

**KM Conference 2024**

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**Themes: Knowledge Management, Cybersecurity, Learning, and Information Technology**

<https://iiakm.org/conference/>

**Keynote Lecture**

**Challenges Associated with Investigation of the Impact of Artificial Intelligence,  
Cyber, Electronic and Cognitive Warfare on National Defence**

**Professor Andrzej Najgebauer**

Professor of MUT, Leader of Modeling, Simulation and Decision Support Research Team  
Cybernetics Faculty, Military University of Technology, Poland

**Keynote Overview:**

With the increasing threat of large-scale warfare and the already ongoing war in cyberspace, there is an acute need to adapt to the new challenges and acquire defence capabilities in all domains of conflict. For this to happen, we should understand what the use of new technologies in warfare is all about. The concept of multi-domain operations and different types of operational capabilities will be presented, including kinetic capabilities, artificial intelligence, cyber capabilities, electronic warfare and cognitive warfare. In order to study the impact of new capabilities on national defence, then we should obtain knowledge of the baseline defence capabilities. Ideas for researching and planning the development of defence capabilities will be presented. For a method called Capability Based Planning (CBP), conflict scenarios will be demonstrated and how to progressively study the impact of new technologies and capabilities starting with traditional warfare in the land and air domain and then including cyber, electronic warfare and cognitive capabilities. A prototype of an IT toolkit for strategic planning will be used to support the analysis and optimisation of the use of military response forces, taking into account operational criteria and cost criteria. The scope of the analysis carried out obviously concerns hypothetical situations and hypothetical data.

**About the Keynote Presenter:**

Professor of MUT Andrzej NAJGEBAUER Ph.D., D.Sc. - Leader of Modelling and Simulation for Decision Support in Conflict and Crisis Situations Team. Head of Operations Research and Decision Support Department. He was the Vice-Rector of Military University of Technology for scientific affairs (2008-2012), Dean of Cybernetics Faculty (2005-2008). He has Master's degree, Ph.D. and Certificate, Doctor of Science in Computer Science, Decision Support Systems. His scientific and professional also educational work is connected with theory of systems, artificial intelligence, modelling and simulation, modelling and designing of military decision support systems, conflict analysis, threat prediction, war games designing, exercise and training systems (CAX) – designing and development, cybersecurity and cyberwar. He was project leader of Polish Army Simulation System for CAXes. He is the member of IFORS and member of Polish Society of Operations Research and Systems Analysis, vice-president of Polish Society of Computer Simulation. He is Polish principal member of STO/NATO MSG. He is the project leader of many Polish or international projects on Decision Support Systems in the area of Security and Defence. He was an expert in the Strategic Defence Review for simulation and optimization analyses of Capability Based Planning and Budgeting of Polish Armed Forces. He is a member of special group of analysts, who participated in the evaluation of possible results of international war game for eastern Europe. He was the supervisor of 10 doctorates, and also an organizer and chair of many international scientific conferences in the area of Military Communication and Information Systems and Computational Intelligence. Author of over than 130 publications.

