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Digital Transformation at the Local Level in Kosovo:

The Role of Youth and the Use of Artificial Intelligence for Transparent Governance

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Executive Summary

This paper aims to address one of the greatest challenges and opportunities of public administration in Kosovo: digital transformation and the use of artificial intelligence (AI) to increase transparency, efficiency and citizen engagement in decision-making, with particular emphasis on increasing transparency and accountability.

The purpose is to provide an analytical overview of the current state of digitization in the municipalities of Kosovo, the role of youth in the public innovation process, and the potential of AI for modernizing governance.

In recent years, Kosovo has progressed in building central platforms like e-Kosova, enabling dozens of online services for citizens. However, the local level – where citizens interact more frequently with institutions – remains behind in implementation.

On the other hand, the young population – which constitutes over 50% of the total population (Kosovo Agency of Statistics, 2024) – is the biggest driving force of digital innovation, which can be achieved through civic-tech initiatives, local start-ups, and interaction between the public and private sectors.

Some of the key findings of this paper are:

- Lack of strategic coherence in the digitalization of services at the local level,
- Partial lack of municipal transparency toward citizens (only some municipalities disclose their data on expenditures)
- Untapped youth potential – although youth in Kosovo have good access to and knowledge of technology, municipalities fail to use this potential to advance digitalization of services.
- AI as a real opportunity: for automation, budget analysis, improved interoperability and increased transparency (OECD, 2023; European Commission, 2024).

At its core, this report argues that digital transformation at the local level is no longer just a technical issue, but a political and cultural one which requires changes in governance practices, cooperation between institutions, and involvement of young people in developing public services.

Introduction

Digital transformation is no longer just one of the options; it has proven to be essential for the age we live in. As a process driven by increasingly rapid use of technology, it gained particular importance and momentum during the Covid-19 period, when the need for digitizing processes became evident as a preventive measure against the spread of the pandemic. Although it began much earlier – even as a way to increase work efficiency – the urgency caused by the Covid-19 pandemic gave the digitalization and its importance an additional boost.

Digital transformation and the use of artificial intelligence (AI) are marking one of the greatest structural shifts in the modern history of human society. What once used to be a debate about technology has now become a practical reality affecting every aspect of life – from the way governments deliver public services, to how businesses operate, and how citizens interact with the world. The strategic use of AI and automation is surpassing the traditional notion of "modernization", shaping a new development model built on efficiency, anticipation of needs, and data-driven decision-making. Countries that embraced this process early – such as Estonia, Denmark, and Portugal – have demonstrated that digitalization is not merely a matter of technology, but a cultural and institutional transformation that enhances transparency, reduces costs, and strengthens the relationship between the citizen and the government.

In this context, Kosovo faces both a challenge and an opportunity. While many European countries are implementing advanced digital governance systems and integrating artificial intelligence into sectors such as education, healthcare, or public administration, Kosovo is taking its first steps toward a sustainable digital transformation. Investments in technological infrastructure, development of platforms such as e-Kosova, and efforts to integrate AI into public services are positive signals, but the process is still in its early stages of development. The lack of coordinated strategies, shortcomings in digital education (especially among state officials), and limited institutional capacities are factors that need to be addressed to avoid falling behind in the regional and European race.

Nevertheless, the potential is great. Kosovo has a young, dynamic and technology-savvy population that can become an advantage if directed toward innovation and development of digital solutions. The use of artificial intelligence can improve administrative processes, increase efficiency and create new jobs in the knowledge-based economy. In this context, digital transformation should not be seen as a goal, but as a tool for building a more transparent, fairer, and more competitive state in the region.

Kosovo faces both a **challenge and an opportunity.** While many European countries are implementing advanced digital governance systems and **integrating artificial intelligence** into sectors such as education, healthcare, or public administration, **Kosovo is taking its first steps toward a sustainable digital transformation.**

One of the most important impacts of digital transformation relates to the empowerment of citizens and the way they participate in democratic processes. In a period marked by extensive use of technology, it is necessary for the communication between citizens and state institutions to adapt accordingly.

Technology – including public participation platforms, online consultations, and open government tools – can bring citizens closer to institutions than ever before.

Platforms such as e-Kosova, the publication of open data, and the use of artificial intelligence to monitor public expenditures are steps that can significantly strengthen this connection. When citizens have easy access to information, opportunities to provide input, and to follow decision-making in real time, a new culture of participation emerges – where technology does not replace democracy, but reinforces it by making it more transparent, fair, and closer to people.

At its core, this report seeks to analyze the current state of digital transformation across Kosovo municipalities, evaluate the role of young people in advancing local public innovation, and explore how AI can be used for open and efficient governance.

Digital Transformation: Concept, Importance and Necessity

1.1. The meaning and dimensions of digital transformation

Digital transformation is more than technological modernization; it is a structural, cultural, and institutional change process that shapes how governments interact with citizens and deliver public services. Digital transformation in the public sector can also be considered as a "strategic adoption of technology to increase efficiency, transparency and citizen participation based on data-driven approaches."

In practice, digital transformation includes:

- digitizing processes (shifting from physical to electronic formats),
- system integration (inter-institutional interoperability),
- using data for decision-making,
- citizen engagement through digital platforms,
- ensuring privacy and protecting personal data.

If digitalization is a technical process, digital transformation is a political and organizational one, because it requires changing work culture and bureaucratic mindset (Gasco-Hernández, 2024). In modern administrations, this involves combining technology with institutional leadership, public education, and legal regulation.

At the local level, this transformation is particularly complex: municipalities have more limited capacities, yet they interact directly with citizens. Therefore, local digitalization often serves as a barometer of public trust and overall governance performance.

1.2. Why it is important for local governance and transparency

In the context of Kosovo, digital transformation of municipalities is a crucial factor for increasing efficiency, transparency and public accountability. According to the World Bank (2024), the use of digital technologies in local public finances reduces administrative costs and improves the accuracy of financial reporting. Similarly, Open Data Kosovo (2022) shows that publishing municipal data in open formats increases citizen engagement and trust in local institutions.

Key benefits include:

- Efficiency and time saving: citizens can receive services without physical presence;
- Transparency and accountability: decisions, contracts and budgets become publicly available in real time;
- Citizen participation: platforms for public consultations and applications for reporting problems strengthen local democracy;
- Service innovation: analytical tools help municipalities tailor policies to local needs.

For Kosovo, where the public sector is often challenged by lack of public trust, digitalization can serve as a tool to build integrity and strengthen the relationship between citizens and institutions. However, this requires an integrated approach between central and local levels.

1.3. Guiding principles of digital governance

For digital transformation to achieve the best possible results and remain aligned with democratic values, it must be built upon fundamental principles of good governance, transparency and data protection, as outlined in EU documents and other credible international instruments:

- User-centric: services should be designed around the users' needs, not the structure of administration (European Commission, 2021).

- "Digital by default": public services should be provided digitally as a primary option, while still offering alternatives for groups that do not have digital access.
- Interoperability and open standards: municipal systems must be able to communicate with one another and with central agencies through shared standards.
- Security and privacy: protecting personal data is essential for maintaining public trust.
- Algorithmic transparency and ethics: any use of advanced technologies must be understandable and traceable for citizens (European Commission, 2024).
- Inclusiveness: digitalization should not deepen existing inequalities, but reduce them through universal access (OECD, 2023).

If these principles are applied consistently, digitalization becomes an instrument of democracy, not only of administrative efficiency. This means that services are not simply modernized technologically, but restructured based on the real needs of citizens, reducing bureaucratic burden and increasing transparency. A user-centric approach, interoperability, data protection and algorithmic transparency create a system in which the citizen is treated as an equal party, not as a subject who must adapt to the system. The more harmonized these principles are, the smaller the risk that digital innovations will produce exclusion, inequality, or unnecessary control. In practice, this would mean an administration that makes decisions faster, more fairly, and more openly – placing the citizen at the center of the process.

1.4. European framework: Digital Decade 2030 and the Balkan Digital Agenda

In December 2022, the European Parliament and the Council of the European Union adopted the decision to establish the Digital Decade Policy Program 2023. Through this and other strategic documents, the European Union, in recent years, has positioned digitalization as a new pillar of socio-economic development for the decade 2020–2030. The Digital Decade 2030, adopted by the European Commission, sets four strategic objectives:

- digital skills for 80% of the population;
- secure infrastructure and 5G connectivity for everyone;
- full digitalization of public institutions;
- businesses to adopt advanced technologies such as AI and cloud (European Commission, 2021).

Kosovo, although not a member of the EU, is included in the Western Balkans Digital Agenda, supported by the EU and RCC (2021). This agenda aims to harmonize national policies with European standards, develop digital capacities, and build a common regional digital market.

In this regards, various reports confirm that Kosovo has advanced in developing national digital platforms (such as *e-Kosova*), but there are delays remaining at the local level, particularly in standardizing data formats and building capacities for cybersecurity.

1.5. European examples of good practices

To understand the path that should be followed, it is useful to examine models that have achieved measurable results.

Estonia represents the most successful global model of a state that has managed to build digital governance as an essential part of its national identity. The X-Road platform, which is the backbone of the entire digital system, enables the interconnection of more than 900 public and private institutions, allowing automatic and secure real time data exchange. This infrastructure has eliminated traditional bureaucracy, increased transparency, and significantly reduced corruption, as every interaction

between citizens and the state leaves a verifiable electronic trace. For example, births are registered automatically in the system without requiring any physical presence, while medical prescription, taxes, and property registration are all completed online through each citizen's personal digital ID.

Another key element of Estonia's success is the concept of "digital citizen" (e-Residency), which enables non-residents to establish businesses and manage transactions in the EU without being physically in Estonian territory. By 2024, more than 100,000 people from 170 countries had applied for e-Resident status, contributing to the economy through taxes and digital innovation (Estonian e-Governance Academy, 2024). This program has expanded Estonia's influence beyond its borders, positioning it as a global hub for start-ups and technology-driven enterprises.

Moreover, the Estonian government has invested in digital education and cybersecurity as foundations of sustainable transformation. From primary school onward, students learn programming and safe usage of internet, while the government operates one of the most advanced cybersecurity systems in Europe. After the 2007 cyberattacks, Estonia established the NATO Cyber Defense Centre of Excellence in Tallinn, becoming a leader in building digital resilience. This comprehensive approach – combining technological infrastructure, a solid legal framework, education, and strong security – has enabled Estonia to be regarded today as the country with the most advanced digital administration in the world, with 99% of government services accessible online.

Portugal has developed one of the most comprehensive administrative modernization initiatives in Europe through the SIMPLEX program, which began in 2006 and has been continuously updated (SIMPLEX+, SIMPLEX 2021, etc.). This program aims to simplify bureaucratic processes, reduce administrative costs, and improve the experience of citizens and businesses in their interactions with the public administration. Through the digitalization of services and the elimination of unnecessary documentation, SIMPLEX has reduced over 200 administrative procedures and created a new culture of public-sector efficiency. A concrete example is the "Nascer Cidadão" (Born a Citizen) project, which allows a newborn to be registered directly at the maternity ward immediately after birth, without the need for later visits to civil registry offices.

Another meaningful example is "Empresa na Hora" (Company in One Hour), a platform that enables the registration of a company within just a few minutes, compared to the several weeks it previously required. This measure has had a direct impact on fostering entrepreneurship, especially for start-ups and small and medium-sized businesses. Moreover, the Portuguese government has integrated the ePortugal platform, which functions as a digital "one-stop-shop" for all public services – from applications for identity documents to filing tax returns and construction permits. This has helped citizens save time, while allowing the administration to focus on delivering value-added services.

The results are clear: according to the European Commission, the SIMPLEX program has increased citizen satisfaction, enhanced transparency and helped strengthen trust in public institutions. Portugal is among the highest-rated countries in European digital governance indexes, confirming that digitalization is not only about technology, but also about a cultural shift in how the state communicates and interacts with citizens. Through SIMPLEX, Portugal has shown that administrative simplification is just as important as technological innovation itself - a model that many EU countries have begun to follow.

Denmark has implemented the principle of "digital by default": all official communication with the state is carried out electronically through the central portal **borger.dk**, which serves as a single access point for public services, personal documents, tax procedures

Estonia represents the most **successful** global model of a state that has managed to build digital governance as an essential part of its national identity. The X-Road platform, which is the backbone of the entire digital system, enables the interconnection of more than **900 public and private** institutions, allowing automatic and secure real time data exchange.

and communication with both local and central administration. This mandatory approach for all citizens and businesses has created an administration that operates almost entirely online, without physical documents and without unnecessary procedures, making Denmark one of the most digitalized countries in the world.

According to the OECD (2023), this standard has significantly reduced the state's operational costs, shortened request processing time, and saved hundreds of millions of euros per year by eliminating physical communication and manual document handling. The integration of platforms such as NemID and now MitID has created a secure identification system that ensures strong verification for every digital interaction – from electronic signatures to accessing personal data.

On this basis, Denmark has built an administrative culture where efficiency is paired with transparency: citizens have immediate access to services, while the state can more easily monitor processes and respond more quickly to requests. Beyond financial savings, the Danish model has shown that the complete digitalization of communication with the administration is not merely a technological matter, but a profound transformation of the way the state conceives its relationship with citizens – making public processes clearer, more direct, and more accessible.

1.6. Success factors and typical obstacles

At the international level, research by the OECD (2023) and the World Bank (2024) shows that digital transformation succeeds only when countries establish a clear political vision, create coordinated institutions with defined mandates, and invest in modern infrastructure built with interoperable standards. Education and training of civil servants play a decisive role, as does the involvement of citizens in designing services – because a digital system cannot be effective if it does not reflect the realities of its users.

However, these analyses highlight that progress is often hindered by the lack of sustainable financing, dependence on short-term donor projects, and institutional fragmentation that creates separate "silos" of data. Internal resistance within the administration to change, combined with limited capacities in data security and privacy, further reduces the impact of any digital initiative.

In Kosovo, according to assessments by MLGA (2023) and UNDP Kosovo (2025), most of these obstacles are present and frequently re-emerge at every level of the administration. Many digital initiatives remain limited to donor-supported pilot projects that operate temporarily and usually are not integrated into the institutional system once the project ends.

Kosovo has one of the **youngest populations** in Europe – **around 50% of citizens** are **under the age of 30** (Kosovo Agency of Statistics, 2024). This demographic reality creates a unique advantage: young people possess advanced technological skills, creativity, and the adaptability needed to drive digital transformation.

This creates a reality in which digital services are fragmented, operating with different standards, platforms that do not communicate with one another, and technical capacities that remain dependent on the next cycle of external funding.

In practical terms, the lack of sustainable budgets for maintaining and developing digital platforms makes it impossible for municipalities to upgrade services according to citizens' real needs. Institutional fragmentation continues to hinder interoperability, while a culture of resistance within the administration slows every step towards the digitalization of internal processes. Cybersecurity capacities – especially at the local level – remain minimal, increasing operational risk and limiting citizens' trust in online services.

Although Kosovo has developed a good central platform such as e-Kosova, which is regularly updated with new services that enhance transparency and shorten administrative procedures, the internal institutional chain required to ensure unified functioning from ministries to municipalities appears to be missing. Without common standards, strategic coordination, and serious investment in people and processes, digitalization will not achieve its intended goal – transforming the way services are delivered to citizens.

1.7. The role of youth in the digital transformation process

Kosovo has one of the youngest populations in Europe – around 50% of citizens are under the age of 30 (Kosovo Agency of Statistics, 2024). This demographic reality creates a unique advantage: young people possess advanced technological skills, creativity, and the adaptability needed to drive digital transformation.

Programs implemented by UNICEF Kosovo (2021) and UNDP Kosovo (2022) have shown that when young people are involved in the co-creation of digital applications for municipalities – as demonstrated in the *Techstitution* and *Digital Skills for Local Governance* projects – the results are tangible: increased transparency, improved services, and strengthened professional skills.

In many municipalities, young people have directly contributed to the development of online complaint portals, applications for monitoring municipal budgets, and "open data" initiatives that make public information more accessible and usable. This engagement not only modernizes services but also strengthens social capital and builds trust between the younger generation and institutions, because young people are not merely passive consumers of services, but co-creators of them.

At the strategic level, integrating young people into digital transformation requires systematically involving them in municipal innovation policies, ensuring access to sustainable training programs and professional internships in public-sector IT, and supporting them through the establishment of Digital Youth Innovation Labs in every region. These labs, supported by MLGA and international partners, would transform the energy and creativity of youth into concrete institutional capacities, linking digital transformation more closely with the needs and vision of the new generation.

1.8. Summary

Digital transformation is a political and social process, not merely a technological one. It requires a unified approach between the central and local levels, investment in people, and greater public trust built through transparency. Kosovo has taken important steps on this path through central platforms and municipal pilot projects, but a national strategic framework to guide the process in a coordinated and coherent manner is still lacking. The role of young people is irreplaceable: they are the natural drivers of digital change, and their systematic involvement will help ensure that public services are not only digital but truly aligned with the needs of 21st-century citizens.

Without a clear national framework, digitalization risks developing unevenly, with some sectors and municipalities advancing while others fall behind. Central platforms may function well from a technical standpoint, but without unified standards, adequate financial resources, and trained teams at the local level, digital services cannot become a true convenience for citizens Likewise, without strong rules and robust capacities for cybersecurity and data protection, any technical problem or information leak directly undermines public trust and makes adoption of online services far more difficult.

A serious approach to digital transformation in Kosovo would need to clearly connect the political vision at the central level with concrete capacities at the local level and with the active role of young people. This would mean long-term planning, sustainable budgets, genuine coordination among institutions, and the involvement of citizens in designing services. Only when these elements work together can digital public services be perceived by citizens as tools that save time, reduce administrative stress, and increase institutional accountability – rather than as another form of bureaucracy dressed in technology.

Use of technology at the local level in Kosovo

Gjeneruar nga IA

In practice, however, the functioning of local administration is still dominated by **traditional bureaucratic structure**s, with a high degree of interdependence on ministries for resources and legal oversight. This directly affects the ability of municipalities to implement digital projects, as many **do not have specialized ICT units** or trained personnel for data management (UNDP Kosovo, 2025).

2.1. Functioning of Local Administration in Kosovo

The system of local governance in Kosovo is built on the principle of local self-government as defined by Law No. 03/L-040, which guarantees organizational, financial and administrative autonomy for the country's 38 municipalities. Municipalities hold competencies in key areas such as primary and secondary education, primary health care, environmental protection, spatial planning and local economic development (MLGA, 2023).

In practice, however, the functioning of local administration is still dominated by traditional bureaucratic structures, with a high degree of interdependence on ministries for resources and legal oversight. This directly affects the ability of municipalities to implement digital projects, as many do not have specialized ICT units or trained personnel for data management (UNDP Kosovo, 2025).

Digitalization at the municipal level in Kosovo is progressing at an uneven pace and often without a unified strategic direction. Research shows that some larger municipalities have made notable advances in creating electronic services – such as online applications, digital payments or field-reporting tools – largely due to the support of internationally funded projects (D4D, 2025). However, many smaller municipalities continue to lag behind because of limited technical capacities, insufficiently trained staff, and lack internal funds for the developing and maintaining digital systems.

At the central level, structural problems are equally evident. Recent analyses indicate that existing systems often do not communicate with each other, that persistent technical deficiencies remain unresolved, and that investments in infrastructure and training are insufficient to support a sustainable digital transformation (FOL, 2024). Likewise, the low level of citizen uptake of online services shows that the challenge is not only technical, but also cultural and organizational.

When these obstacles are combined with the fact that most municipalities do not allocate regular budgets for development and maintenance, it becomes clear that digitalization remains largely dependent on temporary donor-funded projects. This results in a fragmented and unstable process that is vulnerable to interruption once funding ends, preventing the development of a sustainable and functional architecture for digital public services.

2.2. Technological infrastructure and investments

Technological infrastructure is a prerequisite for any digital process. According to the Regulatory Authority of Electronic and Postal

Communications (ARKEP, 2024), broadband network coverage in Kosovo has reached over 97% at the national level, but quality and speed vary significantly between urban and rural municipalities. Larger municipalities, such as Prishtina, Peja, Prizren and Ferizaj, have access to dedicated servers and cloud infrastructure, while smaller municipalities often rely on basic solutions without backups or adequate data security (UNDP Kosovo, 2025).

In many cases, municipal systems operate in isolation ("stand-alone"), without communication with central databases, which hampers data analysis and reporting. The OECD (2023) highlights that the lack of interoperability is one of the most common structural barriers in administrations undergoing transition.

In Kosovo, this lack of data exchange between municipalities and ministries creates duplication of information and increases the potential for administrative errors. In terms of investment, Kosovo's municipalities allocate far less to ICT services than the average EU municipality (as a percentage of the municipal budget). As a result, municipalities often focus on covering basic needs (hardware, maintenance), rather than digital innovation or staff training.

2.3. Existing key digital services

The national e-Kosova platform (launched in 2021) offers over 100 online services at the central level (Government of Kosovo, 2024). However, a considerable portion of municipal services remains non-digitalized, even though the process is ongoing and producing concrete results – albeit at slower pace compared to global developments.

Assessments show that not all municipalities have functional portals that allow two-way interaction (e.g. application submission, status tracking, online payment). For many years, municipalities lacked basic functional websites, and even now, a significant number still do not update their information in real time.

2.4. Transparency and access to information

Transparency is one of the areas where digitalization can have the most direct impact. The Law on Access to Public Documents (No. 06/L-081) requires the proactive publication of documents such as budgets, contracts and municipal decisions. However, various organizations report that its implementation remains partial. Only a small number of municipalities regularly publish key documents on their websites, and in many cases, these documents are uploaded in PDF formats that are not machine-readable for analysis.

Positive exceptions include municipalities that collaborate with local NGOs on open-data publication. These initiatives have increased citizen interest and strengthened accountability monitoring, but they remain limited in scale.

More broadly, digital transparency requires not only technology, but also institutional culture of openness. For this, senior municipal officials must be willing to work transparently and provide real-time reporting to citizens. This would increase active participation in decision-making and promote stronger citizen engagement in more efficient governance.

2.5. Cybersecurity and data protection

The increased use of technology in public administration is accompanied by new risks to information security. The growing use of technology in public administration has exposed institutions to an increasingly broad spectrum of cyber threats. Security analyses indicate that public institutions in Kosovo regularly face attacks such as phishing, malware, ransomware, and attempts to compromise government systems (KCSS, 2024). Moreover, incidents

targeting critical infrastructure and various institutional platforms – including those at the local level – are on the rise, driven by technical vulnerabilities and limited response capacities (DCAF, 2022). These challenges underscore the need for greater investment in cybersecurity, the standardization of procedures, and stronger preparation of administrative staff to manage incidents and protect public data.

Many municipalities do not have specialized cybersecurity personnel.

This situation requires an immediate and more structured approach to cybersecurity – one that strengthens institutional capacities for incident management, establishes functional response mechanisms at the regional level, and ensure genuine integration of municipalities into the national digital protection architecture. Although Kosovo has adopted the Cybersecurity Strategy 2023–2027, its focus remains primarily on central institutions, leaving significant gaps at the local level.

Without extending these mechanisms to municipalities – which manage a large number of public services and administrative processes – digitalization cannot be sustainable or reliable. Strengthening professional capacities, standardizing response procedures, and ensuring a coordinated action between the central and local levels are essential for building a digital infrastructure that is resilient to risks and capable of generating trust among citizens.

2.6. Human capacities and organizational culture

One of the most critical factors in digital transformation is the human ability to embrace change. In most municipalities, departments of technology consist of only 1–2 officials who focus on maintenance rather than innovation. In many cases, digital projects depend on a single individual, creating institutional dependency and significant risk to continuity.

A large portion of local officials have not received formal training in the use of digital platforms, and many lack clear guidelines on data management.

In numerous municipalities, fear of technical errors or legal responsibility leads officials to avoid digital initiatives. This underlines the need for transformational leadership that motivates staff and establishes new work cultures based on innovation, transparency and collaboration.

2.7. Youth participation and digital skills

Kosovo has remarkable human potential embodied in its youth. According to the Kosovo Agency of Statistics (2024), around 50% of the population is under the age of 30. This demographic represents a significant asset for local digital transformation, if engaged in a strategic manner.

Programs such as *Techstitution* (UNICEF, 2021) and *Digital Skills for Local Governance* (UNDP, 2022) have demonstrated that young people can play a meaningful role in modernizing public administration.

For instance, within the *Techstitution initiative*, students from the University of Prishtina developed applications that supported municipalities in enhancing budget transparency and managing citizen complaints. In the *Digital Skills* project, young people were trained to build prototypes of online services and assist municipalities in publishing data.

However, these initiatives are concentrated in a few urban municipalities, and there is no national mechanism to institutionalize such practices.

One potential solution is the establishment of Digital Youth Labs – collaborative spaces involving municipalities, universities and NGOs

The key challenge of digital transformation at the local level in Kosovo is the **absence of a common vision** that clearly links the central level with the municipal one. Because there is no unified strategy guiding the process, municipalities often develop isolated and uncoordinated initiatives.

for developing public applications with active youth participation (RCC, 2021).

2.8. Main structural and institutional barriers

The key challenge of digital transformation at the local level in Kosovo is the absence of a common vision that clearly links the central level with the municipal one. Because there is no unified strategy guiding the process, municipalities often develop isolated and uncoordinated initiatives. This fragmentation is also evident in the technical dimension: each municipality uses different platforms, without shared interoperability standards, making it impossible to build an integrated national digital infrastructure. In many cases, digital projects are implemented through donor support and remain temporary pilots, without being transformed into sustainable policies or institutionalized services.

Moreover, municipalities operate with limited budgets and face difficulties in securing regular funding for the maintenance and upgrading of the systems they have put into use. Human capacities are also constrained: local administrations often lack the necessary training to manage new technologies, creating dependence on external experts or on a very small number of technical officers within the municipalities. In this context, the lack of coordination between key institutions at the central and local levels further undermines the sustainability of digital transformation, while the absence of clear standards for open data and cybersecurity increases exposure to risks and administrative errors.

All these elements clearly show that digitalization process at the local level remains fragile and unstable, precisely because it is not grounded in a coherent legal, institutional and financial framework that would enable long-term development and reliable digital services for citizens.

The administration in Kosovo is in a clear phase of digital transition, where progress is visible but still uncoordinated and lacking a common national vision to guide it. Awareness of the need for modernization has grown significantly, yet the technical, human and financial capacities of municipalities remain limited, making digitalization more of an exception than a consolidated practice.

Faced with increasing pressure to deliver more efficient services, many municipalities are trying to adopt international models and practices. However, without unified standards, detailed central guidelines, and guarantees for long-term funding, their efforts remain fragmented and often unsustainable.

This capacity gap and lack of strategic direction create a highly uneven digital landscape across municipalities – some are making meaningful progress, while others remain at a very basic level of functionality. Nevertheless,

Kosovo has a clear advantage: the potential of its youth, who can become a driving force for a more modern, transparent and analytical local administration. If this potential is channeled into the public sector through dedicated training programs, professional placements and local innovation incubators, municipalities can build capacities that endure over time and accelerate reforms.

The remaining challenges – data standardization, cybersecurity, organizational culture, and vertical coordination between the central and local levels – cannot be addressed through isolated initiatives. They require an integrated approach, guided by a National Strategy for Local Digital Transformation (2026–2030), which would define common roles, standards and objectives for all municipalities. Only such a collective approach can transform digitalization from a series of sporadic projects into a sustainable, measurable and reliable process for citizens.

Artificial Intelligence for Enhancing Transparency at the Local Level

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In local government, **AI holds significant potential to transform the organization of work processes.** The automation of routine tasks – from logging requests, to managing documents and processing citizen submissions – **frees staff from mechanical duties** and allows them to focus on other tasks.

3.1. Understanding and importance of artificial intelligence in local government

Artificial intelligence (AI) is defined as the ability of computer systems to interpret data, learn from experience, and generate decisions or recommendations that support human decision-making. At its core, AI develops models that mimic how humans perceive, analyze, and respond to information, enabling the automation of complex processes and improving the quality of decisions (Russell & Norvig, 2021).

In governance, the use of AI goes far beyond basic task automation. Through predictive analytics, AI can identify trends, forecast service demand, and assist institutions in making data-driven decisions. Machine learning can optimize real-time service delivery, while natural language processing creates new opportunities for direct interaction with citizens. These technologies enable municipalities to process large volumes of budgetary, demographic, administrative, and urban data with a level of efficiency that traditional administration cannot achieve.

In local government, AI holds significant potential to transform the organization of work processes. The automation of routine tasks – from logging requests, to managing documents and processing citizen submissions – frees staff from mechanical duties and allows them to focus on other tasks. At the same time, the analytical capacities of AI enable municipalities to identify budget patterns, forecast expenditures, and plan investments more effectively, turning local management into a data-driven process.

The benefits also extend to relations with citizens. AI-powered virtual assistants can provide immediate information, clarify administrative procedures, and reduce reliance on physical service counters. This increases access to services, shortens waiting times, and makes local government more transparent and predictable. Likewise, through real-time performance monitoring – the number of requests, delays, bottlenecks, and staff workload – AI helps identify structural problems and enables continuous improvement of processes.

However, the use of AI requires caution. Without clear rules on data protection, algorithmic transparency standards, and oversight mechanisms, there is a risk that algorithms may produce unfair decisions, reinforce existing biases, or create opportunities for administrative misuse. For this reason, the implementation of AI must be supported by a strong legal, ethical and institutional foundation, including clear standards, security protocols and professional capacity-building within municipalities.

At its core, AI for local government represents an opportunity that can accelerate digital transformation and enhance efficiency – but always with accountability, transparency, and oversight. Only if built on robust legal, organizational, and technical structures can AI deliver reliable and sustainable results for local administration and citizens.

3.2. International trends and lessons for Kosovo

In 2024, the European Union adopted the "AI Act", the first comprehensive regulation governing the responsible use of artificial intelligence (European Commission, 2024). This act categorizes AI systems by risk level (high, medium, low) and requires public institutions to ensure transparency regarding the algorithms that influence decision-making.

In several European countries, the use of artificial intelligence at the local level has become a routine part of administrative operations. Finland and the Netherlands, for instance, use AI to analyze urban traffic, monitor the environment, and automatically process applications for social assistance – processes that previously required considerable time and substantial human effort. In cities such as Helsinki, chatbots have become the first point of contact for citizens, providing immediate and personalized guidance across a wide range of public services.

Estonia has gone even further with the KrattAI system, a virtual state assistant that connects citizens with public institutions through a single platform, making communication with the administration simpler, more accessible, and more efficient. This model is among the most advanced in Europe and illustrates the real potential of AI when built on a stable digital architecture.

The examples of these countries highlight three key lessons: First, transparent governance of AI is essential, which is why many of them maintain public registers of the algorithms used by the administration. Second, data standardization is a prerequisite for properly training AI models, avoiding errors and inaccurate decisions. Third, even the most advanced systems rely on human oversight to ensure that the technology functions fairly, impartially, and responsibly.

These practices clearly show that AI has transformative potential, but only if it is used based on principles of transparency, standardization, and public oversight.

For Kosovo, where the digital infrastructure is still being consolidated, these models can be adapted gradually – initially in municipalities with more advanced capacities and later in others.

The case of "Diella" in Albania

In early 2025, Albania became the center of international debate when it introduced "Diella" – an artificial intelligence created by the National Agency for Information Society (NAIS) and integrated into the central e-Albania platform. Initially, Diella appeared as a virtual assistant helping citizens navigate public services, obtain information on administrative procedures, and communicate with the administration in a simple and immediate way. Through its visual interface and natural voice, it was designed to bring citizens closer to the state and reduce the bureaucratic distance that has long characterized the country's public service.

But only a few months later, the Albanian government took this experiment even further by appointing Diella as "Minister of State for Artificial Intelligence" – a decision that attracted global media attention. This marked the first time in history that an intelligent system, generated by an algorithm, assumed an official position in a government cabinet.

Albanian Prime Minister Edi Rama presented this as "a step toward the future," an attempt to place artificial intelligence at the center of modern governance.

However, this action also raised profound legal, ethical, and philosophical dilemmas. While Mr. Rama's political opponents called Diella's appointment as "a political spectacle," technology and legal experts emphasized the risk of a allowing non-human entity to assume an institutional role without having moral or legal responsibility. Who is accountable for a decision made by an algorithm? How can it be ensured that the information Diella relies on is not manipulated or biased? And above all, can democracy function without human mediation? These questions gave Albania's case a much broader dimension than a simple technological experiment – turning it into a reflection on the limits and implications of digital governance.

Beyond the political debate, Diella marks an important moment in how technology is being introduced into public administration. It has the potential to serve as a model for how intelligent systems can be used to increase efficiency and transparency in service delivery. If implemented with clear rules, strong human oversight, and institutional ethics, a system like Diella can help citizens gain quicker access to information, avoid bureaucracy, and feel more involved in decision-making. But if used without control and transparency, it risks becoming a symbol of technological manipulation and the concentration of power in a few hands.

The case of Diella in Albania clearly reflects of the contradictions of the digital age: both inspiring and concerning. For countries like Kosovo, which are in the early stages of digital transformation, this case serves as a reminder that the digitalization of the state must be built on trust, transparency, and democratic oversight – otherwise innovation risks losing its fundamental purpose: to serve the human being.

3.3. Potential applications of AI in Kosovo's local administration

AI opens a wide range of practical opportunities for local governments, directly impacting service quality and the way municipalities manage their daily processes.

First, AI can be used to create virtual assistants that interact with citizens in real time. Municipal chatbots can respond to common questions – such as service hours, required documents, or application procedures – significantly reducing administrative workload and increasing citizen satisfaction by providing accurate and immediate information.

Equally important is AI's ability to analyze public documents. Through natural language processing, AI systems can review contracts, decisions, budget reports, or administrative documents and automatically extract relevant content, deadlines, performance indicators, or potential irregularities. Such structured analysis enhances transparency and facilitates faster and more efficient internal audits.

AI also offers significant potential in local financial management. By analyzing expenditures and identifying anomalies in transactions, payment delays or budget deviations, municipalities can improve accountability and conduct more accurate medium-term planning. This proactive approach transforms financial management from a reactive process into an early-warning system aimed at preventing errors and abuses.

In the area of citizen complaints, classification algorithms can be used to sort submissions by topic, urgency, or location. Such a system enables faster and better-prioritized municipal responses, creating a greater sense of inclusion and being heard among citizens.

Finally, AI can become a key tool for monitoring institutional performance at the municipal level. By analyzing the data that municipalities

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regularly report to the MLGA, AI systems can generate automatic real-time performance reports. This helps identify well-performing municipalities, those that are lagging behind, and the areas requiring technical intervention or political support, thereby guiding the governance process.

3.4. Ethics, transparency and the risks of AI

The use of artificial intelligence offers significant potential for improving public services, but it also comes with ethical risks that cannot be overlooked. European experience and guidance from international organizations show that algorithms can reproduce or even deepen existing inequalities, especially when trained on biased data. In such cases, automated decisions may lead to unfair treatment of certain groups of citizens, undermining equal access to services.

Another major challenge concerns privacy and the protection of personal data. Public administrations collect large amounts of information about citizens, and the use of AI increases the risk that this data may be processed insecurely or in violation of legal requirements. In the absence of strong controls and clear rules, data collection can lead to breaches of privacy and unauthorized use of information.

Equally important is the issue of transparency. Citizens often cannot know whether an administrative decision was influenced by an AI system, what data were used to generate that decision, and whether the algorithm contains inherent bias. This lack of clarity can undermine public trust and reduce administrative accountability. Similarly, the issue of responsibility arises when an algorithm makes an error – whether by rejecting a valid request, mishandling a document, or misclassifying a case – it becomes unclear who should be held accountable: the institution, the technology developer, or the algorithm itself.

For these reasons, the use of AI in Kosovo's local governance should be grounded in the principles of responsible artificial intelligence. This means that AI systems must be built on legality and ethics, remain transparent and traceable, always operate under human oversight, and guarantee full data security. Moreover, AI should aim for positive social impact and must not create new inequalities in access to public services.

In this context, establishing a National Ethical Code for the use of AI in governance would be an essential step. Such a document would define rules, standards, and institutional responsibilities, giving Kosovo a clear and reliable foundation for developing technology in a safe and equitable manner.

3.5. Legal framework and alignment with European standards

Kosovo currently does not have a specific law on artificial intelligence, leaving the country without a clear framework that defines the use, oversight and accountability of AI systems in the public sector. However, existing strategic documents – particularly the e-Government Strategy 2023-2027 – demonstrate a growing orientation toward the use of advanced technologies, including automation, data analytics, and digital services enabled by intelligent systems. The strategy views technology as a tool for public innovation and service modernization, even though artificial intelligence is not yet addressed as a distinct and specifically regulated field.

At the regional level, organizations monitoring digital developments in the Western Balkans emphasize the need for countries in the region to prepare for new European approaches, including progressive alignment with the principles of the EU Artificial Intelligence Act (EU AI Act). This alignment is essential, especially for countries seeking deeper integration with the EU market and standards, as it provides clarity on risk categories, transparency requirements for intelligent systems, and institutional responsibility in cases of algorithmic errors.

Regional reports also suggest that the Western Balkans could accelerate adoption of technology through policy sandboxes – controlled testing environments where public institutions can experiment with small-scale uses of AI under expert supervision, without compromising citizen security or privacy. These initiatives are highlighted as good international practices that allow gradual testing, institutional learning, and capacity building without exposing the public to unnecessary risks.

In this regard, responsible institutions in Kosovo – such as the Agency of Information Society and the mechanisms responsible for local governance – can play a key role in establishing a clear framework for the use of AI at the local level: minimum technical standards, data protection principles, guidelines for algorithmic transparency, and human oversight practices. Such a framework would help municipalities use AI in a safe, ethical and controlled manner, accelerating digital transformation without compromising citizens' rights.

3.6. Practical steps for integrating AI into Kosovo's municipalities

To ensure a sustainable and controlled approach to the use of artificial intelligence in local governance, Kosovo needs a clear and structured process of integrating AI into public administration. The first step is to assess data readiness. The MLGA, in cooperation with municipalities and expert stakeholders such as Open Data Kosovo, can conduct a comprehensive audit of the quality, standardization, and availability of local data – an essential foundation for any AI initiative. Only when municipalities know what data they have, in what format, and at what quality, can they begin developing intelligent applications that produce tangible results.

In the second phase, AI pilot projects should focus on use cases with quick impact and low risk. Virtual assistants for communication with citizens, automated budget analysis, and complaint classification are practical examples that can deliver tangible results within a short period. These solutions streamline administrative processes, increase efficiency and strengthen transparency, giving local governments the motivation and confidence to move forward.

The selection and procurement of AI technologies must be carried out with particular ethical care. Every public contract involving AI should require algorithmic transparency, documentation of training methods, and the possibility of independent ethical auditing. This ensures that the technology used by municipalities operates fairly, responsibly and free from bias.

Building institutional capacities remains an equally important pillar. "AI literacy" programs – aimed at developing municipal staff skills to understand, evaluate, and use AI – can be organized in partnership with organizations working on digital transformation. Such an approach not only professionalizes local administration but also activates young people who can contribute to the public sector.

Another strategic step is the creation of regional AI labs, which would function as centers of innovation and collaboration. In these labs, municipalities, universities and the private sector can develop new solutions, test AI applications and share practical knowledge on using technology in public services.

Finally, to ensure that digital transformation does not remain confined to only a few advanced municipalities, inter-municipal coordination is essential. The creation of a national network of digital municipalities would enable local governments to share experiences, exchange good practices and standardize technical approaches to the use of AI. Such a network would foster cohesion, reduce learning costs, and ensure that all municipalities – regardless of size or capacity – can benefit from the opportunities offered by artificial intelligence.

AI can become a catalyst for digital transformation at the local level in Kosovo if it is used carefully, ethically and with clear planning. Its integration requires investment in quality data, human capacities, legal safeguards and institutional cooperation.

If municipalities build public trust through algorithmic transparency and citizen engagement, AI can become a powerful tool for transparency, efficiency, and democratic innovation.

Conclusions and recommendations

The digital transformation of local governance in Kosovo requires a deeper, more structured and more coordinated approach than the one currently in place. The situation analysis shows that municipalities have made significant progress, but these steps have been fragmented, uncoordinated and often dependent on donor-funded projects. To turn digitalization into a sustainable, state-driven process, several clearly defined and strategic actions are needed.

1. The need for a common national vision

Digital transformation in Kosovo has advanced significantly at the central level, while the local level has often lagged behind in the process. The lack of a dedicated national strategy for local digital governance has led to different approaches from one municipality to another, resulting in unequal standards and inconsistent outcomes. For this reason, central institutions, working in close coordination, should develop a national strategy for digital transformation of local governance, aligned with the EU objectives set out in the Digital Decade 2030. Such a strategy would connect the central and local levels and position digitalization of municipalities as a priority of state policy.

2. Standardization

One of the biggest current obstacles is the fragmentation of systems and the absence of common standards. Data are recorded in different formats, platforms do not communicate with one another, and many processes remain isolated within individual municipalities. All municipalities should adopt shared standards for data formats, digital security, and administrative reporting. This would create the technical foundation for a modern and efficient administration.

3. Youth inclusion

Young people represent the country's greatest potential in the digitalization process. Local government should not view youth only as beneficiaries of services, but as co-creators of them. The establishment of Digital Youth Labs and internship programs within local administrations would allow young people to work directly on the design and implementation of digital systems, bringing creativity, energy and new perspectives into public processes. Their involvement not only strengthens municipal capacities but also fosters a new culture of innovation in the public sector.

4. Responsible use of AI

As interest in the use of artificial intelligence in public administration grows, it becomes essential that this process be guided by clear ethical and legal principles. The adoption of a National Ethical Code for the use of AI in the public sector would ensure transparency, traceability, and the protection of personal data. Municipalities, meanwhile, should create AI Registers for any use of such technologies, ensuring that citizens know where, how, and for what purposes intelligent systems are used. This would build public trust and minimize the risk of misuse.

5. Capacity development and institutional cooperation

Digital transformation cannot happen without well-prepared people. Institutions should establish a national training program for municipal officials, focused on digital security, data management, and the use of artificial intelligence. At the same time, the creation of a Network of Digital Municipalities would enable the exchange of good practices, foster horizontal coordination and cultivate a culture of cooperation among municipalities. Such a network would transform digitalization from an individual process within each municipality into a shared national project.

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