IAF BUSINESS INNOVATION SYMPOSIUM (E6)
Innovation: The Academics' Perspectives (3)

Author: Dr. Xiaoxiao Li
Fuzhou University, China

RESEARCH NETWORK OF CHINA'S LAUNCH VEHICLE INDUSTRY: A SOCIAL NETWORK ANALYSIS OF COLLABORATIVE LITERATURE

Abstract

Background: China's launch vehicle industry has been developing dramatically. A new series of launch vehicles has been developed, and the launch frequency has continued to increase. This stems from the fact that China's launch vehicle industry has made great innovation and progress in research and production. This study explores the structure of the research social networks supporting the innovation and progress of the industry. Methods: Using the China National Knowledge Infrastructure and Web of Science databases, data on academic papers published from 2000 to 2019 by the China Academy of Launch Vehicle Technology (CALT) and its affiliated research institutions were retrieved. A co-institution and co-city matrix of research network was derived based on the data. The collaboration matrix of institution was subdivided into four periods, 2000–2004, 2005–2009, 2010-2014 and 2015–2019, through which the trends in the evolution of research collaboration were longitudinally analyzed. The institution collaboration matrix was subdivided according to type of cooperative partner: CALT with China's other space institutions, universities, central government institutes, local government institutions, military, and oversea institutions. UCINET 6.0 was used to conduct social network analyses. Results: From 2000 to 2019, the scale and frequency of research collaboration have increased significantly, and a number of research collaboration teams have formed. The study identified the core institutions, cities, and their collaboration subgroups. The core institutions were not limited within the space institutions but also extended to other organizations; among these, Harbin Institute of Technology, Beihang University, Northwestern Polytechnical University, and some other national elite universities have played an important role. Furthermore, institutions affiliated to the Chinese Academy of Sciences as well as other central government-owned defense enterprises, such as China Electronics Technology Group Corporation, Aviation Industry Corporation of China, China North Industries Group Corporation were closely involved in the collaboration. For the military, the Armament Department of the Central Military Commission, the Navy, and the Rocket Army were also closely involved in the collaboration. Internationally, institutions in the United States, the United Kingdom, and Germany were also important participants in the research collaboration. Conclusion: Research collaboration in China's launch vehicle industry is expanding and a large-scale collaboration network has been formed. The network is highly centralized and collaboration among institutions has formed a relatively fixed collaboration group. Elite universities, central government-owned institutions, and defense enterprises play an important role in collaboration. Although international collaboration has been relatively weak, it shows a growing trend.