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Author: Dr. Tõnis Eerme
University of Tartu, Estonia

Mr. Davids Stebelis
Latvia

LESSONS OF THE ANALYSIS OF THE SPACE INDUSTRY SKILL GAPS – THE LATVIAN PERSPECTIVE

Abstract

Latvia, a small European country with a population of 1.8 million, has been an Associate Member of the European Space Agency (ESA) since 2020. In 2023, the authors conducted a comprehensive study to map the current workforce of the Latvian space industry and forecast future workforce needs. The collected knowledge was the basis for developing measures to address imbalances between labor demand and supply in the Latvian space community.

The study methodology was designed to ensure data quality. The space industry members filled in online questionnaires, and several semi-structured face-to-face interviews were conducted with each organization in the sample. The study team applied multiple data triangulation and validation techniques to address inconsistencies in data.

The study results offer a number of insights into the human resource development processes in emerging space nations. From the evolutionary perspective, integration with the ESA can be seen as a crucial external influence leading to the phase transition of the ecosystem. This transition is characterized by the consolidation of critical mass in ESA suppliers in Latvia and the infusion and diffusion of specific contextual knowledge on space product development. Within a short period, the number of dedicated space companies and intra-firm business units has increased, as have the ratios measuring the employees' relative work time spent on space projects. We argue that such a phase transition, induced by intensified international collaboration and manifested in critical mass accumulation, is a necessary pre-condition for planning effective long-term human resource development policies in emerging space nations.

The study highlighted several interesting patterns in the perceived skill gaps in organizations developing space-related products and services. While more than 80 percent of the respondents acknowledged skill gaps concerning scientific, engineering, or technical functions, the respective share for managerial or entrepreneurial skills was slightly over 40 percent. The finding held for all industry segments (downstream, upstream) and firm sizes but was inconsistent with the financial performance of the companies. We conclude that educational and training resources developed for the space industry must focus more on creating and nurturing market awareness in the space ecosystem as a vital ingredient of any human resource development policy mix of emerging space nations. This calls for more extensive integration of courses focused on the social science component of space activities in the space science and engineering curricula.