

## INTRAPULSE MODULATIONS FOR RADAR PULSE COMPRESSION

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**Abstract:** Pulse compression in radar systems involves the transmission of a long coded pulse and the processing of the received echo to obtain a relatively narrow pulse in case of pulse radar. The increased detection capability of a long-pulse radar system is achieved while retaining the range-resolution capability of a narrow-pulse system. The second reason for using pulse compression is to optimize the radar waveform for a resistance to many kinds of jamming and distortion. Intrapulse modulation (IM) is technique for pulse compression. This paper evaluates the advantages of using IM techniques for pulse radar systems. A correlation receiver has been implemented, and various simulations were done to evaluate the radar system's resistance to active noise jamming. The analysis of three types of IM signals - signals with continuous (linear or nonlinear) frequency modulation (FM-IM), signals with discrete frequency modulation (FSK-IM), and signals with binary phase modulation (BPSK-IM) utilizing with detection of reflection echo at active noise jamming is presented. The probability of correct range detection versus the jamming-to-signal ratio (JSR) is evaluated and analyzed.

**Keywords:** intrapulse modulation, pulse compression, correlation receiver, jamming to signal ratio, probability correct of range detection.

## EVALUATION OF MILITARY ACTIVITY IMPACT ON ENVIRONMENT USING TWO-DIMENSIONAL MONTE CARLO METHOD

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**Abstracts:** Presents the results of a probabilistic risk assessment for human activity on the territory where military activity was conducted. The calculations results of possible human risk by carcinogenic and non-carcinogenic compounds which pollute the territory are obtained using two-dimensional Monte Carlo method. It is demonstrated that the use of two-dimensional Monte Carlo method for probabilistic risk analysis provides with more additional information for decision making on the application of measures for its reduction compared to one-dimensional Monte Carlo or deterministic values methods.

**Keywords:** ecological risk, risk assessment, military activity, human health, probabilistic distribution, two-dimensional Monte Carlo simulation.

## THE TRANSFORMATION OF THE CONCEPT OF TERRITORIAL DEFENSE IN UKRAINE IN THE CONTEXT OF THE EXPERIENCE OF THE ANTITERRORIST OPERATION IN EASTERN UKRAINE

Taras STUKALIN

**Abstracts:** The article is devoted to the problems of creating a new optimal model of territorial defense in Ukraine on samples of foreign countries. The thesis that the national model of territorial defense cannot be blindly copied from the others, and should be based on the unity of all forces and means of defense using the achievements of modern military science and science of public administration in the context of state policy in the sphere of national security is proved.

**Keywords:** defense, territorial defense, national security.

## HOW TO DELIVER MISSION EFFECTIVENESS IN ORGANIZATIONS USING PROCESS IMPROVEMENT STRATEGIES

Cezar VASILESCU

**Abstract:** The article proposes an analysis regarding the nature of business processes in organizations and how they can be improved in order to deliver mission effectiveness. In this endeavor there are explored the features and dynamics that define business processes, the factors that rally efforts to improve processes and the types of performance changes that improvements can generate. There are also examined impediments and obstacles to process improvement, leadership challenges, analytical tasks, tools and techniques for process innovation, and implementation management issues associated with process improvement strategies.

**Keywords:** Process Improvement, Business Processes, Business Process Reengineering (BPR), Chief Information Officer.

## THE FORMATION OF PEDAGOGUE'S PROFESSIONAL COMPETENCE BASED ON THE HUMANITARIAN APPROACH

Olga MARCHENKO

**Abstracts:** The essence and structure of the professional competence of the teacher (cognitive, activity-, personality-based and axiological components) has been specified. The content, principles, pedagogical conditions, educational strategies, technologies of the professional competence of the teacher on humanitarian grounds has been determined. The expediency of forming pedagogical competence on the basis of humanitarian approach has been substantiated. The parameters for evaluation of formation of the teacher's professional competence has been chosen.

**Keywords:** professional competence of the teacher, the formation of professional competence of teachers, educational technology, humanitarian approach.

## RULES AND PROCEDURES OF ACCIDENT INVESTIGATION IN CIVIL AVIATION

Grzegorz ZAJAC

**Abstract:** This paper describes the international and European standards concerning air accidents and incidents investigation. It is shown the procedures and mechanism of conducting the investigation and the role of State of Occurrence and other States interested in participation in this investigation. There are also statistics concerning air accidents worldwide and in Europe in recent years. The paper is to show the aim of accident investigation which is to prevent form similar occurrences in the future.

**Keywords:** investigation, air accidents, incidents, Annex 13, occurrence.

## NEW TECHNOLOGIES AND DEFENCE INDUSTRY THE CASE OF POLAND

Wojciech GIZICKI

**Abstract:** Modern technologies are a great opportunity for improving security at the national and international levels. Thanks to these new devices, it is possible to better protect people and structures and to more efficiently combat new threats that are constantly appearing. But if misused, they can constitute a real threat to millions of people. The aim of the present article is to analyze some issues related to new technologies in terms of national security, with particular emphasis on Poland's experiences.

**Keywords:** defence industry, new technologies, security of Poland.

# THE STRATEGY OF THE ARMED FORCES BASED ON CORE COMPETENCIES

Aneta NOWAKOWSKA-KRYSTMAN

**Abstract:** The article presents the formulation of the strategy of the armed forces on the basis of the assumptions of resource-based view. As a result, the armed forces are perceived as a bundle of resources, capabilities and competencies which are used to create and implement the strategy which aims at the satisfaction of the beneficiaries' needs in terms of security provision. The competency is connected with the potential of the armed forces perceived in the scope of core competencies which are the effect of synergy between resources and capabilities. Thus, the formulation of the strategy of the armed forces is presented in a slightly different methodological approach.

**Keywords:** the armed forces, core competencies, capabilities, resources, value chain.