

# 網路外部性下雙佔廠商之產品相容性決策

## The Compatibility Choices of Duopolistic Firms under Network Externalities

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**摘要：**許多產品必須聯合使用才能產生價值，這種產品稱為「系統產品」。生產系統產品的廠商應否使其產品與競爭者之產品相容是管理上的研究議題。然而，過去文獻多強調廠商間產品相容所產生的「網路利益」，卻未考慮增加相容性可能會造成產品差異性減少，進一步造成廠商間產品競爭趨於激烈的問題。有鑑於此，本研究建立一個兩期賽局模型，並將產品相容性之增加會造成產品差異性減少之因素，納入模型變數之內，以分析廠商產品最適相容程度之決策因素。本研究發現廠商的產品應否與競爭者之產品相容，應視增加相容所得到的「網路利益」及「相容利益」是否大於從而提高的「競爭成本」而定。本研究進一步探討影響廠商相容決策之因素，研究發現：廠商既有網路大小、廠商間成本優勢、以及相容對差異化的影響程度等皆會影響廠商之產品相容決策。本文亦比較廠商以產量、或價格為決策變數下的相容決策，證明前述結論仍然成立。在廠商間關係方面，產品相容決策可以反映廠商間競爭與合作並存的關係。

**關鍵字：**系統產品、網路外部性、產品相容性

**Abstract:** Many products generate value when combined with others are called "system products". It is an important issue on system products whether the firm should make its product be compatible with its competitor's. However, much literature has emphasized on the network effect of compatibility, little attention has been concerned with the fact that product differentiation decreases with compatibility. In this paper, we set-up a two-stage duopoly game to fill this gap, and analyze how the firm chooses the

optimal degree of compatibility. This paper shows that the compatibility choices of the firm depends on the gain from network effect, compatibility effect, and the loss from increasing competition. This paper also shows that the factors of optimal compatibility choices of firms includes: the existing installed base of the firm, the cost advantage/disadvantage of the firm, and to what degree is the impact of compatibility on product differentiation. We also discuss whether the above results are robust when firms choose quantity produced or prices as their actions in the second stage. Moreover, with respect to the managerial implication, this study suggests that competition and cooperation is the nature of the relation between firms in systems industries.

**Key words:** System Products, Network Externalities, Compatibility