

48th SYMPOSIUM ON SAFETY, QUALITY AND KNOWLEDGE MANAGEMENT IN SPACE
ACTIVITIES (D5)

Knowledge management and collaboration in space activities (2)

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KNOWLEDGE MANAGEMENT INFRASTRUCTURE: NASA'S MARS MISSION WITH
GAMIFICATION TECHNIQUE & SELF-KNOWLEDGE MANAGEMENT INTANGIBLE OUTCOMES
FOR YOUNG PROFESSIONALS**Abstract**

Exploration of the Mars is the preferential topic by space community. Especially NASA is willing to accomplish both robotic and manned Mars missions within 2020s. Before the human spaceflight, the demonstration of a practicable knowledge management infrastructure prevents possible mission failures. In conjunction with the incremental responsibilities, the private sector requires well qualified young people to collaborate and support agencies and governments for future Mars missions. Therefore, the paper objectives to create a knowledge management (KM) approach by analyzing (1) collaboration among universities, agencies and private sector and (2) young professional workforce development to support requirements of future Mars missions. In the meantime, the knowledge management approach and young professional development particularly focuses on the self-knowledge management. The self-knowledge management associates issues in the social and personality psychologies such as unconscious, introspection, accuracy, bias, experimental methods. The following objective of the paper is the integration of intangible outcomes of the self-knowledge management into the applicable knowledge management approach for NASA's Mars Mission. The KM approach is constituted by following resources; (1) IPMC Young Professional Workshops, (2) NASA's APPEL documents and Masters with Masters Programs (3) literature review about training and education and (4) Self-knowledge management studies. Results of the self-knowledge management are related outcomes such as motives and biases, decision making, unconscious thought and relationship outcomes. The literature review denotes challenges of current trends in training and development such as mobile learning, social learning and leadership development. IPMC YP workshops show practical applications of project management and system engineering from various organizations. Due to the recent studies of NASA, the potential KM approach involves gamification techniques and constructive scenarios for the Mars missions including technical and organizational issues. Gamification technique uses simulations to train young professionals by using previous mission failures. In addition, simulations allow hands-on experience for scientists and engineers visualize Mars within possible defaultments.