Chapter 4

Socionics and Sociometry Diagnosting of Air Navigation System’s Operator

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ABSTRACT

In this chapter, the authors have researched the operator behavioral activities in Air Navigation System (ANS) as a Socio-Technical System (STS). They have identified personality types of aviation professionals and their interactions during the performance of professional tasks in the small group on the example of the controllers’ team with the system approach. The authors have used socionics methods for determining the professional type of the operator namely energy consumption for the choice of profession and sociometry methods to determine the compatibility of operators in the group etc. They have presented the results of correlation analysis of socionics and sociometry indicators in ANS.

PROBLEMS OF JOINT ACTIVITY OF AIR NAVIGATION SYSTEMS’ OPERATORS

Statistics in recent decades point to the dominant role of human factor influence on the total number of aviation accidents (ACs), which is about 80% (Leychenko, Malishevskiy & Mikhalic, 2006; Shvets & Alekseev, 2008). 7%

DOI: 10.4018/978-1-5225-3108-1.ch004

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ACs reasons, arising from the fault of the human factor, are violations of the interaction between the flight crew (Leychenko, Malishevskiy & Mikhalic, 2006). A significant number of incidents and cases of aircraft damage on earth (to 34%) are also associated with impaired interaction between different groups of aviation professionals who provide flights (Leychenko, Malishevskiy & Mikhalic, 2006). The causes of most aviation accidents associated with the psychology of aviation specialists and require proper consideration. Currently completing flight crew and other aviation professionals groups is not regulating by documents. Joint activity plays an important role during work flight crew and controllers’ team. Features of the interaction in groups of aviation specialists the most evident in flight emergencies. We know what kind of professional activity affects the psychological and social personality type (Makarov, Nidziy & Shishkin, 2000). Despite the many techniques to assess and improve the performance of flight personnel are practically not using Sociometry and Socionics approaches for completing the flight crews, controllers’ teams and other aviation specialists’ groups (Leychenko, Malishevskiy & Mikhalic, 2006).

There are famous conceptual models of the human factor SHEL (Software, Hardware, Environment, Liveware) (Fundamental Human Factors Concepts, 2002) and Reason’s Swiss Cheese Model (Safety Management Manual (SMM), 2013) according to which aviation accidents are the result of a combination of active and latent errors. At the moment, the states of the influence of the human factor. Classical socionics is based on approach, proposed C. Jung (1875-1961) – Swiss psychiatrist and founder of analytical psychology. In his work “Psychological Types” he suggested typology of characters based on four mental functions inherent in man: thinking, emotions, feelings, intuition (Jung, 2006). The test of Catherine Briggs and Isabel Myers, developed in 1959, “Myers-Briggs Type Indicator” (MBTI) (Quenk, 2009; Myers-Briggs & Myers, 2012), except C. Jung psychological dichotomies (PD) “extraversion-introversion”, “logic-ethics”, “sensing-intuition” uses PD “decision-perception” that is “the way of their interaction with the environment” (Leychenko, Malishevskiy & Mikhalic, 2006). Lithuania psychologist A. Augustinaviciute concluded that the type is innate mental structure that defines a particular type of information exchange with personality environment (Augustinaviciute, 2008). A person is considered as an information system that has specific communication channels with their characteristic limitations. Thus, in terms of socionics, human personality is a complex system, which
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