

國立陽明交通大學

科技管理研究所

碩士論文

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Master Thesis

地理與文化差異如何影響技術融合？

How geographic and cultural differences influence
technology fusion?

研究生：許齡芸 (Hsu, Ling-Yun)

指導教授：蘇信寧 (Su, Hsin-Ning)

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摘要

地理與文化差異對技術融合有顯著影響，然而過去文獻與研究對此關係缺乏系統性探討。為填補此研究空白，本研究使用美國專利商標局資料庫中與半導體相關之專利資料進行分析，深入探討地理與文化距離對技術距離之影響。本研究發現跨區域合作可能導致技術融合效果不佳，而跨文化合作可能導致組織層面的技術融合降低，但卻能提升個人層面的技術融合效果。此外，本研究指出地理距離對中國和美國的技術距離有較強的影響，而文化距離對台灣和美國的技術距離有較強的影響。以上研究結果可為企業提供有價值的管理洞見，通過跨文化和跨區域合作增強創新能力和提高技術價值。另一方面，本研究亦指出專利引用分析在半導體行業之技術演進和知識交流扮演的重要角色。

關鍵詞：技術融合；技術距離；文化距離；地理距離；專利引用分析；半導體。



How geographic and cultural differences influence technology fusion?

Student: Ling-Yun, Hsu

Advisor: Hsin-Ning, Su

Institute of Management of Technology
National Yang Ming Chiao Tung University

Abstract

Geographic and cultural disparities exert significant influence on the intricate dynamics of technology fusion, a subject of paramount importance within the scholarly discourse. To address this critical research gap, a rigorous and systematic approach is adopted, leveraging a comprehensive analysis of data derived from the USPTO semiconductor patents database. Findings reveal nuanced and multifaceted patterns, elucidating the interplay between cross-regional and cross-cultural collaborations in technology fusion. Cross-regional collaborations may fall short of their potential, while cross-cultural collaborations exhibit promise, facilitating effective technology fusion at the individual level, albeit with comparatively lower levels of fusion at the organizational level. Divergent impacts of geographic and cultural distance on technology fusion emerge across specific contexts, including China, the USA, and Taiwan. Geographic distance influences technology distance in China and the USA, underscoring its salience. In Taiwan and the USA, cultural distance assumes prominence, impacting the degree of technology fusion achieved. Empirical insights yield crucial managerial implications for organizations seeking to invigorate innovation and maximize technology value through cross-cultural and cross-regional collaborations. The study highlights the indispensable role of patent-based indicators in demarcating technology evolution trajectories. It emphasizes the pivotal nature of knowledge exchange within the semiconductor industry, fueling and shaping technology development. Situating the study within this intellectual landscape, it offers invaluable contributions to advance understanding, enhance theoretical perspectives, and guide successful collaborative endeavors.

Keywords: Technology fusion; Technology distance; Cultural distance; Geographic distance; Patent citation analysis; Semiconductor.