

THE NEED FOR DIGITAL SERVICES IN THE SECTOR OF URBANISM AND LAND MANAGEMENT IN THE MUNICIPALITY OF TETOVO

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Abstract

The modernisation in the urban planning and construction land management sector describes a new level of efficiency and transparency in public administration in the Municipality of Tetovo. This paper provides recommendations for improvement by proposing a model to utilise technology and innovation to enhance existing processes and address old challenges.

In the urban planning and construction land management sector, the process of managing the building request permits is assisted by the application forms. The construction land management unit relies on specialized databases and algorithms for data analysis and management, ensuring a sustainable data foundation for decision-making processes and urban planning efficiency analysis.

This digitization and modernization initiative ensures a model of transparent and accountable governance and aims to provide citizens and stakeholders with real-time access to processes and information related to urban planning and construction land management in Tetovo.

The administration of the municipality could be much more efficient because through such an application the time of data processing will be shortened, thus offering services that have an impact on the lives of citizens!

This hybrid model, local administration assisted by technology, transforms space into sustainable urban development and a more advanced for the citizens of Tetovo.

Keywords: Urban Planning, Digital Services, Building Land Management, Municipal Administration, Efficiency, Citizen Participation

1. Introduction

Having faced and reported challenges from the citizens in the field of urban planning and construction land management has raised a need for the utilization of digital services as an essential tool to advance municipalities' services towards more efficient and transparent governance.

Research and practice, over the years, have highlighted the weaknesses in urban land and development management in the developing world, including low land registration rates, lack of compliance with regulations, and insecure property rights for marginalized groups. [1]

In the context of the Municipality of Tetovo, it is imperative to use a significant transformative potential that technology can bring to the scale of urban planning and land management in the region. Traditional administrative processes hinder workflow, require excessive time, and often prove inefficient thus the integration of digital services will offer a new way to manage urban planning and construction land in Tetovo. This change will not only involve the use of technology to facilitate administrative processes, but it will align with the goals of sustainable urban development and economic growth, ensuring a better quality of life for Tetovo residents. Digital services include a wide range of technological solutions, such as online permit systems, interactive planning platforms and data analysis tools that provide opportunities to streamline planning processes more efficiently, enable public participation, and ensure responsible land management.

In the field of urban planning, urban land management strengthens government supervision, forms strong policy systems, improves institutions and market operation tools, supports effective land market operation, and forms a top-down governance system [2]. It should give full play to the enthusiasm of citizens to participate in public programs, promote openness and transparency of policies, systems, and projects, and form a bottom-up supervision system [3]. By adopting digital services, a transparent and accountable governance model promotes citizens and stakeholders with real-time access to information and processes related to urban planning and construction land management in the city of Tetovo. This aids in fulfilling local authorities' vision for sustainable urban development, laying the groundwork for a more advanced and inclusive future in the fields of technology and urbanism.

To achieve this objective, a specialized application and database need to be built, accompanied by advanced algorithms for data analysis and management. The application should offer an interactive and intuitive platform for all the users, citizens, local authorities and developers, to carry out urban planning processes and building permits, and enable them to access relevant information more transparently and quickly. The database, supported by algorithms, will ensure a sustainable data foundation to support decision-making processes and urban planning analysis.

Through this project, we aim to build a technologically advanced and more inclusive future for Tetovo in the fields of urban planning and construction land management.

2. Structure and Activities of the Urban Planning and Construction Land Management Sector in the Municipality of Tetovo

The sector for urban planning and construction land management implements laws, regulations, and other acts within the municipality's jurisdiction involving:

- Plans for urban development, issues related to building permits and permits for the use of objects of local significance,
- Processes and develop detailed urban plans,
- Works based on the law for illegally constructed objects,
- Proposes and leads the procedure for land expropriation.

The sector for urban planning and construction land management consists of 4 units:

- Urban Planning Unit
- Unit for the Implementation of Urban Plans
- Construction Land Management Unit
- Expropriation Unit

The Urban Planning Unit performs the following activities:

- Leads the procedures for approving urban plans,
- Prepares drafts and proposals for acts, expert-analytical, informative materials, and others from the field of urban planning and spatial planning,
- Prepare the annual report on the conditions and changes in the area, which is submitted to the competent ministry,
- Prepares a program for setting up temporary objects and urban facilities in the Tetovo municipality area,
- Prepares annual programs for preparing urban plans and programs for preparing urban planning documentation,
- Organizes expert discussions, presentations, and public surveys for the approval of urban plans,
- Issuance of certificates, verifications, and extracts from urban plans.

The Unit for the Implementation of Urban Plans performs the following activities:

- Implements approved urban plans,
- Directs the procedure for granting construction permits for category II objects,
- Receives, hears, and conducts on-site inspections at the request of parties in the procedures for certifying and approving projects, base projects, and other types of construction documentation,
- Issuance of building permits,
- Issuance of permits for the use of the object,
- Directs the procedure for granting construction permits in the area of infrastructure objects and their use.

The Construction Land Management Unit performs the following activities:

- Prepares a program for work in the field of construction land owned by the Republic of North Macedonia,
- Calculates compensation for the development of construction land and prepares contracts for the development of construction land,
- Propose the creation of zones in construction land,
- Maintains records of immovable property and property rights and interests of the Tetovo municipality in cooperation with the directorate for financial matters,
- In cooperation with other directorates within the municipal administration, prepare short-term and long-term plans for managing Tetovo municipality's immovable property,
- Proposes measures to protect immovable property and protect the property rights and interests of the Tetovo municipality,
- Prepares proposals for the Tetovo municipal council and contracts for lease, sale of municipal property,
- Prepares the procedure for the expropriation and lease of construction land by public tender and by direct agreement, which is guided by the commission for the implementation of public tender procedures,
- After completing the public tender procedure, contracts for the expropriation of construction land owned by the Republic of North Macedonia, leasing of long-term and short-term leased land following the above-mentioned legal provisions,
- Maintains a register of expropriation and leasing of long-term and short-term leased construction land owned by the Republic of North Macedonia and submits a copy of it to the competent minister every fourth month of the year.

3. Modernization of Processes in the Urban Planning and Construction Land Management Sector: Recommendations and Proposed Digitalization Model

Modernizing urban planning and construction land management significantly enhances efficiency and transparency in public administration. This presentation reviews recommendations and proposes a digitalization model to improve processes and address challenges in Tetovo's urban planning sector. Through detailed analysis, the model suggests specific steps to leverage technology and innovation for greater efficiency and transparency.

3.1 Algorithm Structure: Model Proposal:

Request Submission: Interested parties submit requests for certificates and extracts for their properties in Tetovo, either physically at designated offices or through an online application.

Acceptance and Registration of the Request: Archive department employees accept and register the request, ensuring complete documentation, including plot sketches and ownership documents, which are scanned and archived for easy access.

Processing in the Urbanism Sector: The registered request is sent to the urban planning and land management sector, where specialized employees check for any previous similar requests whether it has been processed or not to simplify the process and ensure that the documentation is complete.

Signing and Delivery: After processing, the officer responsible signs the document, and it is delivered to the appropriate office.

Archiving: The processed document is archived for secure and accessible future reference.

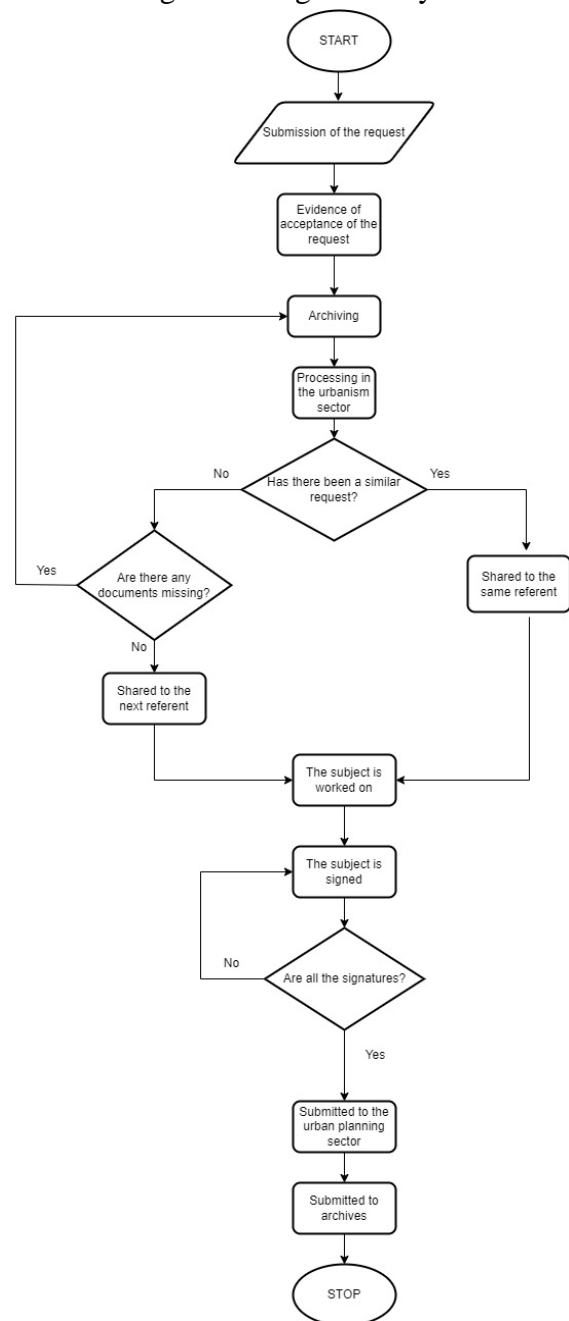


Figure 1. Algorithm Visualization for Urban Planning Digitalization in Tetovo Municipality

3.2. Application Structure: Model Explanation: The proposed application is a digital platform to improve and speed up requesting certificates and extracts. This diagram outlines the roles and actions of the key actors: the administrative worker, the administrator and the citizen.

Administrative Worker:

- Receives, processes, and enters requests into the system.
- Logs into the application and accesses their page.

- Identifies, verifies, and processes requests using the necessary procedures and documentation.
- Enters processed requests into the system to track progress and prepare for delivery.

Admin:

- Monitors administrative workers and ensures the process runs smoothly.
- Has an overview of worker activity, tracking request acceptance and completion.
- Verifies and checks completed requests for accuracy and efficiency.

Citizen:

- Submits requests for certificates and extracts and tracks their progress.
- Fill out and submit the request form using the application.
- Receives notifications for acceptance and tracks the request's progress, including any additional documentation needed.

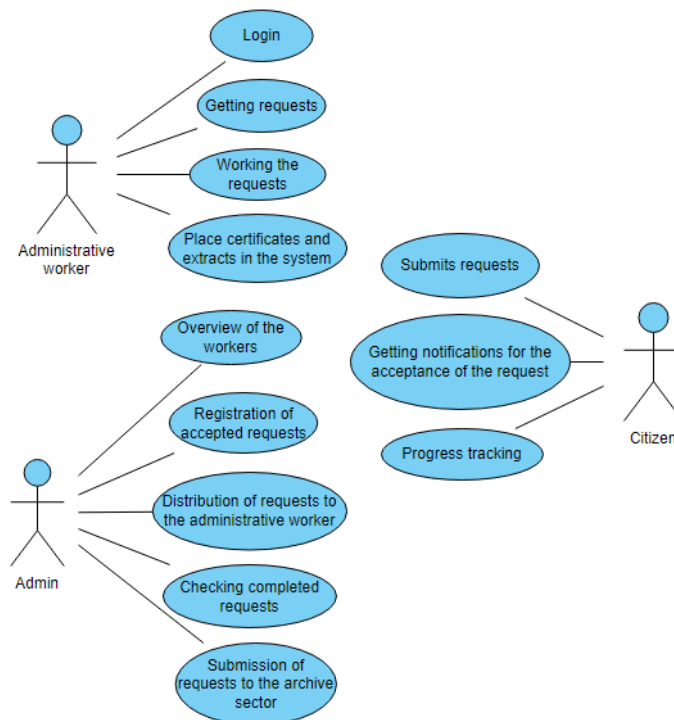


Figure 2. Use Case Diagram for Urban Planning Digitalization in Tetovo Municipality

This diagram shows the interactions between actors and the system within the proposed application, illustrating the benefits and improving efficiency and transparency in requesting certificates and extracts. Users fill out and submit requests via a simple form, upload necessary documents (e.g., plot sketches, ownership copies), and receive notifications about the request's acceptance and progress. When the certificates or extracts are ready, users are notified to collect them, with details on the location and office hours for ease and speed.

3.3. Database Schema: Overview and Structure: The database schema for the Urban Planning and Building Land Management application consists of six key tables:

Plot_su table, holds essential information about land plots which are crucial for managing land-related activities.

Requests_su table, manages the requests for certificates and extracts and ensures proper tracking,

Register_request_su table, logs the submission and registration of these requests, recording submission dates and registration details.

Once requests are processed, they are securely stored in the **archive** table, which maintains and processes requests and associated documents for future reference ensuring that important documents are easily accessible and securely archived.

Administrative_worker_su table, holds information about the administrative workers, including their ID, name, and role. These workers are responsible for handling and processing the requests submitted by citizens.

Supervisor_su table, monitors the work of administrative workers, ensuring that processes run smoothly, and requests are handled accurately and efficiently.

These tables form a comprehensive system that supports the efficient management and processing of urban planning and building land management requests, enhances transparency, and ensures the secure archival of important documents.

4. Conclusions

The necessity of digital services in the context of Urban Planning and Building Land Management in Tetovo Municipality illustrates the possibility that modern trends in technology can advance urbanization. In this paper, it has been shown how useful the emergence of digital services is, especially in responding to the demands of increased and rapid rates of urbanization within the area. The major transformations are shifting from the use of paper plans to using electronic ones, the use of Geographic Information System, introduction of online issuing of permits among others with an aim of enhancing efficacy, accountability and quality of service delivery concerns.

After analyzing and assessing the needs and perspectives of all people involved in the urban planning process, we have realized that it is essential to adjust the digital services to fit the sector to encourage the overall goal of sustainable urban development. Therefore, the city of Tetovo will advance towards its technological future with more active citizens. In this context,

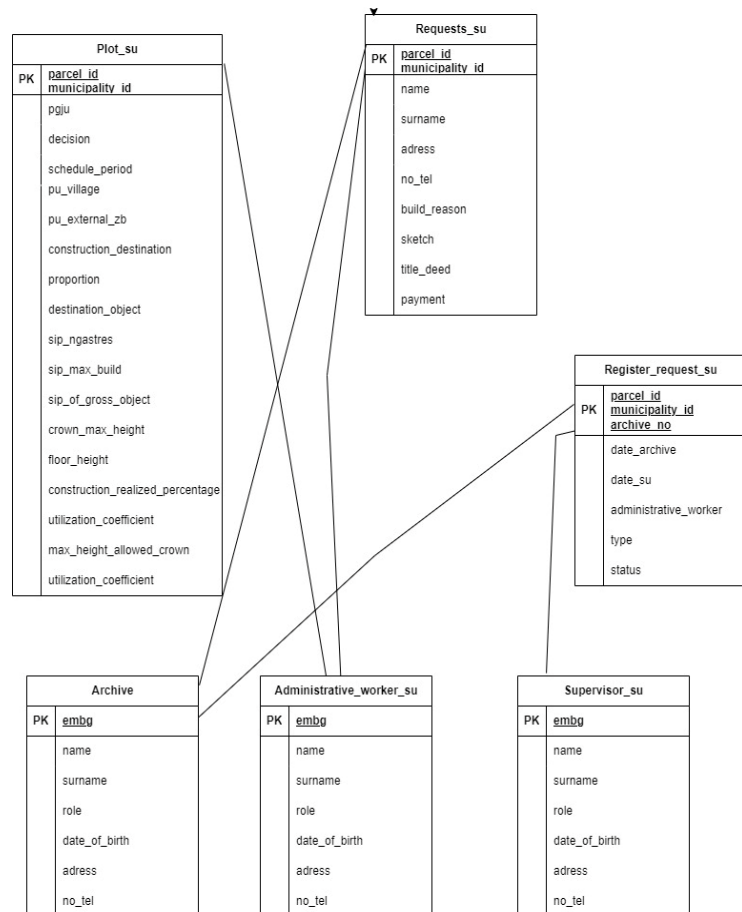


Figure 3. Database diagram for Urban Planning Digitalization in Tetovo Municipality

the proposed application in this study will facilitate the process of submitting documentation for building permits and expedite searches for parcels included in building plans serving as a key tool for achieving the set goals. This application will not only help increase process efficiency but also promote transparency and citizen participation in the decision-making processes of the municipality of Tetovo, making it a more prepared space for sustainable urban development in the future.

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