

## DEVELOPMENT OF MILITARY EDUCATION INFORMATION SYSTEM (MEIS) AND HUMAN RESOURCE INFORMATION SYSTEM (HRIS) IN THE PATTERN OF CAREER MILITARY PERSONNEL

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**ABSTRACT.** *The management of the career patterns of military personnel is very important and affects the success of carrying out military duties and operations. HRIS and MEIS are systems that support each other in data and information related to personnel. The development of an integrated model of HRIS and MEIS based on the TOGAF ADM framework is carried out to meet organizational needs, with efficiency in personnel, budget, equipment, and infrastructure. This model shows the optimization of the existing system. Various things can be done regarding the career of military personnel based on expertise, education, experience, service, and professionalism, as well as the placement of military personnel for various forms of assignments, both operations and staff, which are tactical or strategic. The system development is carried out because various forms of assignment require the accuracy of military personnel in the right position.*

**Keywords:** HRIS, MEIS, Military organization, Military career pattern, Military personnel, Military education, TOGAF

**1. Introduction.** In carrying out tasks and operations, a soldier's profession is needed, whether it comes from experience, training, or education. Every military personnel must be able to master, understand, and apply in every task and operation [1]. However, in principle, education is an attempt to apply the principles of the military to forming the character of being a soldier [2]. To support the organization, especially in the career patterns of personnel, it is very necessary to get the right person in the right position.

There is an effort to include career management in information to know abilities, factors and attitudes or traits that can be identified, so that services can be made to career development. Planning can be carried out, which is followed by the development and review of services and programs on activities carried out in mentoring career [3].

The integration of MEIS with HRIS is an effort to use two existing systems, so that there are budget savings, and it can maximize the use of the system in the context of proper placement of personnel in the military, adjusted for achievement, professionalism, and position [4]. System integration by referring to the TOGAF ADM framework adds several features according to the needs of the organization, besides that, technology upgrades are also carried out on the system, so that the organization's ability in managing military personnel career patterns runs accurately, efficiently and effectively, through optimizing a well-integrated system.

**2. Problem Analysis.** This study uses descriptive qualitative methods using data based on observations and deepening of the literature. So data collection is done through interviews, observations, notes (field notes), but this study also carried out an analysis of the system that is running, HRIS and MEIS. The data obtained consists of several forms, including words, pictures, and documents [5]. Conduct interviews specifically about the development of HRIS and MEIS to know the extent of the need for the system and the factors associated with it, such as budget, infrastructure, and application features. An in-depth study of the literature was also carried out to find out the extent of the development of technology in HRIS and MEIS.

In managing career patterns, various considerations are needed in aspects related to personnel, including personality, expertise, interests, professionalism, and others. However, besides capacity development, efforts must also be made to retain the expertise or skills that are already possessed for promotion. There must be a system that can help determine career paths and accelerate workflow within the organization and also improve personnel expertise through the organization with various training for career stability and increase worker mobility, in a controlled manner [6]. There has been a development of a system in Officer Career Development (OCD), but only for the first ten years of an officer career being developed in the Slovenian Armed Forces (SAF) with a system based on competence, but not developed for NCO and enlisted personnel [7]. In military organizations, personnel are soldiers who must be able to carry out all military operations, so quality is the key to success in achieving organizational goals [8].

Also, with the increasingly diverse fields of tasks and positions that are strategic, they can serve following abilities, professionalism, and competence. However, in the end, the development and use of HRIS, have provided various benefits for HR practitioners, such as increased efficiency, effectiveness, and IT-enabled processes [9]. With the increasing complexity of military operations level, there is greater need for soldiers who have expertise in the completion of their duties, following a given operation [10]. The education process also requires information technology, starting from the selection process, teaching, access to teaching materials, completing assignments in the form of various softcopy, training modules and others [11].

Within the military organization, there are still parts of the organization that has a separate and mutually exclusive system, several processes are done manually, requiring a long time, and cannot support decision making quickly and accurately. Control of data for personnel career patterns is not well structured, because the system is not interconnected. The implementation of system integration is to reduce the gap between many processes in development so that several paradigms are needed, especially for planning, analysis, design, and management of information systems that can be called a corporate architecture (EA). The EA is known as The Open Group Architecture Framework (TOGAF) [12].

TOGAF, used in designing, evaluating, and helping in building a good architectural form, can then be used as a reference in the development, design, testing, or use of a system that is developed [13]. Some advantages in using the TOGAF framework are the completion of the process, the TOGAF ADM, there is integration with all parts, flexibility in all aspects that affect, and alignment with organizational standards.

The core of the TOGAF framework is the TOGAF ADM which can carry out special reviews, by carrying out repetition of the process and testing in the effort to develop an existing architecture, including specific data architecture. Based on these various aspects, this study uses the TOGAF ADM framework in building a corporate architecture framework for the development of HRIS and MEIS.

So research questions can be drawn:

a) Can the HRIS and MEIS, which have been running respectively, be well integrated in the implementation of the career patterns of military personnel?

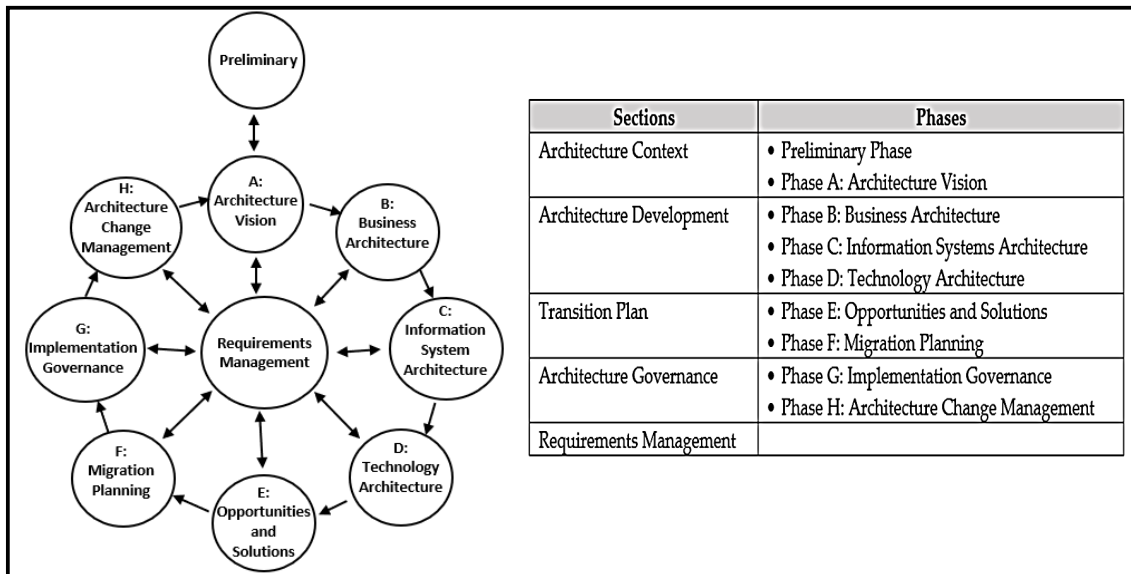


FIGURE 1. Iterations and phases of TOGAF ADM

b) How can the TOGAF ADM framework on information systems help develop the concept of system integration in HRIS and MEIS to support the career patterns of military personnel?

**3. Main Results.** All promotions related with high-quality personnel are always related to the assignment and experience, directly related to the career patterns of personnel, ranks, and positions. Differences found in various countries, such as the external environment and culture, also cause different approaches in handling HRM in military organizations. By using sophisticated technology and new operational forms, it will require personnel with categories that adjust so that organizations must recruit military personnel with technical, professional, innovative, comprehensive capabilities and understand the risks of the tasks assigned [14].

The new integrated information system helps organizations upgrade systems and infrastructure that are no longer compatible with the organization. With a good and integrated multi-level system, there will be efficient collaboration in related departments within the military organization. However, this is also the need for systems that are specific to military organizations, so that it will not be easy to apply in other organizations or other countries. Its implementation is closely related to the practices and policies of a strategic framework, based on references to the vision and mission of the long-term organization [15].

**4. Control Design.** Various technologies have been used in the implementation of MEIS and HRIS. However, this implementation depends on the policies of military organizations in a country.

**4.1. HRIS analysis.** Through HRIS, organizations can collect, process, search, store, analyze, and distribute existing information into the organization’s internal environment [8]. The development of HRIS is more internal, because military soldier data is highly confidential data.

**4.2. MEIS analysis.** In MEIS there is an education database that can be used to provide information about a soldier’s expertise through various forms of training, education, workshops, and others. MEIS has data sourced from several related sections. This section

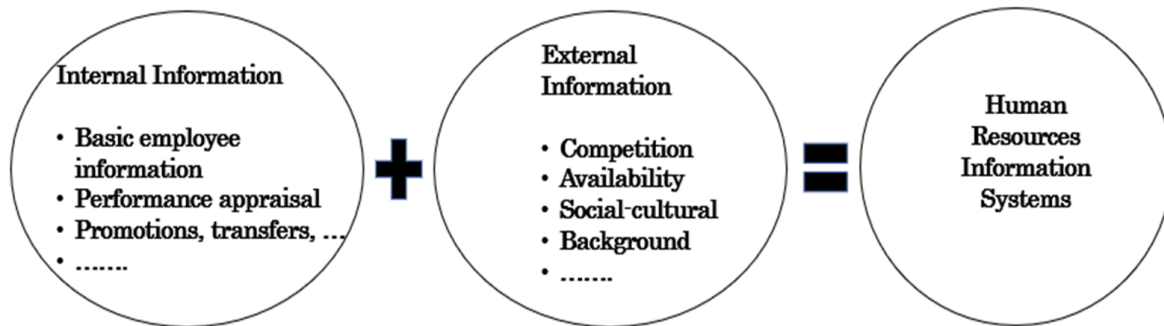


FIGURE 2. Information needs in HRIS [16]

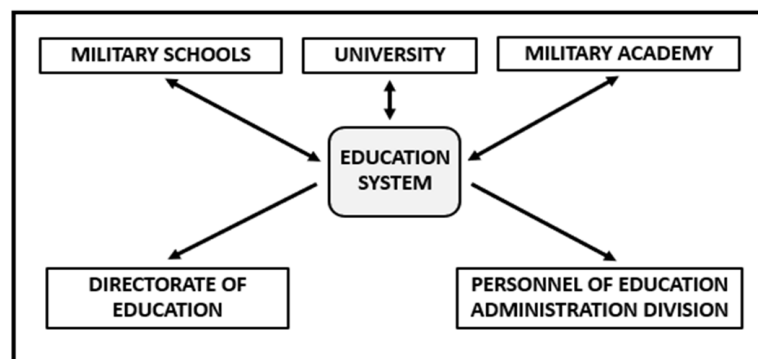


FIGURE 3. The process of MEIS [17]

is not only a school or military education institution but also a school or university which is a place for military personnel who take education related to science and technology, both domestically and abroad.

**4.3. Organizational needs.** It is the duty of the HR Department also to provide personnel with qualifications in the management of technology especially in the military context, in the field of defense, to achieve the organization's strategic objectives [18]. Data updates must always be carried out by the relevant department so that the system can provide outputs with updated, accurate, and timely information as material in supporting every decision making, especially in personnel matters. Technology upgrades must also be carried out, to ensure a long time for system use.

**4.4. TOGAF framework.** In preliminary phase, by using the Principle Catalog tool, it is a step in making the principles of EA design into a reference which includes the process of developing architecture, determining the scope of the design, determining the parties involved in the design, determining the location, determining the time and target in completion, design background and how to design the EA itself [13].

a) Requirement Management

Provide solutions to problems in the information system, with the aim that these problems can be handled through the system. However, it focuses on the development carried out on HRIS and MEIS.

b) Architecture Vision

Give the same picture and agree on the results of the architecture itself, so that there are the same views in the organization, especially stakeholders regarding the EA of the system to be developed. By using Value Chain Diagrams and Map-Matrix Stakeholders, while for the output we will get a table design Value Chain and Map-Matrix Stakeholders.

TABLE 1. The Principle Catalog

No.	Principle	Purpose
1	The architecture of the system must be in accordance with the functions and needs of the organization, especially for the HR Department	Facilitate the search for information about personnel and data related to determining the placement of personnel can be more complete, accurate and fast with the support of more detailed data
2	System architecture that can be easily understood and used by organizations (user-friendly system)	The way the system works can be learned easily by staff
3	Guaranteed system architecture security	High level of security for the system and data
4	Ease of access to data and information within the scope of the permit to the specified party	No party can know the data and information of another party without permission
5	Development of system architecture that can be implemented if needed in the future	There is centralized data and information covering all sections and departments in the organization
6	The use of standardized software, hardware and networks for the system	There will be no problems in operating the system, especially in technical matters
7	The definition and management of data must be consistent in all parts of the system	Facilitate information management and system development, because with structured data the processes in the system will be faster and easier to understand, so that all data can be used in the system

TABLE 2. Problem solving of information systems

No.	Problem	Solution
1	Data encoding is still not well organized	The coding of the data will be adjusted so that between HRIS and MEIS data there is no redundancy and improvement to the data management
2	Data integration has not been fully implemented	The data contained in HRIS and MEIS, as a whole will be integrated
3	Data access procedures are not fully implemented properly	Distribution of access to data will be reorganized, so that each authority can be arranged as needed
4	Completeness of educational data	With the integration of all parts of education, the need for educational data will be completed, but in accordance with the provisions of the Education Department
5	Limitations of data that can be entered	Development on all types of data, to minimize data limitations
6	Application features that are difficult to understand	The application will be created in a user-friendly format
7	The form of the report is still limited	Development of the required report forms, both by the HR Department and Education Department

Table 3 shows the determining vision and mission of the HR Department and the Department of Education, while also being able to better know the scope of the duties and responsibilities of the two departments.

TABLE 3. Value chain table

<b>Main Activities</b>	Planning and controlling	<b>Supporting Activities</b>	Technology development
	Recruitment personnel		Position of personnel
	Database process		Rank level personnel
	Education development		Development of science and technology personnel
	Classification personnel		
	General education of personnel		
	Specialization education of personnel		

Table 4 shows the stakeholder’s activity in the organization, associated with the main activities and supporting activities of the organization. The output or the final result of this stage is the visible and definable scope, identification of the leadership of the organization, material to compile a vision of architecture, and approval in the architectural development proposed by the department.

c) Business Architecture

It consists of developing the business architecture itself to align with the approved architectural vision. This integration is different from when it was not integrated, with the data that is more dynamic, complete, and includes all data related to education, and it must be permitted to access the required data.

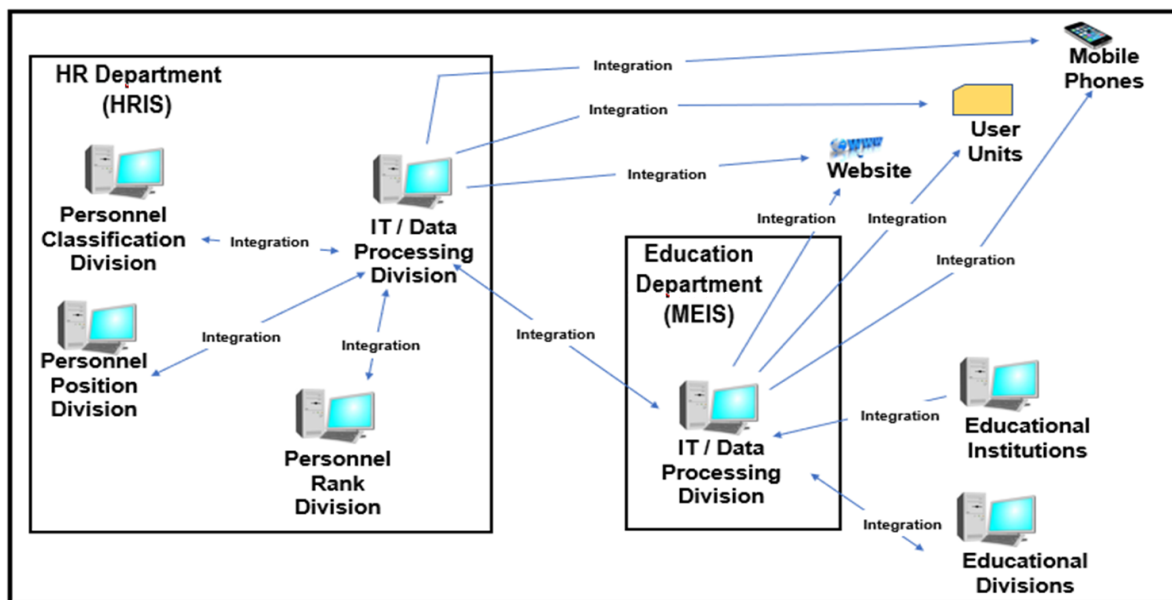


FIGURE 4. The business architecture design

d) Information Systems Architecture

It consists of application and data architecture. In the application architecture, identification is made of the application to be developed, to meet the needs of the organization, both in HRIS and MEIS, in the context of data processing and the running of the system in supporting work. Whereas in the data architecture, identification is carried out on the data requirements, to produce information needed by the organization.

TABLE 4. Table of Map-Matrix

No.	Stakeholder's activities	Main activities						Supporting activities				
		Planning and controlling	Recruitment personnel	Database process	Education development	Classification personnel	General education of personnel	Specialization education of personnel	Technology development	Position of personnel	Rank level personnel	Development of science and technology
1	Society		x									x
2	Database management			x		x						
3	General database management			x								
4	Database maintenance			x								
5	General database maintenance			x								
6	Database development			x		x			x			
7	General database development			x		x			x			x
8	IT operation	x	x	x		x	x			x		x
9	Communication and technology operation		x			x			x			x
10	Development of IT	x		x					x			
11	Development of communication and technology	x		x					x			
12	Management of IT	x		x					x			
13	Management of communication and technology			x					x			
14	Information of education	x	x									x
15	Deployment of personnel			x					x		x	
16	Personnel submission			x							x	
17	Implementation of the education process			x							x	x
18	Education tools	x		x	x							x
19	Educational cooperation program	x		x	x							
20	Evaluation of education program	x		x	x							
21	Centre of learning and training administration	x		x	x							
22	Centre of research and development administration	x		x	x							

Figure 5 shows that there are some applications used in this integration system, and HR applications relate to educational applications. However, data access that occurs will depend on the access authority of each department that owns the data, included in the effort to secure the data.

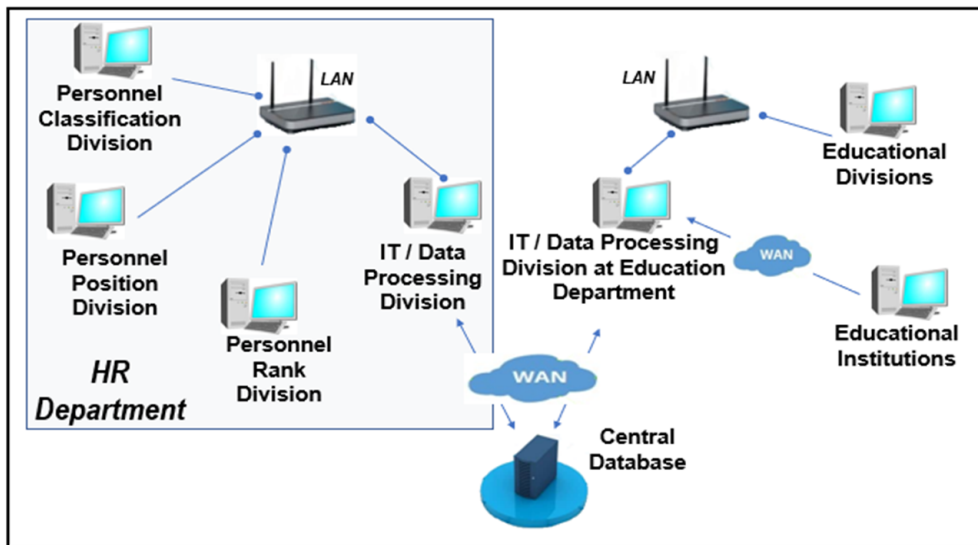


FIGURE 5. Diagram of application

e) Technology Architecture

It is an explanation of the structure of the technology by using Diagrams on Communication Techniques, Platform Decomposition, and Catalogs on Technology Portfolios. With a few steps, namely make a configuration model for the initial network, then make proposals on the network, software, and hardware needed, and make designs for technology platforms [13].

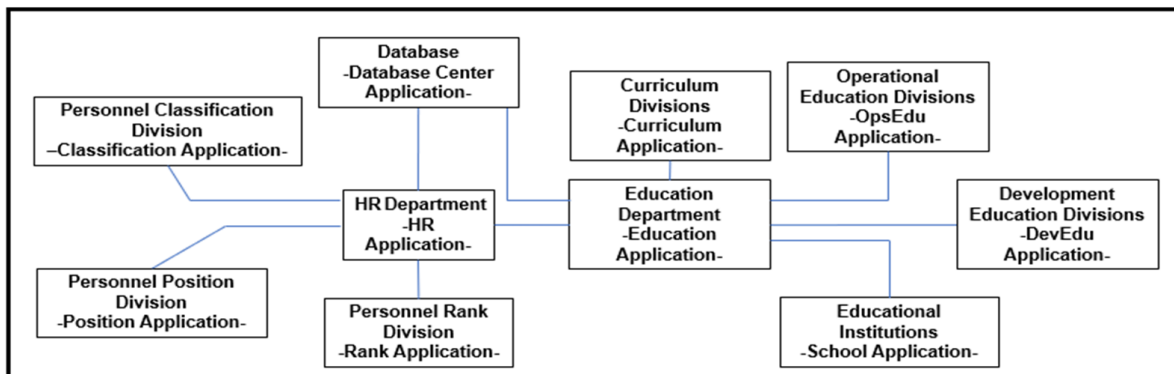


FIGURE 6. Submission of network proposals

**5. Conclusion.** TOGAF ADM framework can support an attempt to create a new architecture by integrating existing systems, used to produce accurate, current, and detailed information to provide the availability of information to military personnel in supporting the career patterns of military personnel, especially those related to human resources and education data. The development of this system will provide savings in costs, compared to building a new system. For the next research, the integrated system development can be implemented not only in HRIS and MEIS but can be done in other departments so that the sustainability of system development can continue. The optimization system that is integrated with the data center can be achieved in time to provide complete and accurate information for decision-makers in the organization as a whole.



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