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DIGITALIZATION OF MILITARY PERSONNEL PAY AND ALLOWANCES: IMPLEMENTING AN ERP SYSTEM FOR ENHANCED ACCOUNTABILITY AND ACCURACY

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Abstract: This scientific-analytical article investigates the strategic rationale for implementing an Enterprise Resource Planning (ERP) system to manage military personnel compensation within the defense sector of the Republic of Uzbekistan. The primary goal of this study is to analyze the benefits of digitizing military compensation processes and to propose a phased implementation mechanism for an ERP system tailored to the specific context of Uzbekistan. The analysis addresses critical issues of transparency and accuracy inherent in existing administrative processes. The research is grounded in the normative legal framework of the Republic of Uzbekistan, including the strategic roadmap "Uzbekistan – 2030" [1]. By examining international experiences, such as the U.S. Army's Integrated Personnel and Pay System – Army (IPPS-A) and the UK's Joint Personnel Administration (JPA) [2], the study develops practical recommendations, phased mechanisms, and evaluation criteria for successful ERP adoption. Implementing a centralized ERP solution is identified as the single most effective approach to centralize data, automate complex calculations, and ensure a complete audit trail for financial transactions, thereby enhancing accountability and minimizing fraud risk within the defense budget. This strategic investment is critical not only for operational efficiency but also for strengthening social guarantees for military service members and their families.

Keywords: ERP, Digitalization, Military Compensation, Accountability, Defense Sector.

Introduction The resolute policy of the Republic of Uzbekistan aimed at digitalizing the state governance system and ensuring transparency has entered a new phase with the adoption of the **"Uzbekistan – 2030" Strategy** [1]. This strategic direction mandates the application of modern IT solutions for resource management across all state bodies. Digital modernization in the defense sector is crucial for boosting operational effectiveness and increasing the transparency of public fund utilization.

The issue of digitalizing the military compensation system is particularly relevant due to its high complexity. This system encompasses numerous components, including position salaries, military rank allowances, various supplements, benefits, and special privileges. These financial relationships are strictly regulated by Presidential Decrees [3] and other legislative acts [4]. Currently, the decentralized management of data across disparate systems or manual processing methods leads to errors, low accountability, and significant data delays. The implementation of an **Enterprise Resource Planning (ERP) system** is the singular effective solution to centralize data, automate calculations, and ensure a complete audit trail of all financial transactions. The primary goal of this study is to analyze the benefits of digitizing military compensation processes and to propose a phased implementation mechanism for an ERP system tailored to the specific context of Uzbekistan.

Materials and Methods This study employed a dual methodology: **normative-legal analysis** and **comparative case study analysis**. The normative-legal analysis involved a systematic review of Presidential Decrees [3] and laws regulating military service [4] to establish the legal mandate and requirements for military compensation and digitalization within the "Uzbekistan – 2030" strategy [1]. The comparative case study analysis involved scrutinizing major international military ERP projects, specifically the U.S. Army's IPPS-A and the UK's JPA [2], to identify best practices, common failure points, and key success factors applicable to the Uzbek context [5], [6]. Furthermore, quantitative data on the benefits and risks of public sector ERP implementations were gathered from specialized industry reports to inform the development of the proposed implementation mechanism [7]. The findings were structured to first analyze existing problems, then present the technological solution (ERP benefits and functions), and finally, develop risk-mitigating recommendations based on international experience.

Results **A. Analysis of the Current Military Compensation System and Associated Challenges**

The current military compensation process in Uzbekistan, regulated by Presidential Decrees [3] and legislation [4], is highly complex. The reliance on legacy systems and manual data management introduces several critical drawbacks:

1. **Data Fragmentation and Integrity Issues:** Different units use varied technologies and databases for processing compensation, leading to data scattering. This fragmentation compromises data integrity and results in persistent calculation errors (a common problem in non-integrated systems).

2. **Delayed Processing:** The continued manual execution of parts of the process leads to significant delays in adjusting compensation based on changes in a service member's status (promotions, transfers, etc.). Studies indicate that digital solutions can reduce manual processing time in the public sector by an average of **37%** [8].

3. **Lack of Audit Trail and Increased Corruption Risk:** Dispersed data makes it difficult to accurately track the audit trail for every financial transaction, complicating oversight of budget expenditures and amplifying the risk of corruption.

B. ERP System: Core Benefits and Functions in Digital Governance

The ERP system serves as a central technological solution for modernizing military compensation by providing an integrated platform for Human Resources (HR) and financial calculations.

The application of ERP in the defense sector yields substantial benefits:

- **System Consolidation:** ERP merges outdated, isolated systems. For instance, the U.S. Army's IPPS-A consolidated over 30 disparate HR systems into one human resources system, centralizing the management of over 1.1 million soldiers [2].
- **Accuracy and Quality of Life:** Automated calculation modules ensure high accuracy for complex military allowances and compensation. This significantly reduces payment errors, enhancing the quality of life for service members and their families by ensuring financial reliability [2]. ERP implementation can also increase inter-departmental data access by **42%** [8].
- **Automated Control and Compliance:** The system automates financial control through comprehensive audit trails and data encryption, mitigating financial irregularities and corruption risks [2]. Standardized processes can reduce regulatory compliance violations by up to **72%** [8], significantly boosting the reliability of financial reporting.
- **Self-Service Functionality:** The built-in "Self-Service" function grants service members access to their payslips and personal data via mobile devices, shifting the administrative burden away from HR units [9].

Function (Module)	Definition	Scope of Application (Defense Context)
Human Capital Management (HR/HCM)	Centralization of the service member's entire career data, managing skills and qualifications databases.	Real-time visibility of total force strength, targeted personnel management, and enhanced military readiness [2].

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Payroll and Benefits	Automated calculation, ensuring timely and accurate payments of allowances and other compensation.	Reduction of errors, enhanced payment accuracy, and financial transparency for service members [2].
Financial Accountability (Audit/GL)	Creation of an audit trail for every transaction and automated financial control.	Provision of full audit capability and reduction of financial irregularity risk [8].
Self-Service	Access for service members to personal data, payslips, and benefit information via mobile devices.	Improved service member quality of life and reduced administrative load on HR units [9].

Discussion International experience indicates that while large-scale military digital transformation projects are necessary, they are fraught with significant risks.

The **IPPS-A project** in the U.S. Army stands out for its modern, **Agile** approach to software acquisition. IPPS-A mandates data integrity and an open architecture, specifically requiring an **Open API** (Application Programming Interface) strategy for seamless communication with other systems [10]. This ensures the system's long-term adaptability as government requirements evolve.

Conversely, the UK Ministry of Defence's **Joint Personnel Administration (JPA)** system, implemented since 2006, aimed to save over £100 million annually by integrating personnel and pay for all three services [6]. However, the initial years of JPA implementation were marked by severe functional issues, resulting in compensation payment disruptions and intense media criticism [6].

These case studies underscore a crucial point: up to **50% of public sector ERP projects fail** [11]. The main causes include poor planning, budget overruns, and, most critically, **inadequate staff training and weak change management** [7]. Therefore, Uzbekistan must prioritize risk management, system robustness, and, above all, personnel training during the implementation process.

Recommendations: Phased Implementation Mechanism for Uzbekistan

Implementing an ERP system within the Uzbekistan defense sector requires a phased approach to minimize risks and maximize adoption.

1. **Choose Phased or Hybrid Implementation:** The "Big Bang" approach is overly risky [5]. A hybrid strategy is recommended, starting with administrative services and controlled pilot units, which maximizes personnel adoption of the system [5].

2. **Align Legal Framework with Digital Governance:** The legislative review process [4] must be adapted to align with ERP system requirements. This includes reinforcing the legal authority of digital data and electronic signatures, and regulating data exchange between government bodies, particularly the Ministry of Defence and the Ministry of Finance.

3. **Mandate Staff Training and Qualification:** To prevent the common failure points of ERP projects [7], mandatory, continuous training must be introduced for all HR, finance staff, and commanding officers focused on system mastery. **Process re-engineering and personnel preparedness must be the main priority** [5].

4. **Strengthen Information Security:** Given the sensitivity of military data, the system must fully comply with cyber/information assurance standards and include robust data encryption [2]. Automated internal controls should be built into the design to ensure data integrity.

5. **Integrate with State Financial Management Systems:** The ERP system must ensure seamless data exchange with Uzbekistan's unified state financial management systems to further enhance control over the expenditure of the Republic's state budget funds [3].

Implementation Phase	Expected Outcome	Implementation Mechanism
I. Initial Analysis and Planning	Technological selection; standardization of military processes (based on "best practices") [12].	Legal framework development according to digital governance requirements; administrative process optimization [5].
II. Pilot Project and Testing	Successful testing of core Payroll and HR functions in a small, controlled unit.	Rigorous testing and risk management; enhanced financial controls to eliminate payment errors [6].
III. Systemic Integration (Phased Rollout)	Gradual module-by-module or territorial rollout within the defense system.	Application of an **Open API strategy** [10]; maximization of personnel adoption through a hybrid approach [5].

IV. Full Implementation and Monitoring	100% automation of compensation processes; real-time accountability.	Full compliance with cyber security standards [2]; continuous monitoring of user satisfaction and system efficiency.

Conclusion The implementation of ERP solutions for military personnel compensation is a necessary strategic step for achieving the defense objectives of Uzbekistan. The ERP system will significantly improve the accuracy of calculations, reduce manual processing time (by an average of up to **37%**), and eliminate the risk of financial irregularities (compliance can be improved by up to **72%**) [8]. This, in turn, will enhance transparency and accountability in the utilization of budget funds within the Defense sector.

Experiences like IPPS-A and JPA demonstrate [2] that the success of such projects depends not on the technology itself, but on **personnel training, process optimization, and change management** [7]. Therefore, Uzbekistan must place equal emphasis on process optimization and personnel upskilling alongside the technological solution. ERP implementation is not just a system change; it is a strategic investment to strengthen national defense capabilities and secure the social guarantees of its service members.

Evaluation Criterion	Measurement Indicator	Target Goal
1. Accountability Level (Audit)	Annual percentage decrease in compensation errors (overpayments / underpayments).	Near Zero
2. Process Efficiency	Reduction in manual processing time required to formalize compensation.	Reduction of up to 37% of manual processes [8].
3. Financial Transparency	Number of financial irregularities identified by internal and external audits.	Near Zero
4. Service Member Satisfaction	Usage rate of system login and self-service functions (Mobile access) [9].	High
5. Regulatory Compliance	Reduction in legal errors resulting from non-compliance with regulatory documents.	Reduction of up to 72% of violations [8].

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