

大学と民間企業による協働研究開発システムの実態 —工学系の事例研究—

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要旨

本報告書は、大学と民間企業が連携するための種々な協働研究開発システムを、研究領域と協働研究方法等の特徴から細分化し、個々の実態を大学視点で分析した。大学全体の包括的な実態の分析では浮き彫りにされにくい個々の実態の詳細をまとめている。大学内部局側を工学系に絞り、さらに研究領域を、①機械・電機・材料系、②化学系、③建築・土木・都市計画系に細分すると、①②③間で民間企業の研究開発における大学のかかわり方は大きく異なり、例えば②の化学系では、大学と民間企業による協働研究開発システムにおける組織としての大学の位置づけが明確であるが、①の機械・電機・材料系では教員個人による課題解決型の研究協力のような、組織としての大学の位置づけが明確でない場合が典型的であることが見いだされた。協働研究等の活動の類型としては、大学内に設置される協働研究部門の特徴から、①教員個人による研究開発協力の活動、②組織的連携により、課題の落とし込みから担い研究開発成果に責任を持つ活動、③民間企業内の研究開発組織を一部代行できる活動、に細分化でき、また、例えば③の構成を協働研究部門の設置目的とするが実態は①②で留まっている実状も見いだされた。

大学が地域に貢献する研究開発の取り組みでは、公立大学が地方自治体と連携し、中小企業に対して、研究成果の実用化のための設備投資、人材育成まで含めて総合的に支援する体制を構築している例、および、地方の国立大学、地域産業に貢献する私立大学の取り組み例を示し、研究開発に留まらず、その成果の確実な実用化を推進する現場の実状を浮き彫りにしている。

Current Status of Collaborative Research and Development (R&D) Systems between Universities and Private Companies — Case Studies of Engineering Collaborative R&D Systems

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ABSTRACT

By breaking down various collaborative R&D systems designed for universities and private companies to collaborate, based on the characteristics of research areas and collaborative research approaches, this report analyzed the current status of individual R&D systems from a university perspective. As a result, this report summarized the current status of individual R&D systems in detail, which would be difficult to highlight in the conventional comprehensive analysis of the entire universities. In this study, we limited the internal subdivisions on the university side to engineering departments. At the same time, we broke down the engineering departments into three groups: (1) mechanical, electrical, and material engineering, (2) chemical engineering, and (3) architectural, civil, and urban planning engineering. As a result, the extent of universities' involvement in private companies' R&D varied significantly among the three groups. For example, in the group of (2)

chemical engineering, the position of a university as an organization was apparent in a university/private company collaborative R&D system. On the other hand, in the group of (1) mechanical, electrical, and material engineering, we found that the position of a university as an organization was typically unclear, as exemplified by problem-solving-oriented research cooperation by individual university teachers. Based on the characteristics of the collaborative research sections established in universities, the types of collaborative research activities can be broken down into the following three categories: (i) activities of collaborative R&D by individual university teachers, (ii) activities to take responsibility from problem identification to R&D results through organizational coordination, and (iii) activities to cover part of the R&D organization of a private company. However, we also found that while some collaborative research sections were established for category (iii), their current status still fell under category (i) or (ii).

As to R&D activities in which universities are contributing to the community, this report showed examples of the frameworks in which public universities, in cooperation with local governments, are providing comprehensive assistance to small and medium enterprises, including capital investment and human resource development for the practical use of R&D results. This report also introduced examples of activities taken by national universities in provincial areas and private universities contributing to regional industry. As a result, this report highlighted the current status of the front lines driving not only R&D activities but also the practical use of the R&D results in a reliable manner.