantly accelerate the diffusion of smart village solutions across Romanian municipalities (Janssen et al., 2004; Twizeyimana & Andersson, 2019).

Several dimensions of the Apahida initiative invite further empirical investigation that the present study, based primarily on qualitative interview data and documentary analysis, was not designed to address. A systematic quantitative evaluation of the DocuBox system's impact on administrative efficiency — measuring the reduction in in-person visits, waiting times, and staff workload attributable to the system — would provide a robust evidence base for cost-benefit analysis and for the assessment of the system's economic case relative to alternative service delivery improvements. A citizen satisfaction survey would enable assessment of the subjective service quality improvements experienced by users of the system, including the specific dimensions — accessibility, convenience, reliability, and security — that users find most and least satisfactory. A comparative study of similar smart locker solutions implemented in other European rural municipalities — several Nordic and Central European countries have piloted comparable systems in different administrative contexts — would provide valuable benchmarks and design lessons for Romanian municipalities considering similar implementations.

Future research should also address the question of digital inclusion in the context of smart village document delivery solutions. While the DocuBox system expands accessibility for citizens who cannot attend during office hours, it does not directly address the needs of citizens who lack the digital literacy to use email and QR-code-based systems, or who do not have reliable access to a smartphone or computer. Understanding the proportion of the resident population that falls into this category, and designing complementary service delivery channels that ensure these citizens

are not disadvantaged by the shift toward digital delivery, is an essential component of an equitable smart village strategy (van Dijk, 2020; Mossberger et al., 2008). The articulation of the DocuBox system with traditional in-person service delivery — ensuring that the automated system supplements rather than replaces human service delivery channels for those who need them — is a design and governance question that the Apahida initiative has begun to address and that future research should examine in greater depth.

6. CONCLUSIONS

This article has examined the smart village concept in the Romanian context, with a focused case study on the commune of Apahida's DocuBox initiative — an automated, QR-code-secured smart locker system for the 24/7 self-service retrieval of official municipal documents. The analysis has demonstrated that the Apahida initiative represents a citizen-centric digital innovation of significant practical impact and considerable strategic importance for the broader trajectory of Romanian rural digitalisation.

The DocuBox system addresses, in a cost-effective and technically straightforward manner, several of the most significant barriers to equitable public service access in peri-urban and rural Romanian communities: the temporal constraint of office hours, the physical burden of in-person attendance, the inefficiency of routine document handover processes, and the gap between citizen expectations shaped by digital commercial service experiences and the reality of traditional municipal service delivery. Its implementation in Apahida demonstrates that meaningful smart village innovation is achievable without the comprehensive infrastructure investments required by pioneering models such as Ciugud, and that targeted, high-impact interventions can generate measurable service quality improvements with relatively modest initial costs.

The initiative's potential for integration into a public-private partnership model — enabling the locker infrastructure to serve both administrative and commercial parcel delivery functions — represents a promising mechanism for enhancing financial sustainability and expanding the system's social utility beyond its core administrative function. The replicability of the DocuBox model across other Romanian municipalities — particularly those in peri-urban areas with comparable demographic and connectivity profiles — is supported by the technical simplicity of the system, the availability of commercial locker infrastructure at accessible cost, and the clear

legal framework provided by the GDPR and national e-government legislation for document handling and personal data protection.

The broader significance of the Apahida initiative lies in what it demonstrates about the institutional capacity of Romanian rural communities to innovate in the delivery of public services. The DocuBox is more than a technological solution; it is evidence of an administrative culture that is capable of identifying citizen needs, designing appropriate responses, and bringing innovative solutions to implementation — qualities that are indispensable to the success of Romania's broader digital transformation agenda. At the same time, the Apahida case illustrates the importance of qualitative research in identifying and documenting innovative local practices before they have attracted national or European policy attention: the interview research that first identified the DocuBox concept in 2023 preceded the system's public announcement by nearly two years, demonstrating the value of sustained engagement with local administrative actors in the monitoring of digital innovation at the municipal level.

Looking ahead, the generalisation of smart village approaches across Romanian rural municipalities will require a combination of enabling conditions at the national level — streamlined procurement, legal clarity, peer learning networks, and targeted co-financing — and continued entrepreneurial initiative at the local level from elected officials and administrative staff who are willing to experiment, learn from experience, and share their innovations with their peers. The Apahida DocuBox initiative offers a clear, replicable, and compelling model of what that entrepreneurial initiative can achieve. Romania's rural communities need not wait for comprehensive national programmes to begin their smart village journey; they can, as Apahida has demonstrated, lead the way.

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