

## Abstract

### International Technology Transfers and the Role of Governments: A Study on Japanese Official Development Assistance to the Railway Sector in India

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There exists a strong correlation between the material prosperity & global competitiveness of any country and its ability to master science & technology. Countries that lack the ability to acquire it tend to be poor and underdeveloped while those that are able to adapt, innovate and create new technologies, are able to produce competitive goods and services. However, less than 1% of global research and development is currently spent on technological innovations for poor countries. United Nations and other donor agencies are therefore increasingly using concepts like "Knowledge Aid" and "Technological Learning", to address a host of development issues.

This research examines the role of governments and Official Development Assistance (ODA) in the transfer of technology to developing countries. Using the framework of dependency theory and path dependency, it compares four cases of technology transfer in a public utility service - Railways - in Japan and India. Of the four cases, two involve the use of ODA: the World Bank loan for the *Shinkansen* project in Japan (1960-64) and the Delhi Metro Project in India using JBIC/JICA loans (1998-2008). In the remaining two cases we compare technology transfer in railways using private licensing agreements between of Hiroshima LRT & Siemens (Germany) and India's Integral Coach Factory & SWS (Switzerland). The conclusion is that the effectiveness of ODA in technology transfer depends to a large extent on how recipient governments encourage indigenous research & development institutions, as well as competition & collaboration amongst domestic engineering firms.