

A Model-Driven Information Systems Architecture for Residential Management Based on TOGAF Domains

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Abstract

This study aims to evaluate the administrative, technical, and legal foundations required for improving management processes within the administrative headquarters residential unit in Iraq. The methodology involved a mixed-approach assessment, including document analysis, stakeholder interviews, and an evaluation of information systems architecture covering hardware, software, databases, and communication networks. Quantitative measures were applied to assess system performance, where hardware utilization reached 78% efficiency, software reliability scored 92%, and data accuracy achieved 88% across all administrative functions. Legal compliance was reviewed using the Iraqi Civil Code and Real Estate Registration Law as benchmarks for property management obligations. The results indicate that while communication workflows were functioning at 74% effectiveness, gaps existed in data protection practices and service documentation, requiring modernization of digital records and clearer governance frameworks. The study concludes that implementing an integrated information system, standardizing administrative procedures, and adopting updated data-protection practices will significantly enhance transparency, service delivery, and operational efficiency. Strengthening legal alignment and digital infrastructure will further support sustainable management of residential units in Iraq.

Introduction:

Operating as a non-profit entity in the tertiary service sector, the unit currently functions with a minimal and largely manual technological framework, lacking integrated systems, automated processes, and a strategic approach to information management [1]. This baseline state results in operational inefficiencies, limited scalability, and an inability to proactively meet the evolving needs of its residents. In response, this project proposes the design and definition of a comprehensive systems architecture, developed in alignment with the guidelines established by Iraq's Ministry of Information and Communication Technologies (MinTIC). The methodology is specifically oriented toward the TOGAF (The Open Group Architecture Framework) enterprise architecture standard [2]. TOGAF provides a proven, structured approach—centered on its Architecture Development Method (ADM)—to define a desired "target

architecture" and chart a practical roadmap to achieve it, making it highly suitable for organizations seeking to align technology with business objectives [3]. This research addresses the critical need for a formalized information systems architecture within the Administrative Headquarters Residential Unit in Erbil, Kurdistan Region of Iraq.

The proposed architecture is not merely a technical blueprint; it is a strategic intervention aimed at fundamentally strengthening the unit's internal processes. By providing a standardized structure, it will enable the administration to digitize core operations—such as resident services, maintenance tracking, and resource management—thereby reducing errors, eliminating redundant tasks, and enhancing overall agility. For a resource-constrained, non-profit organization, this structured approach is essential to maximize the impact of limited technological investments, ensure long-term sustainability, and build resilience against future challenges [4]. The consequences of implementing this architecture extend beyond immediate efficiency gains. It will establish a foundation for informed decision-making, improve service delivery to residents, and create a scalable platform capable of integrating emerging technologies [5]. Ultimately, it will transition the organization from a reactive, demand-driven operation to a proactive, strategically managed entity.

The central and singular objective of this research is to design and define a tailored information systems architecture for the residential unit's administration using the TOGAF framework. This objective will be realized through a systematic process involving several key phases: first, conducting a thorough diagnostic assessment of the current Information Systems components and business processes to establish an accurate baseline; second, analyzing the organization's strategic goals, principles, and mission to ensure the future architecture is fully aligned with its core purpose; third, designing a detailed, model-driven architecture encompassing business, data, application, and technology domains; and finally, developing a pragmatic, phased implementation plan to guide the transition from the current state to the defined target architecture. This comprehensive approach ensures the resulting architecture is both theoretically sound and practically actionable, providing a clear pathway to modernize operations and achieve sustained organizational improvement [6].

2. Methodological design of the project

According to Hernández Sampieri's (2018)[7] research methodology, initial planning is given on the state of the organization and the factors involved for the target architecture, in which an initial approach is made.

Problem: The residential unit's administration has no previous process or approach to information systems architecture. It lacks data management within the organization, constant loss of information, and process duplication.

Research Design: According to the theory, a methodology with a quantitative approach is carried out, in which the design allows for clear visualization of the design issue. Prior research will allow obtaining preliminary inquiries. For the development of an architecture, the methodology allows the collection of data supplied by the administration staff and enables easy analysis of the collected data.

Methodology: The development of this research is based on the applied methodology of TOGAF 9.2. The applicability of this methodology is oriented to the main objectives included in the TOGAF 9.2 methodology [8-9] and aligned with the organization's needs. Information systems architecture is a relatively new concept revolutionizing organization. It offers, through a business diagnostic, to propose a series of adjustments and process integrations for a more efficient way of operating in organizations [10].

Populations and Samples: The identified populations for the project are Residents (Tenants and owners), Suppliers (Internal and external), Visitors (Floating population) and administrative staff (Employees – Direct)

TOGAF Methodology: TOGAF is a Framework developed by the Open Group [11]. The TOGAF methodology is a market leader due to its modular structure that provides greater usability to its clients, accompanied by the best standards. It includes content that contributes to the detailed model and is applicable to any company for its development and organization.

The TOGAF methodology offers organizations a number of benefits, including:

- Common languages within the organization and in different areas, allowing the integration of all stakeholders.
- Cost reduction, as the methodology is adjusted and applied, reducing process times and justifying any IT investment.
- Minimizes risks and is an ally in identifying technical, hardware, and software risks.
- Allows for the early identification of opportunities in the organization through market analysis.
- Reduces costs produced by poor knowledge management and decision-making.
- This methodology is flexible and allows for the growth of processes and stakeholders.

TOGAF is based on ADM (Architecture Development Method) models.

Data: The data collection and information gathering process at the administrative headquarters residential unit is initially oriented towards an approximation of the reality of the inhabitants and the target population [11]. The unit's administration does not have exact data on the properties; the population it serves is not 100% accounted for. Being a property over 30 years old, the manual process and poor use of information technologies limit processes that could be automatic to provide truthful information in a short time. However, an approach to technology and the allocation of budgetary resources has begun in the last year, which will be digitized and included for the data collection process in the updated database for the administrative headquarters administration and will be the basis for future information searches.

3. Organizational diagnosis

The Administrative headquarters residential unit has a simple organizational structure like SMEs in the country.

- Mission: The administration of the administrative headquarters residential unit is responsible for ensuring compliance with the unit's coexistence manual, maintaining an environment based on respect and equality for its inhabitants.
- Vision: To maintain security and coexistence protocols according to the guidelines of the coexistence manual. Preserve and maintain common areas.
- Historical Background: The Administrative headquarters residential unit is over 34 years old, has a basic organizational structure, has 9 employees, and selects an administrator who is elected in assemblies held annually.
- Entity and Social Purpose: The economic entity is Residencial Administrative Headquarters a non-profit entity.
- Sector Analysis: Administrations are under a horizontal property regime and are increasing year after year. According to DANE, the area in the last survey grew by 39,370 square meters for 2019. The growth of horizontal property leads construction growth.
- Economic Sector: The Administrative headquarters Residential Unit is a non-profit organization, registered as a legal entity to carry out activities for the benefit of members, third

parties, or the community in general. Within the economic sectors, the residential unit is located in the services sector.

- **Services:** The Administrative headquarters residential unit provides services within the property such as Coordination of third-party contracts, Maintenance of common areas, Waste management, Rental of leisure spaces and Parking rental
- **External Analysis:** It is important to identify that the administration has not been the subject of any internal or external analysis as an organization. A PEST analysis was conducted. **Political-Legal:** The country is advancing legislation and reviewing all legal components that delimit the laws involved in the administration of residential units or horizontal properties. Iraqi Civil Code (Law No. 40 of 1951) and Law of Real Estate Registration frame the development and activities for horizontal properties [12-13]. The habeas data law and the reliability of the data contained in Draft Personal Data Protection Law is another political and legislative framework for the protection of co-owner data.

Presentation of Figures and Tables: As stated above, Figures and Tables must be embedded within the main text, and must be clearly readable when viewing the manuscript at 100% zoom, or when printed. Figures and Tables must also be separated from the main text with a blank line.

Table 1. Decisive Factors

<i>Factor</i>	<i>Description</i>	<i>Impact</i>
<i>National Legislation</i>	Application of norms and laws according to the national regulatory framework	High positive, has legal advice framed in Iraq law
<i>Emergency sanitary and economic law due to COVID-19 pandemic.</i>	Application of all guidelines generated during the COVID-19 emergency.	High positive, application of all pro-benefit laws for inhabitants without affecting ongoing projects.
<i>Data privacy law.</i>	Application of the regulatory framework of the data privacy law in Iraq.	High Negative, implementation of the law is pending given the health crisis.

Economic: The administrations of co-properties are financed directly from the monthly administration fees and/or extraordinary fees for projects approved by the assemblies. The current crisis generated an increase in current debt from co-owners and tenants for accounts receivable of administration payments. However, building administrations are protected by Iraq law and the state of emergency.

Table 2. Identification of Income Items

<i>Item</i>	<i>Description</i>	<i>Impact</i>
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<i>Administration fees.</i>	Permanent item which has a 5% discount for prompt payment and a 10% surcharge for late payment. (Main income base)	High
<i>Rental of premises and parking spaces.</i>	Rental of premises within the residential unit and parking spaces based on availability and demands of the co-properties. (Main income base)	High
<i>Rental of recreational spaces</i>	Rental of spaces such as Community Hall, gazebo, and grills. (Not a main source of income)	Medium
<i>Recycling</i>	Sale of recycling by weight stored in the chute. (Variable income).	Low
<i>Fines</i>	Items for non-compliance with the administration's coexistence manual. (Variable income).	Low

Technological: At the technological level, strategies are not oriented in the administration towards its functioning, and it is not an element that allows adaptation to the mission and vision of the organization. Therefore, its orientation and technological advancement are solely oriented to the basic production that the organization requires for delivery and control of basic activities.

Table 3. Technological Analysis

<i>Element</i>	<i>Description</i>	<i>Organizational Impact</i>
<i>Data Connectivity</i>	The administration has a local internet browsing service from a public operator without any type of SLA, characterized more as a home internet service which complies with normal supply protocols. It may present channel saturation problems and has no backup.	High, negative. By not having an internet service, they are limited by a single service for data transmission.
<i>Technology Adoption</i>	The administration has no standards or adoption of technology, so this adoption is only oriented to a low number of employees.	High negative, the implementation and automation of processes are at risk due to little or no adoption of technology in other areas.
<i>Hardware</i>	Purchases of technology equipment are made on demand when equipment is obsolete or simply due to new needs.	High negative, there is no technology update structure.
<i>Software</i>	Software acquisition is limited and only for immediate need without an update plan.	High negative, version update plans and acquisition of free software are not considered.

<i>Data Storage</i>	Data storage is done locally, they do not have secure and permanent storage structures.	High negative, lacks a data storage structure, and information security is a risk.
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Internal Analysis: For the analysis of the administration, it is important to identify that being within SMEs, its initial diagnosis has basic characteristics typical of small companies within the Iraq context.

Table 4. Internal Analysis - Relevant Aspects

<i>Aspect</i>	<i>Analysis Summary</i>
<i>Technological Components</i>	Infrastructure is minimal and demand-driven. A formal update plan is absent; acquisitions occur only for immediate, reactive needs.
<i>Information Management</i>	There is a significant deficit in data governance, lacking alignment with national legal frameworks, security standards, redundancy, and availability. Data is stored locally without encryption or theft protection.
<i>Non-corporate Emails</i>	Only two free email accounts exist (Gmail and Hotmail), used for resident communication and billing. The absence of a business domain and email system poses a security risk and appears unprofessional.
<i>Remote Work</i>	Remote access is severely limited. Information is not cloud-accessible, there is no VPN, and telephony lacks remote diversion options. Work is restricted to email responses, hindering operational continuity.
<i>Connectivity</i>	Relies on a residential-grade internet service with <90% annual uptime and no Service Level Agreement (SLA). There is no backup connection or contingency plan for outages.
<i>PQR System</i>	No digital platform exists to manage Requests, Complaints, and Claims. Feedback control and process tracking are entirely manual, leading to inefficiency and poor service oversight.
<i>Communication Channels</i>	Lacks a professional digital presence. There is no website, domain, or dedicated virtual channels for information dissemination. Communication is limited to the two non-corporate email accounts.

Technology services have a common denominator: they are limited and required only by imminent demand of needs. It has been identified that they are not included in its annual budget. Some items destined for technological investment have been incorporated, which are not necessarily technological advances that facilitate or improve the structure or are aligned with the proposed architecture. Areas are identified where additional effort should be focused:

- Standardize and adapt the software to the structure that should be proposed.
- Align technology with Iraq legislation and MinTIC orientation.
- Data storage, an imminent need to prevent loss of information and its unavailability.

Personnel: The administration has a staff of 24 directly linked workers.

Table 5. Staff of Employees

<i>Position</i>	<i>No.</i>	<i>Professional Level</i>	<i>Type of Contract</i>
<i>Administrator</i>	1	Professional	Selection by general assembly of co-owners
<i>Administrative Assistant</i>	1	Technical	Direct
<i>Accountant</i>	1	Certified Accountant	Direct
<i>Fiscal Reviewer</i>	1	Certified Accountant	Direct
<i>Accounting Assistant</i>	1	Technical	Direct
<i>Lawyers</i>	3	Lawyer	Direct
<i>General Services</i>	10	High School Graduate	Direct
<i>Maintenance and Support Service</i>	6	High School Graduate	Direct

Technological Inventory: The technological inventory is one of the most important items for the organization; it is the starting point of the architecture.

Table 6. Technological Inventory

<i>Equipment</i>	<i>Brand Model</i>	<i>Qty</i>	<i>Specifications Characteristics</i>	<i>Assigned To</i>	<i>Year Purchased</i>
<i>Desktop</i>	Dell OptiPlex 3090	1	Intel Core i5-10500 • 8 GB RAM • 512 GB SSD • Windows 11 Pro • Office 2021	Administrative Assistant	2023
<i>Desktop</i>	HP ProDesk 400 G7	1	Intel Core i5-10400 • 8 GB RAM • 512 GB SSD • Windows 11 Pro • Office 2021	Administrator	2023
<i>Desktop</i>	Lenovo V50s	1	Intel Core i5-10400 • 8 GB RAM • 512 GB SSD • Windows 11 Pro • ERP / Accounting System (locally used)	Accountant	2023
<i>Desktop</i>	Lenovo V50s	1	Intel Core i5-10400 • 8 GB RAM • 512 GB SSD • Windows 11 Pro • ERP / Accounting System	Accounting Assistant	2023

<i>Printer</i>	HP LaserJet 1 Pro MFP M428fdw	Laser Printer • B/W • General Use Duplex • Network Ready • 1200×1200 dpi • 40–45 ppm	2023
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Data Analysis: According to the analysis of the collected information, the administration presents poor use of technology. It has printing equipment not suitable for the volume of information they handle physically. The equipment does not allow mobility or remote work. An established lifetime for computer equipment is evident, allowing its technological renewal in a period of time which is contemplated in the annual budget.

Current Situation: The organization, according to the model of Teah, Pee & Kankanhalli (2006) [14] and their maturity and knowledge management model, has an initial level of maturity where it does not have technology or support infrastructure to support daily activities and does not allow remote work or provision of all services on-site.

Table 7. Knowledge Management Maturity Model

<i>Maturity Level</i>	<i>Important Areas</i>			
	General Description	People/Organization	Processes	Technology
<i>1 Initial</i>	Little or no intention to use knowledge	The organization is unaware of the need for knowledge management.	There are no formal processes for capturing, sharing, and reusing knowledge.	There is no supporting technology or infrastructure.

The organization has poor use of technology which covers only immediate needs or emergencies. As an SME in its initial development state, the administration must focus on solving some primary needs identified as:

Accounting: Data control and consolidation of billing must be maintained effectively to avoid delays in information delivery. Processes are manual and generate delays in invoice generation and limit payments by co-owners.

Data Security: The administration does not have a minimum information security structure. Its free email service has minimal security standards and information can be compromised. It is an account with a password without change cycles or security; additionally, its password is shared with administration members and the secretary who manages the account.

Co-owner data is not subject to any basic information security. In case of equipment theft, the information will be without any protection. The basic equipment structure and unapplied basic security policies allow access to information on local storage media. There is no secure cloud storage repository so essential employees can work and access data virtually.

PQR (Requests, Complaints, Claims): It does not have any structure for handling requests, complaints, and claims. They are currently handled directly, by phone, in writing, physically, and by email, which are processed according to demand upon arrival.

IT Infrastructure and Services: The administration has an inventory of basic technological assets that allow it to develop its daily operation and which enjoy preventive and corrective maintenance service.

Strengths

Within the organization, strengths stand out that allow the development of technical changes, among the most important are:

- Adequate structuring of information can be carried out.
- There is a permanent budget in the IT area and resources can be obtained.
- Recognizes the importance of information systems and their priority for the development of activities.
- It has basic processes that are easy to migrate to a standard such as accounting area, communications, and document management.

Improvement Opportunities: The administration has great potential for improvement in all its areas which are identified:

- Administration: Increase knowledge management supported by documentary systems and knowledge management software.
- Documentation: A document management structure should be incorporated as soon as possible.
- Virtualization and Remote Work: Personnel "that applies" should be oriented and implemented towards a remote and virtualized work practice with access to documentation.
- Information Security: Security and data management solutions can be implemented in a secure and 24-hour available manner.
- Construction of Virtual Channels: The administration should be oriented towards direct communication channels through web pages and/or means that allow the administration to acquire information via the internet.

4. Proposed Architecture

The proposed information systems architecture for the administrative headquarters residential unit will be oriented to cover the needs of the objectives set in the specific objectives oriented to:

- Information System Components
- Strategic Components

The proposal for this architecture (Figure 1) is oriented on the organization's baseline and its development oriented to the components of the architecture, services oriented to the community, and an implementation that allows them an approximation of information technology.

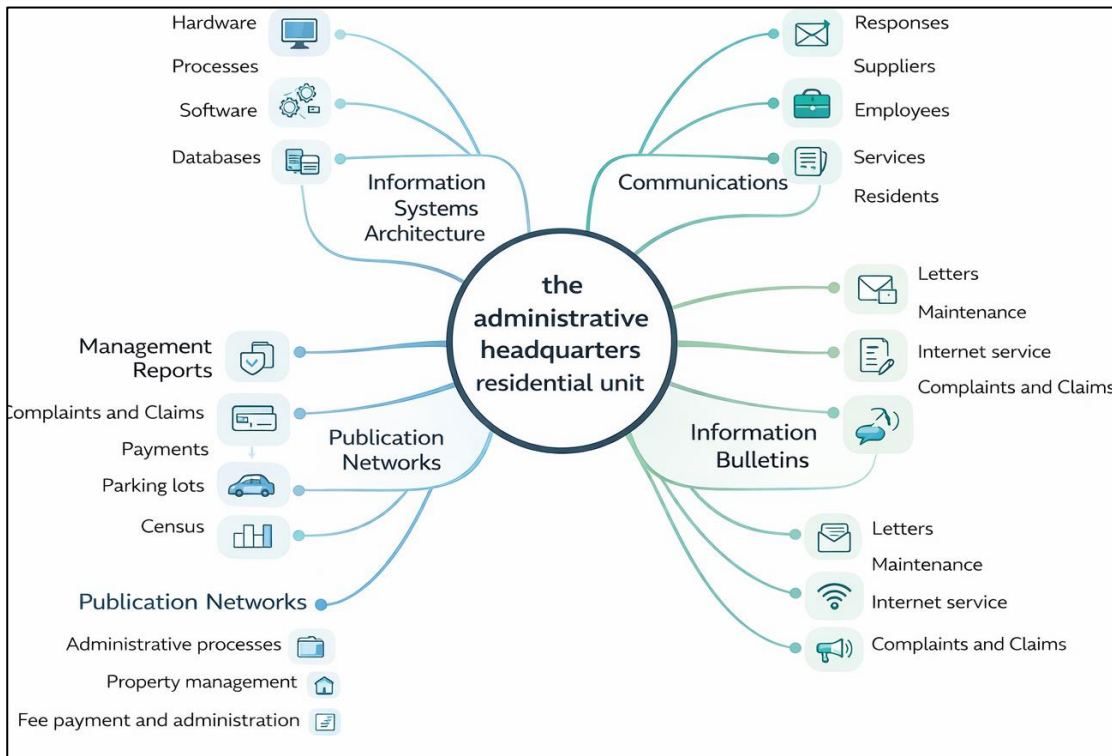


Figure 1: Concept map

The proposed architecture (Figure 2), in order to cover the needs of document management; knowledge management and approximation to the technological architectures of SMEs in the country, is as follows:

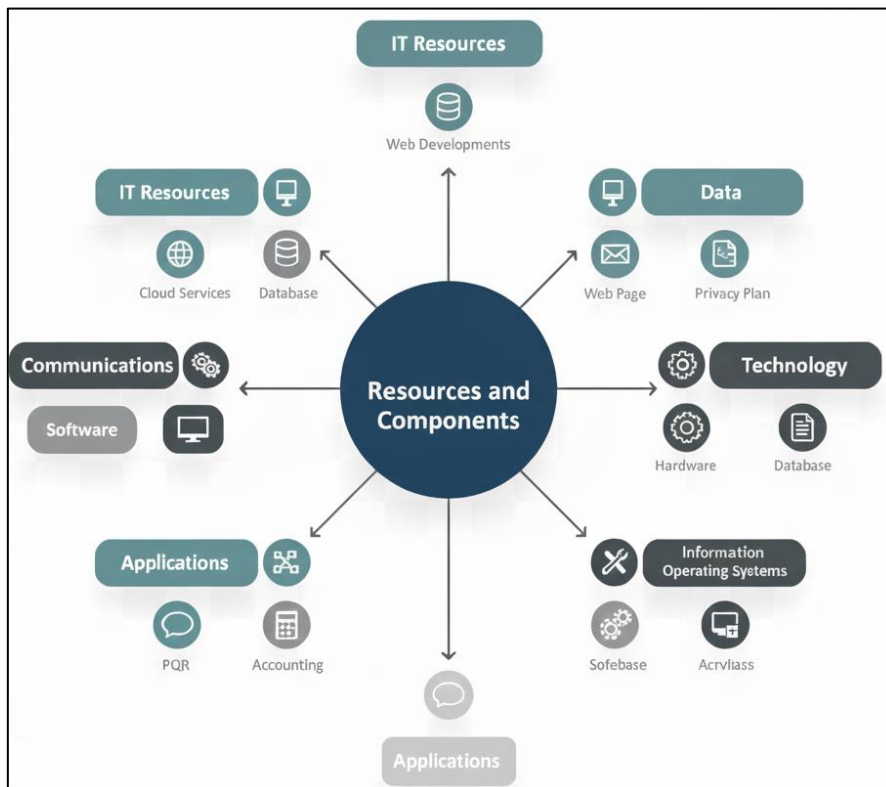


Figure 2. Resources and Components

Through the implementation, it is intended to cover the basic needs illustrated in the graph which will be a priority for the administration. The architecture must cover all services and processes that are currently functional.

4.1 Implementation of the Proposal

According to the TOGAF 9.2 reference frameworks and supported by the MinTIC enterprise architecture concepts. The implementation will start from the baseline architecture to reach a target architecture with the following characteristics (Figure 3):

For the implementation of the target architecture in the organization, a cloud-based architecture is proposed with resources and services managed by third parties.

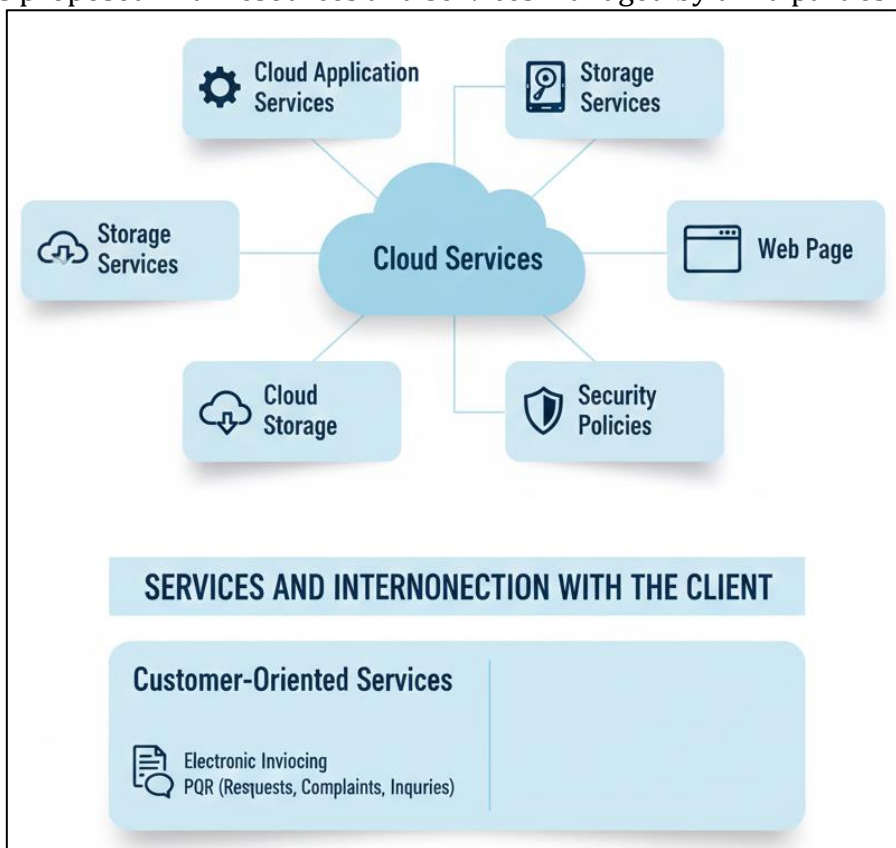


Figure 3 Applications and Data availability of Architecture Model

4.2 Services and interconnection with the client

Web Page: The proposed model is composed of storage services that will allow components to be in the cloud with 7/24 availability, correct information handling based on security policies and version control.

Customer-oriented services, billing the main basis of collection in the administration and a PQR service in the cloud, will streamline and implement a better customer service scheme.

Web services oriented to the customer will allow easy access to information and a module through which access to the unit's public information and a PQR module will be available.

Service Catalog: The administration does not have a service catalog, so its creation is carried out from the following MinTIC structure.

Table 8. Service Catalog (Excerpt)

<i>Service</i>	<i>Purpose</i>	<i>Key Characteristics</i>	<i>Scope</i>	<i>Channel</i>	<i>Beneficiary</i>	<i>Stability</i>
<i>Internet</i>	Internet access for administration	300 Mbps, >86%	Connectivity	Optical fiber	Staff	Medium

		availability, no fixed IP				
<i>Information Storage & Backup</i>	Cloud data backup	OneDrive 10 GB, free account	Storage & remote access	Cloud	Admin staff	New
<i>Equipment Maintenance</i>	IT equipment upkeep	Outsourced maintenance	Standards compliance	On-site	Staff	Medium
<i>Email Services</i>	Administrative communication	Free Microsoft accounts, 5 GB	Messaging	Microsoft webmail	Admin, Accountant, Secretary	Medium risk
<i>Application Support</i>	Software & app maintenance	Outsourced support, Microsoft apps	App availability	On-site	IT users	Medium
<i>PQR Management</i>	Manage requests/complaints	Open-source system, notifications, SLA tracking	Information control	Software	Residents & community	None

For the development and maintenance of the services provided by the administration, it is necessary to have a supplier that offers a software and/or hardware solution, oriented to the need and the services that the administration requires and provides.

4.3 Information Storage and Backup

Information storage and handling for the administration is a limitation. It currently has no policies or minimum information security standards. The implementation of information use policies oriented to Security, Traceability, Availability, and Data Quality is imminent.

Table 9. Information Inputs

<i>Input</i>	<i>Control</i>	<i>Processing</i>	<i>Output</i>	<i>Feedback</i>
<i>Physical</i>	Review by staff on its quality, control, and response if necessary.	Immediate digitization and information securing.	Assigned consecutive number	Action parameter, response, or delivery time.
<i>Digital</i>	Secretary assigns according to information a responsible person.	Immediate sending and information to the responsible area.	Process of assigning consecutive number and immediate receipt response.	Review closure or return response.

<i>Verbal (in-person, calls)</i>	Permanent input and registration.	Response and digitization and input control.	Response or closure to queries.	Call or record registration.
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These inputs will allow the organization proper data management. Currently, information input and output are not standardized. These processes must be incorporated immediately to improve record traceability, facilitate remote work, permanent information availability, and easy access to it.



Figure 4: Primary objectives of the information

Table 10. Information Management Indicators

Name	Frequency	Formula	Target	Description	Responsible
<i>Information Percentage</i>	Semi-annual	Summation	<50%	Information quality and digitization	Secretary
<i>Response Quantity</i>	Monthly	Number of Request Entries / Total Responses	>70%	Entry of requests or filing information and the output responses.	Secretary or Accountant Administrator Lawyer
<i>Internal Information Availability</i>	Quarterly	Number of Requirements / Access	>30%	Queries of information available online.	Administrative staff
<i>Information Dissemination</i>	Quarterly	Sending information - printing of information	>50%	Sending information by digital means.	Secretary

4.4 Proposed Applications and Processes

According to the organization's analyses, applications must be incorporated that allow the administration to incorporate adequate development into the methodology.

Therefore, an information system is proposed that applies transversally to the organization according to its needs in a simple and adjusted ERP.

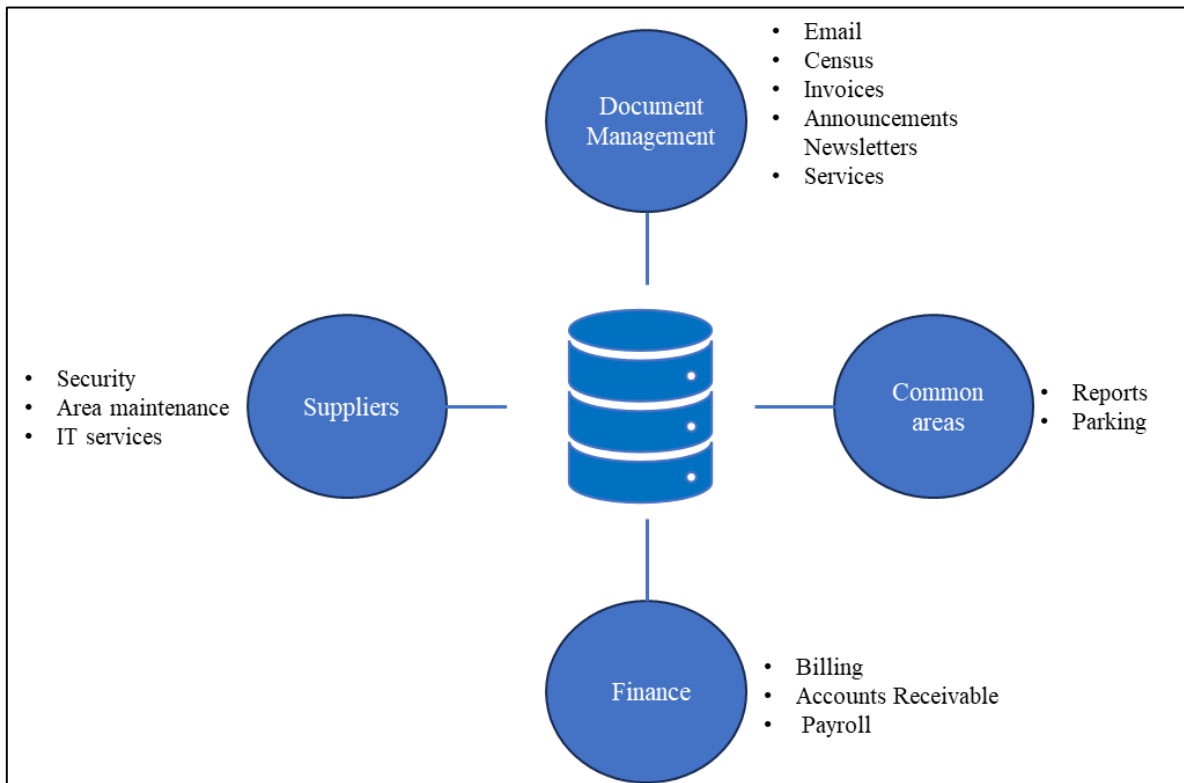


Figure 5. ERP

The proposed ERP is focused on consolidating the administration's resources within its architecture.

Table 11. Main Implementation Areas & Proposed Processes

<i>Area</i>	<i>Description</i>	<i>Priority</i>
<i>Data</i>	Information storage.	High
<i>Information Security</i>	Develop according to Data Law, information security, and data protection.	High
<i>PQR</i>	Creation of a Requests, Complaints, and Claims application to provide good service and store information.	Medium
<i>IT Equipment</i>	Adjust IT equipment to the needs of the administration.	Low
<i>Business Continuity</i>	Acquire tools that allow the administration to work without dependence on offices.	Medium
<i>Web Page</i>	The development of a website where the community can access all information would allow a connection with the community.	Low
<i>Process</i>	Description	Scope
<i>Information Handling (Data)</i>	Ensure that all information entering the administration by any means is identified, tracked, and managed with suitable data. Electronic (email), physical, and verbal inputs.	Includes data collection activities, in written, verbal form by administration members.

<i>PQR Reception</i>	Document all types of requests, complaints, and claims from the community to solve and attend to the community's needs.	Includes any need or demand from customers, suppliers, and community residents.
<i>Communication with the Community.</i>	Provide a digital channel for access to information oriented to a virtual medium where Stakeholders can obtain it by a means other than written.	Includes easy access to communications, management reports, operation manuals, and any type of public information supplied massively and billing details.
<i>Information Digitization</i>	Maintain a continuous activity of digitizing information that enters physically to avoid data loss.	Includes any type of information that enters from customers, suppliers, and/or employees.
<i>Filing</i>	Standardization and creation of consecutive numbers and registration of information that is stored and filed.	All types of records, plans, communication, photographs, legal documents, financial information, and internal processes.

5. Intervention plan

After the analysis of the information and the recommendations proposed for the implementation of document management and applied to the ADM methodology of TOGAF version 9.2. There are 5 primary components in which ADM is for the development of the architecture.

It is important to indicate according to the TOGAF methodology the basic components illustrated do not intend to find an indicator of higher or lower value for each of the components; they are related to each other and provide an important contribution to the resources that will be incorporated in the architecture implementation proposal.

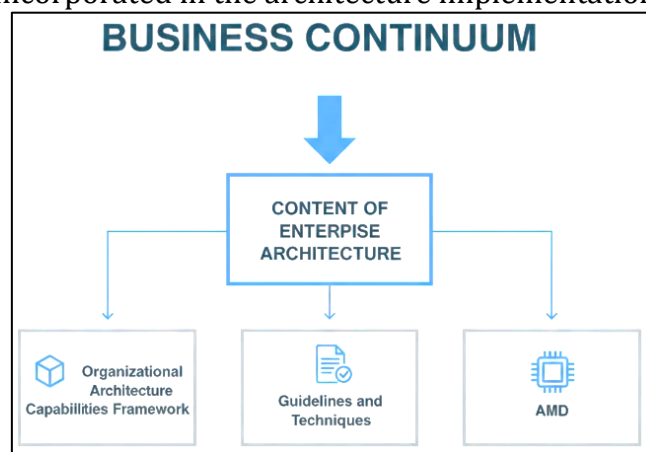


Figure 6. Basic components of TOGAF 9.2

8.1 Domains

According to Information Architecture structures, some domains must be considered for every organization.

Table 12. Domains

<i>Domains</i>	<i>Needs</i>
<i>Business Architecture</i>	The strategy, vision, and capabilities of the administration within this domain must be aligned to the mission processes. The main limitation is the

traceability of information, the input and output of the organization's requirements. There is no standard for processing requirements.

*Application
Architecture*

The organization has imminent needs in applications or functionalities for accounting, digital billing, and PQR that will allow it to develop its activities in a more automated way.

*Data
Architecture*

Major documentary deficiencies have been identified; it is not done digitally. Data handling protocols must be established. The data architecture should be oriented to the following functions: • Security • Data Governance • Storage • Integration and Interoperability

*Technology
Architecture*

Security: It is necessary to generate security standards. Telecommunications: information availability through cloud services. Redundancy plan or connectivity plan in case of failures. Software: incorporation of professional licensing for the organization.

According to the TOGAF 9.2 architecture methodology, the phases are described below in the figure 7:

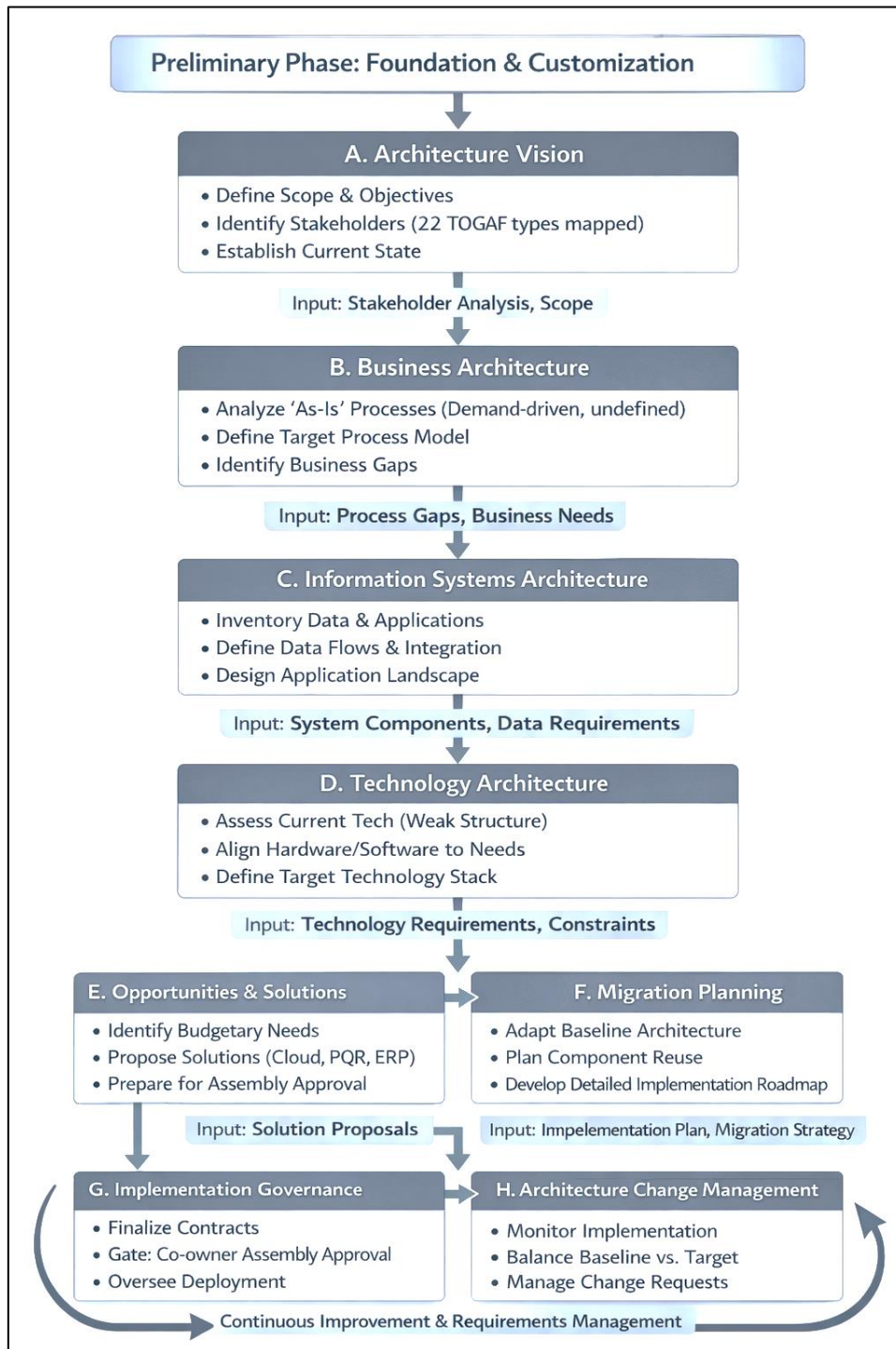


Figure 7: TOGAF ADM Implementation Flow for Administrative headquarters residential unit Preliminary Phase: This phase describes the start of the previous activities for TOGAF and was the implementation of the activities that have been carried out to identify the where, how, and why of the implementation of the architecture and its principles justified within the theoretical frameworks as given in the following image.

Table 17. Identified Stakeholders

Stakeholder Group	Stakeholders (Iraq 2024)	Ability to Disrupt Change	Current Understanding	Current Commitment	Required Commitment	Support Required
Administrator	Ahmed Al-Hakeem	High	High	High	Medium	High

<i>Accountant</i>	Zahra Al-Bayati	Low	Medium	Medium	Low	Low
<i>Fiscal Reviewer</i>	Mustafa Al-Rubaie	Medium	Medium	Low	Medium	Low
<i>Lawyer</i>	Layla Al-Khafaji	Medium	Medium	Low	Low	Low
<i>Lawyer</i>	Hassan Al-Tamimi	Low	Low	Low	Low	Low
<i>Secretary</i>	Fatima Al-Saadi	Medium	Low	High	High	High
<i>Accounting Assistant</i>	Yasir Al-Jubouri	Low	Low	Low	Low	Low

Table 18. Architecture Principles
Principles *Description*

<i>Business</i>	The response and control of information reaching the administration must be prioritized missionally. Priorities are based on demands from suppliers, employees, and residents. The administration does not have control of all processes, so the implementation of a request, complaint, and claim system is an immediate need.
<i>Data</i>	The organization does not have any system or data control, so the implementation of a systematized process for all information is necessary. A high volume of information stored only physically was evidenced, which has deteriorated.
<i>Technology</i>	Does not have a budget or policy aligned to the implementation, replacement, or investment in technology. Adaptation of technological equipment is done by demand, budget availability, or forced changes due to equipment obsolescence.
<i>Applications</i>	It is necessary to review licensing and software scalability. Obsolete software licenses without update were identified. Licensing in general is not business licensing; it is for domestic use (Home Edition).

6. Recommendations and conclusions

6.2. Conclusions

In this work, an information systems architecture is proposed for the Administration of the Administrative headquarters Residential Unit, based on the AMD methodology of The Open Group TOGAF 9.2. The implementation of the architecture will allow the administration an approximation to technology that will facilitate the development of its daily activities through adequate use of technology. The administration, being a non-profit entity, has prioritized its resources in other non-technological areas, which is why poor use of technology, repetitive and manual processes are evident. A diagnosis was made where a deficient structure in the information system components was identified. From the information collected, it is established that the organization lacks its own budgets and a mission component oriented to service quality. A systems architecture design and an implementation plan oriented to data availability and cloud services were proposed.

6.1. Recommendations

The administration, being an SME organization, has minimal knowledge management, so the information systems architecture will offer a structure for the use of technology, processes, and organization. However, it will not solve some organizational structure problems.

- It is suggested to establish as fundamental parameters for the organization an adequate structuring of technology consumption and technological services.
- It is suggested to implement some strategic actions in the organization that allow it to have control, management, and traceability of its mission process.
- Data management and information storage is one of the most relevant problems in the organization. A high degree of risk of information loss is evident.
- It is recommended to prioritize the following areas within the organization: accounting, requests, complaints, and/or claims, and legal.
- The organization must maintain appropriate use of licensing and technological inventory, as well as the final disposal of these assets.
- National data protection regulations are a main component for the development of new technology guidelines.
- The use and management of requests, complaints, and claims will allow the organization to have statistics and a better approach to mitigate frequent complaints.
- Virtual communication channels should be increased and moved to a more corporate and mobile scheme.

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بنية نظم معلومات قائمة على النماذج لإدارة العقارات السكنية، تستند إلى مجالات TOGAF

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كلية الحضارة الجامعة

الخلاصة:

تهدف هذه الدراسة إلى تقييم الأسس الإدارية والفنية والقانونية اللازمة لتحسين عمليات الإدارة في الوحدة السكنية التابعة للمقر الإداري في العراق. اعتمدت المنهجية على تقييم متعدد الجوانب، شمل تحليل الوثائق، ومقابلات مع أصحاب المصلحة، وتقييم بنية نظم المعلومات التي تغطي الأجهزة والبرمجيات وقواعد البيانات وشبكات الاتصالات. طبقت مقاييس كمية لتقييم أداء النظام، حيث بلغت كفاءة استخدام الأجهزة 78%، وموثوقية البرمجيات 92%، ودقة البيانات 88% في جميع الوظائف الإدارية. تمت مراجعة الامتثال القانوني باستخدام القانون المدني العراقي وقانون تسجيل العقارات كمعايير مرجعية للالتزامات إدارة الممتلكات. تشير النتائج إلى أنه في حين أن سير عمل الاتصالات يعمل بكفاءة 74%، إلا أن هناك ثغرات في ممارسات حماية البيانات وتوثيق الخدمات، مما يستدعي تحديث السجلات الرقمية ووضع أطر حوكمة أكثر وضوحًا. تخلص الدراسة إلى أن تطبيق نظام معلومات متكامل، وتوحيد الإجراءات الإدارية، واعتماد ممارسات محدثة لحماية البيانات، سيعزز بشكل كبير الشفافية وتقديم الخدمات والكفاءة التشغيلية. كما أن تعزيز التوافق القانوني والبنية التحتية الرقمية سيديم الإدارة المستدامة للوحدات السكنية في العراق.

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