



Editorial

Science and Air Power Journal, scientific publication of the Graduate School of the Colombian Air Force, is pleased to present the ninth volume to its readers. It is composed of research and innovation articles, highlighting *original research articles* that describe authentic results from research and technological development projects, as well as *reflection, review and short articles and case reports*. Each article, on diverse topics, introduces results from research work done by the distinguished group of authors, whose dissertations and studies are placed on each of the sections of our publication.

The first section, **Operational Safety and Aeronautical Logistics**, has four articles. The first one shows results from research work developed at the Aerospace Medicine Center, with the objective to analyze how and why *motion sickness* appears, since more than a pathology is a maladjustment of the organism to movement during flight, that generates a conflict of feelings which cannot be interpreted by the organism; however, it can be controlled and trained. Beyond the pathology, the authors, Maria Alejandra Correa and Luz Amparo Caputo, present a training program for flight crew recondition to flight activities; an important asset for aerospace medicine. Following, in the framework of aerial operations for search, the researcher, Diego Gerardo Roldan Jimenez, brings up how mathematics may help to find a disappeared airplane, taking as a reference the search cases of Malaysia Airlines Flight 370 disappeared on March 8th 2014 and Air France Flight 447 crashed on June 1st 2009, analyzing Doppler Effect and Bayes theorem. The author concludes that mathematic have collaborated in search operations, such it is necessary to consider new policies regarding safety measures. The next article, presents a review of the best practices on suppliers management worldwide, applicable to the system for administration of relations with suppliers. The author, Mayor Italo Arrazola, describes the need to pay special attention to supplier management, since it is one of the most critical activities on Supply Chain Management; after more than fifty references reviewed, he proposes a general procedure for supplier management applicable to the Head of Logistics Operations of the Colombian Air Force. The article that closes the section, presents a complete diagnostic about the Aeronautics Logistics Acquisition Process, activity performed through the supplier's portal of the Procurement Agency of the Colombian Air Force. The authors, Mayor Sonia Maria Peña Rendon and Erika Juliana Estrada Villa, seeking to propose improvements for the supplier's portal, search for system's weaknesses evaluation and identification, through *Relative Rating* and *M4P Matrix* use. The lack of training in Portal usage is highlighted within the results. Researcher's recommendations are part of the improvement plan for such process, given to the Head of Logistics Operations for consideration.

The second section, **Management and Strategy**, includes six articles. The opening article aims to analyze the importance of planning and strategic management of SMEs, which play a prevailing role

in the economic development of our nation, serving as suppliers for big enterprises. The researcher, Rafael Perez Uribe, suggests the need to reinforce management in search of competitive advantages. Therefore, through the Modernization Model for Organizations Management (MMOM) developed by EAN University in Colombia, seeks to identify the variables that participate among the sustainability of an organization in relation with strategic management. As a result, the author provides big contributions to managerial theory and includes some estimation for contractors of the Colombian Air Force. The next article, is the result of research activity carried on by the author, Carlos Alberto Ardila Castro at the Center for Strategic Studies on National Security and Defense- CEESEDEN- of the War College, who has consider, by his colleague's side, a relevant study of design and outline for security and defense policy in Latin America Countries. Thus, the researcher aims to analyze Argentina's strategic interests for materialization of a security policy in the interinstitutional framework of Mercosur. Subsequently, the researcher, Janiel Melamed, presents an analytic approximation regarding strategic deterrence possessed by the Air Force in armed conflicts of modern warfare, where serious challenges are faced in order to obtain a decisive military victory, even more when conflicts are characterized by radical ideological motivations. In the fourth article, the authors Carlos Alberto Ardila Castro and Carlos Antonio Pineda Herrera, present some of the existing theories on modern warfare phenomena in the framework of the international system, under a neo-realistic perspective. The researchers seek to study concepts such as asymmetry, symmetry, and include motivations on the asymmetric conflicts, among others, without forgetting relevant factors of *fourth generation warfare*. Later, the researcher, General Jose Mauricio Mancera, utilizes a series of approaches to demonstrate the use of warfare without limits or unrestricted warfare by China, with special emphasis on *cyberwarfare*, identified as a new, productive, discreet and few compromising way of fighting, during defense of Chinese national interests, where in the majority of cases, is against an asymmetric enemy with much higher power as the United States. The article that closes the section, allows identifying the evolution of espionage, even more after November 11th attack. There, the researcher Daniela Alejandra Alba Useche, highlights the role of Security Agencies in the development of programs for surveillance, collection, and analysis of information, utilizing *cyberspace-cyberespionage*, as methods to combat terrorism, used not only by the United States but also by the Russian Federation.

The third section, **Technology and Innovation**, consists of five articles. In first place, researchers from the National Astronomical Observatory of the National University of Colombia, Jhonathan Orlando Murcia Piñeros and Jose Gregorio Portilla Barbosa, present the simulation of a two stage rocket trajectory to place a nanosatellite into Orbit, through a conceptual design of the rocket, creating a computational code for optimization, and looking for reduction of take of mass and increase on velocity. In the second article, members of the Research Group on Telemedicine TIGUM, Leonardo Juan Ramirez Lopez, Yohana Patricia Rodriguez Ortega and Yuli Paola Cifuentes Sanabria, design a bipolar electrocardiograph for academic use, fundamental tool in the practice of cardiac signal acquisition, processing, visualization, and storing, by students of medicine, electronics, biomedicine, and telecommunications. It is important to mention that equipment acquisition was not likely due to its cost. Regarding the research carried on by the Center of Aerospace Technological Development for the Defense (CETAD), within the project titled as "System of Command and Control HOURS", the researcher, Capitan Jimmy Anderson Florez Zuluaga, explains how satellite positioning information is being integrated on the ATM systems globally through technologies such *Automatic Dependent Surveillance* (ADS), a network of cooperative surveillance which responds global expectations on the administration of air traffic. This forces to strengthen and guarantee the security and independence of the system. In this way, thanks to the results obtained on the research project discussed by the author, the CETAD identifies a tracking technique that aims to satisfy the needs of the Colombian Air Force on this matter. The fourth article shows the art of simulation and emulation in machine design, capable of imitating others without human or infrastructure risks involved in reality, with the purpose to evaluate the necessary skills to be developed in real life on the training framework of the Colombian Air Force, and with the goal to decrease costs and time implied. Under this consideration, the researcher, Jose Fernando Sizza Moreno, describes flight simulators on several operational bases of the Colombian Air Force, being this a contribution given the importance for students/officers who seek to plan the consecution of the objective and in the same way, a successful operation. On the innovation stage, the following article allows to analyze the behavior of the Global village and culture within the globalization phenomena from economic and technological aspects. The author highlights the importance of communication media or the so called



information age, on the global financial market, and lastly, the role played by the integration process and the need to re-organize main international institutions, given States are no longer the only actor on the International System.

The fourth section, **Teaching and Education**, presents five articles. In the framework of the Development of Curriculum Models Course – Multiversidad Mundo Read Edgar Morin University, the first article explains the urgency of a transdisciplinary concept to make possible a work of integration and comprehension of the world in accordance with its daily functioning. The researcher, Liliana Marisol Bermudez Santana, contemplates the promotion of a critical and reflexive thinking that allows at the same time the creation of knowledge in a more integrated and interconnected way with reality. She introduces the empiric-analytic, systematic-complex, paradigms, and its relation with the concepts of pluridiscipline, multidiscipline, interdiscipline, and transdiscipline. The second article, is taken from research on “Teacher Practices: Influence of training by B-learning methodology”; where researchers, William Bolivar, Maria Patricia Ochoa Valbuena and Crescencio Orrego, promote tele-cooperation projects for teachers involved on **B-Learning**, activity ruled by TIC. From there, the authors present a theoretical framework of this teaching methodology, starting point for the development of field studies that accompany research, which representative sample is taken from the group of teachers of elementary and middle school from Institución Educativa Departamental de Cundinamarca, IEDC, getting several results that enrich the study. This is possible with the design and application of the main research instrument “curso integr@r”. Afterward, researcher Douglas Eduardo Molina Orjuela, proposes an academic reflection about how political culture should be suggested as a phenomena beyond university elections; where elements of democracy converge, more than a representation, since the author expresses the need of active participation on the university scenario, involving professors, students, and administrative personnel. As evidence, he describes the elections of representatives before the decision’s bodies of San Buenaventura University, Bogota, besides proposing good practices for the improvement of such an interesting process. On the fourth article, researchers, Henry Acuña Barrantes – member of the Leadership Group of Nueva Granada Military University, and Camilo Acuña Porras – member of Insight Group of Andes University, find a common topic for study, being able to analyze

how Finnish model, through implementation of clear policies, has successfully implemented education at every level, seeking to give every citizen equal opportunities to receive high quality education; The program has located Finland on the top level of education in Europe. The section closes with the article titled as **Global Citizenship and Education**, where researchers, Paula Lizette Vega and Luis Alejandro Padilla, members of the research Group PIREO from Nueva Granada Military University, look for understanding the role played by the global citizen on the XXI century, which obligates to review the concept of citizenship before the need of an education with sense, efficient, and of quality, that allows each person to update and delve the cognitive information possessed in order to get adapted to new economic, political, social, and technological conditions of a globalized world. It comes from the project titled as “Construction of theoretical framework about citizenships competences for higher education with emphasis on public policy for the 1991-2012 period”

The articles of the ninth edition of the Science and Air Power Journal are considered to be a great contribution for our readers, students, professionals, professors, and researchers, generating reflections, dissertations, and debates with its reading; Achieving besides, a motivation to incorporate new investigative contributions on the next editions.

We want to thank the author’s invaluable collaboration, for their significant contributions that have helped to increase the scientific quality of our journal. The acknowledgement is extended as well to the Academic Peers Team who contributed with their valuable reviews, recommendations and suggestions, making this number, an edition with greater criteria of scientific quality and strictness. It is also given to our prestigious Editorial and Scientific Board that accompany us on this laudable work.

The editorial team of the Graduate School of the Colombian Air Force continues its commitment with scientific, technological, and innovation development, before the needs of our country and international community. Hence, improvements to the editorial and dissemination process of the Science and Air Power Journal have been made, such as there is an electronic version available as result of the implementation of **Open Journal System** (OJS) tool. Thus, we are part of the international scientific community that acquires good editorial practices by promoting **Open Access**. Simi-

larly, we look for access to several data bases so that our articles get higher range, visibility and recognition; being looked up, cited and referenced; work that will be concurrently done with the acquisition of *Digital Objects Identifier (DOI)*, being a permanent method of information for electronic resources, implemented since 2001, which guarantees scientific articles get an only code, so that they can be searched on the web in a permanent and reliable way.

Therefore, what has been stated before are some of the challenges for 2015; goals that continue the path of quality and scientific strictness, with the purpose to keep a tradition of excellence within the editorial process, recognition and visibility on the scientific, military and aerospace field, at national and international level. Finally, we just want to invite you to subscribe on our web site www.publicacionesfac.com with the purpose to join us in the development of such important project.

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