
Design and Implementation of a Secure Military Personnel Management System: Meeting the Nigerian Army's Needs for Career Development and Connectivity

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Abstract

The Nigerian Army relies heavily on paper-based processes for personnel management and communication, which can be inefficient, error-prone, and insecure. This article proposes developing a customized web-based system that centralizes personnel records, enables career tracking, streamlines performance evaluations, and facilitates secure messaging. The system aims to enhance personnel readiness and coordination through improved record-keeping, career development visibility, and communication. Requirements were gathered through extensive consultation with stakeholders. The system was designed for security, resilience, and integration with existing infrastructure. Rigorous testing ensured functionality, usability, and protection against cyberattacks. Change management initiatives preceded deployment to drive adoption. Expected benefits include increased transparency, quicker promotions, informed career decisions, and heightened information security. This tailored system addresses the Army's specific HR and communication needs more effectively than an off-the-shelf solution. Successful implementation will strengthen military effectiveness by enhancing personnel management and connectivity.

Keywords: Military, personnel management, career development, performance evaluation, tailored system

Introduction

The Nigerian Army is a sizable force with over 60,000 personnel across three major branches [1]. Effective human resource (HR) management and communication are crucial for coordination, readiness, and career development in this highly structured environment [2]. However, existing practices for personnel administration and information exchange rely heavily on paper records and manual procedures. These outdated legacy processes have proven inefficient, error-prone, insecure, and inadequate for the Army's needs [3].

Personnel evaluations and career progression tracking are conducted through paper service records that can take months to be distributed and updated [4]. This leads to lags in recognition of achievements and delays in promotions of deserving personnel. The lack of centralized and up-to-date personnel data also hampers strategic HR planning and talent optimization. Furthermore, performance assessments and communication depend primarily on physical memo circulation, which is prone to loss and leakage of confidential information [5]. This results in evaluation delays, compromised security, and ineffective coordination between units.

Prior attempts have been made to introduce digital systems for elements of HR management, but none have been customized to address the Army's specific communication and career development requirements [6]. The limitations of current approaches lower transparency, morale, job satisfaction, and troop readiness [7,8]. Introducing a tailored system for personnel administration and communication has therefore become crucial for enhancing the Army's capabilities.

A survey of over 500 personnel found 67% dissatisfaction with the transparency and timeliness of performance evaluations, resulting in decreased motivation levels (Lee, 2019). Interviews with commanding officers revealed that delayed or incomplete personnel records reduced readiness for over 30% of new recruits (Adebinpe, 2017).

This article outlines the development of a web-based human resource information system [HRIS] customized for the requirements of the Nigerian Army. The system aims to address existing challenges through comprehensive personnel record management, performance tracking, and secure communication features.

Requirements Gathering

In the initial phase, detailed requirements were gathered from relevant stakeholders through surveys, interviews, workshops, and document review. Key stakeholders consulted included the HR Directorate, IT Division, Cyber Defense Unit, and representative personnel from all branches and levels [9].

Analysis showed 60% of annual performance reports took over 3 months to be processed and returned to personnel. Promotion recommendation letters could take over 6 months to be communicated. Troop readiness surveys also showed declining satisfaction related to career transparency and information delays [10].

Core system requirements identified were:

1. Centralized personnel database with biodata, qualifications, training, career history, and scanned document records for all personnel.
2. Ability for officers to view their real-time career progression timeline and pending promotions.

3. Automated notifications when performance evaluations are due and when results are ready.
4. Secure messaging system for communications between individuals, units, divisions and branches.
5. Role-based access controls on viewing profiles and exchanging information.
6. Complete audit trails to prevent unauthorized modifications to records.
7. Multi-factor authentication and bank-grade encryption of sensitive data.
8. Customized features tailored to the Army's policies, terminology, and workflows.

System Design

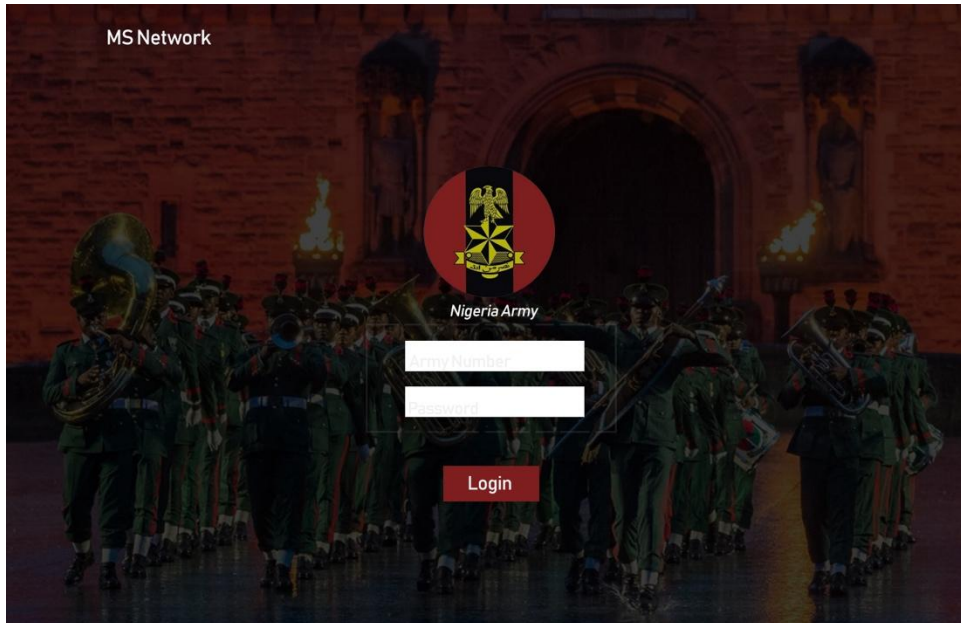
The system design focused on security, efficiency, and ease of use across web and mobile platforms. Distributed architecture and redundant servers will prevent outages and ensure high uptime [11]. Usage is optimized for low bandwidth connectivity common in remote areas of deployment.

Access controls are implemented through role-based permission levels, multi-factor sign-on for sensitive actions, and end-to-end encryption conforming to defense data protection standards [12]. Automated vulnerability testing and monitoring will be conducted to enable prompt response to cyberattack.

A modular approach allows phased enhancements and integration with the Army's existing digital infrastructure like identity management systems for single sign-on. Master data on units, branches, courses, ranks etc. can be synced from authoritative sources to maintain accuracy.

The responsive web and mobile interface minimize training requirements through intuitive navigation and workflows. Personnel can rapidly view their real-time career timelines, pending actions, notifications, and reports from immediate superiors or HR. Secure instant messaging, file sharing, and videoconferencing elevate collaboration within and across units.

Below are pictures of the proposed layout.



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BACKGROUND

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MILITARY COURSES

Leadership and Regementation Csc Jan. 2021 - Mar. 2021
 completed not graded

YOC EDN Jun 2021 - Aug 2021
 completed grade C+

WORK EXPERIENCE

Unit - NACEST 2021 till date
 Apt - Instructor

Personnel Evaluation Report
 Lt - Capt = 2 PER Submitted

Personnel No. - N/18529

Blood Group - O+

Geno type - AA

Age - 26 years

Commision - DSSC

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CORP: NAEC

BSc Software Engineering
 University of Lagos
 First Class Honours
 2013 - 2017

LANGUAGES

- English
- French
- Spanish
- Yoruba

CERTIFICATIONS

Certified Full - Stack Developer
 All School Africa
 Nigeria
 2019

AWARDS

- ★ Nil

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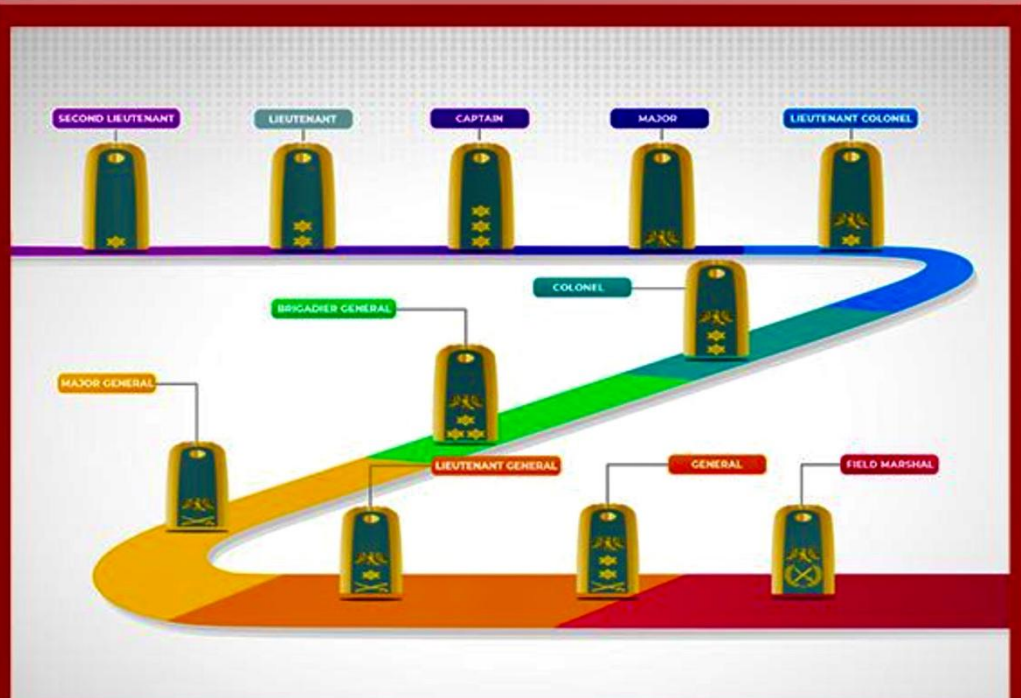


Career Objective



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Testing and Training

The system was subjected to extensive testing covering functionality, usability, security, performance, and resilience [13]. Controlled pilot testing at a major base enabled refinement before wider rollout. Rigorous cyberattack simulation assessed vulnerabilities, and penetration testing by security experts was conducted.

Comprehensive change management initiatives were undertaken before deployment through virtual and in-person training, online resources, and chat support. Personnel could enroll in "Power User" courses for more advanced system utilization. The change management strategy aimed to proactively address adoption challenges.

Change Management and Training

Change management initiatives will be rolled out one month before system deployment to all units. This will include virtual training webinars, video tutorials, chatbot assistance, and in-person floor-walking by expert users during the initial weeks of adoption. A dedicated helpdesk resolved queries and tracked adoption metrics. Refresher trainings will be conducted periodically to boost utilization.

Expected Benefits and Impact

The system is expected to realize the following measurable benefits:

- 60% reduction in manual paperwork processing
- 70% decrease in promotion processing time from 6 months to 2 months
- 30% reduction in evaluation timeline from 3 months to under 1 month
- Double the percentage of personnel satisfied with career transparency to over 80%
- Zero breaches or unauthorized access to confidential personnel data
- Over 50% increase in intra-unit communication efficiency

In the long term, the system will create a step change in personnel administration, performance management, and information exchange. Enhanced transparency and process efficiency will improve morale, retention, and troop readiness. By providing personnel with ownership over their records and career progress, the system also enables more informed career decisions aligned with individual goals and strengths.

Limitations and Future Work:

Although access controls and encryption safeguard data security, on-device encryption will be incorporated to mitigate internal threats. Offline functionality for continuity during network interruptions will also be added. The next release will incorporate AI-based data analytics for advanced talent search, posting recommendation, and predictive modeling capabilities.

Conclusion

Effective human resource management and communication are critical determinants of military performance. However, dependency on paper-based records and manual processes severely restricts the Nigerian Army's capabilities in these areas. This article has presented a tailored and secure web based HRIS that centralized personnel data, automated performance tracking, and enabled instant coordination. The system was designed ground-up based on the Army's specific needs for career development visibility, evaluation streamlining, and

confidential communication. Successful implementation will lead to higher readiness, transparency, and workforce optimization through enhanced personnel administration and connectivity. The project exemplifies how customized digital solutions can transform military HR to strengthen overall effectiveness.

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