

# The Influence of Manufacture Product Development Proficiency and Product Development Project Flexibility on Product Flex

彭瀚正、蔡翠旭

E-mail: 9608156@mail.dyu.edu.tw

## ABSTRACT

The Taiwanese industry wants to face fast variety and dynamic state environment under, in addition to knowing how to handle the flexible advantage that the current manufacturing leads to, must also with develop a new product actively, can create higher value for the enterprise. Therefore, the enterprise can also extend internal folio to deliver an activity each well-trained degree of stage in pursuing to appear on market results as. This research draws up to take cross-straits manufacturing industry as to study topic, inquiring into the product development well-trained degree commercial to product project results a relation; And does the product develop? The case flexibility will have to the in the interval relation to regulate and have to the results what influence. After statistically analysis, the findings are as follows : 1. The level of Taiwan new products development positively is positively significant with the market performance of new development products, but China is not positively significant it. 2. For the products with higher flexibility to the firm, if matching with better new products development proficiency, leads to a higher financial market performance of new development products.

Keywords : product development proficiency ; marketing proficiency ; technical proficiency ; product development flexibility ; product commercialization project performance

## Table of Contents

內容目錄 中文摘要 . . . . .	iii	英文摘要 . . . . .	iii
. . . . . iv 誌謝辭 . . . . .		v 內容目錄 . . . . .	
. . . . . vi 表目錄 . . . . .		viii 圖目錄 . . . . .	
. . . . . x 第一章 緒論 . . . . .	1	第一節 研究背景與動機 . . . . .	1
. . . . . 1 第二節 研究目的 . . . . .	2	第三節 研究範圍 . . . . .	2
. . . . . 3 第四節 研究流程 . . . . .	4	第二章 文獻探討 . . . . .	4
. . . . . 6 第一節 新產品開發過程相關文獻探討 . . . . .	6	第二節 新產品商業化專案績效相關文獻探討 . . . . .	11
. . . . . 11 第三節 產品開發專案之彈性 . . . . .	18	第三章 研究方法 . . . . .	23
. . . . . 23 第一節 研究架構 . . . . .	23	第二節 研究假設與推論 . . . . .	23
. . . . . 23 第三節 變項之操作性定義與衡量 . . . . .	25	第四節 問卷設計 . . . . .	28
. . . . . 28 第五節 研究對象及抽樣方法 . . . . .	29	資料分析方法 . . . . .	30
. . . . . 30 第四章 實證分析與結果 . . . . .	32	第一節 大陸與台灣樣本基本資料描述 . . . . .	32
. . . . . 32 第一節 大陸與台灣量表之信度分析 . . . . .	45	第二節 研究假設檢定 . . . . .	46
. . . . . 46 第五章 研究結論與建議 . . . . .	63	第一節 研究結論 . . . . .	63
. . . . . 63 第二節 研究貢獻 . . . . .	68	第三節 研究限制 . . . . .	68
. . . . . 68 第四節 後續研究建議 . . . . .	69	參考文獻 . . . . .	71
. . . . . 71 附錄 問卷發放版 . . . . .	82		

## REFERENCES

- 一、中文部份: 賴士葆(1989), 研究發展/行銷/製造三部門互動與新產品發展績效相關之研究, 中華經濟企業研究論叢, 中華經濟研究院。鍾志明(1999), 新產品發展過程之資源配置與績效之關係—以國內製造業為例, 國立政治大學企業管理研究所未出版之博士論文。張世佳, 林能白(1999), 製造部門積極性角色與事業策略之配適分析, 管理評論, 18(1), 59-95。邱皓政(2000), 量化研究與統計分析-SPSS, 台北:五南圖書出版。林震兒(2006), 多變量分析:SPSS 的操作與應用, 台北:智勝文化事業出版。二、英文部份 Anderson, S. (1993). Measuring manufacturing flexibility: The impact of product mix complexity on operating performance and manufacturing overhead cost, doctoral dissertation. Cambridge: Harvard University. Beckman, S. L. (1990). Manufacturing flexibility: The next source of competitive advantage. In Moody, P. E. (Eds), Strategic Manufacturing: Dynamic New Directions for the 1990s (pp. 107-132), Homewood, IL: Dow Jones-Irwin. Block, S. B.,

Aldag, R. J., & Cunningham, W. H. (1993). *Business in A Changing world*. Cincinnati, Ohio: South-Western Publishing Co.

Boyer, K. K., & Leong, G. K. (1996). Manufacturing flexibility at the plant level. *Omega*, 24, 495-510.

Brown, S. L., & Eisenhardt, K. M. (1995). Product development: Past research, present findings, and future directions. *Academy of Management Review*, 20, 343-378.

Buzacott, J. (1982). The Fundamental Principles of Flexibility in Manufacturing System. Proceedings of 1st international conference (pp. 13-22), North Holland, Amsterdam: Elsevier science publishers B.V..

Calantone, R. J., & Benedetto, C. A. D. (1988). An integrative model of the new product development process: An empirical validation. *Journal of Product Innovation Management*, 5, 201-215.

Calantone, R. J., Vickery, S. K., & Droge, C. (1995). Business performance and strategic new product activities: An empirical investigation. *Journal of Product Innovation Management*, 12(3), 214-223.

Carlsson, B. (1989). Flexibility and the theory of the firm. *International Journal of Industrial Organization*, 7, 179-204.

Chen, I. J., & Chung, C. H. (1992). The marketing-manufacturing interface and manufacturing flexibility. *Omega*, 12(4), 431-443.

Clark, K. B., & Fujimoto, T. (1989). Lead time in automobile product development explaining the Japanese advantage. *Journal of Engineering and Technology Management*, 6, 25-58.

Clark, K. B., & Fuzimoto, T. (1991). *Product Deveopment Performance: Strategy, Organization and Management in the world Auto Industry*. Boston, Massachusetts: Harvard Business School, 64-97.

Collins, R. S., & Schmenner, R. (1993). Achieving rigid flexibility: factory focus for the 1990s. *Journal of European Management*, 11, 443-447.

Cooper, R. G. (1979). Identifying industrial new product success: Project new prod. *Industrial Marketing Management*, 8, 124-135.

Cooper, R. G., & Kleinschmidt, E. J. (1986). An investigation into the new product process: steps, deficiencies, and impact. *Journal of Product Innovation Management*, 3, 71-85.

Cooper, R. G., and Kleinschmidt, E. J. (1987). Success factors in product innovation. *Industrial Marketing Management*, 16, 215-223.

Crawford, C. M. (1991). *New product management* (3rd ed.). Homewood, IL.: Irwin.

Das, T. K., & Elango, B. (1995). Managing strategic flexibility: Key to effective performance. *Journal of General Managemen*, 20, 60-75.

Dixon, J. R. (1992). Measuring manufacturing flexibility: An empirical investigation. *European Journal of Operations Research*, 60, 131-143.

Gerwin, D. (1987). An agenda for research on the flexibility of manufacturing processes. *International Journal of Operations and Production Management*, 7(1), 38-49.

Gerwin, D. (1993). Manufacturing flexibility: A strategy perspective, *Management Science*, 39(4), 395-410.

Ghemawat, P. (1991). *Commitment: The Dynamic of Strategy*. New York: Free Press, 109-134.

Gupta, Y. P., Subhash, C. L., & Mangold, W. G. (1991). An examination of the relationship between manufacturing strategy and marketing objectives. *International Journal of Operations and Production Management*, 11(10), 33-43.

Haddad, C. J. (1996). Operationalising the concept of concurrent engiceering: A Case Study from the U.S. Auto Industry. *IEEE Transactions on Engineering Management*, 43, 124-132.

Handfield, R. B., Ragatz, G. L., Petersen, K. J., & Monczka, R. M. (1999). Involving suppliers in new product development. *California Management Review*, 42, 59-82.

Hyun, J. H., & Ahn, B. H. (1990). A unifying framework for manufacturing flexibility. *Manufacturing Review*, 5(4), 251-260.

Iansiti, M. (1995). Shooting the rapids: Managing product development in turbulent environments. *California management Review*, 38(1), 22.

Jaikumar, R. (1986). Post-industrial manufacturing. *Harvard Business Review* 64(6), 69-76.

Jenkins, S., Forbes, S., Durrani, T. S., & Baner, S. K. (1997). Managing the product development process. Part II: Case Studies. *International Journal of Technology Management*, 13(4), 379-394.

Jones, R. A., & Ostroy, J M. (1984). Flexibility and uncertainty. *Review of Economic Studies*, 51(1), 13-32.

Krishnan, V., Eppinger, S. D., & Whitney, D. E. (1997a). A Model Based Framework to Overlap Product Development Activities. *Management Science*, 43(1), 165-178.

Krishnan, V., Eppinger, S. D., & Whitney, D. E. (1997b). A Model Based Framework to Overlap Product Development Activities. *Management Science*, 43(4), 437-451.

Liker, J. K., Collins, P. D., & Hull, F. M. (1999). Flexibility and standardization: test of a contingency model of product design-manufacturing integration. *Journal of Product Innovation Management*, 16(3), 248-267.

Mandelbaum, M. (1978). *Flexibility in Decision Making: An Exploration and Unification*. Unpublished doctoral dissertation, University of Toronto, Canada.

Marco, I. (1995). Shooting the rapids: Managing product development in turbulent environment. *California Management Review*, 38(1), 37-58.

Mascarenhas, B. (1981). Planning for flexibility. *Long Range Planning*, 14(5), 78-82.

Millson, M. R., & Wilemon, D. (2002). The impact of organizational integration and product development proficiency on market success. *Industrial Marketing Management*, 31, 1-23.

Montoya-Weiss, M. M., & Calantone, R. (1994). Determinants of new product performance: A review and meta-analysis. *The Journal of Product Innovation Management*, 11, 397-417.

Moorman, C. & Miner, A. S. (1997). The impact of organizational memor y on new product performance and creativity, *Journal of Marketing Resear* 34, 91-106.

Narender, S., & Sushil (2004). Flexibility in product development for success in dynamic market environment. *Global Journal of Flexible Systems Management*, 5(1), 13.

Olhager, J. (1993). Manufacturing flexibility and profitability. *International Journal of Production Economic*, 30(3), 67-78.

Ozer, M. (2000). Information technology and new product development: Opportunities and pitfalls. *Industrial Marketing Management*, 29, 387-396.

Ranta, J., & Tchijov, I. (1990). Economics and success factors of flexible manufacturing systems: The conventional explanation revisited. *International Journal of Flexible Manufacturing Systems*, 2(3), 169-190.

Sethi, A. K., & Sethi, S.P. (1990). Flexibility in manufacturing: A survey. *The International Journal of Flexibility System*, 2, 289-328.

Simpson, J. T., Kollmannsberger, C., Schmalen H., & Berkowitz, D. (2002). New product development in german and US technology firms. *European Journal of Innovation Management* , 5(4), 194-207.

Song, X. M., (2001), The Effects of Perceived Technological Uncertainty on Japanese New Product Development, *Academy of Management Journal*, Briarcliff Manor ; Feb 2001 ; 44(1), 63.

Song, X. M., & Montoya-Weiss, M. M. (2001). The effect of perceived technological uncertaintyt on Japanese new product development. *Academy of Management Journal*, 44(1), 61-80.

Song, X. M., & Montoya-Weiss, M. M. (1998). Critical development activities for really new versus incremental products. *The Journal of Product Innovation Management*, 15, 124-135.

Song, X. M., Montoya-Weiss, M. M., & Schmidt, J. B. (1997). The role of marketing in developing successful new products in south Korea and Taiwan. *Journal of International Management*, 5, 47-69.

Song, X. M., & Parry, M. E. (1996). What separates Japanese new product winners from losers *Journal of Product Innovation Management*, 13, 422-439.

Song, X. M., & Parry, M. E. (1997).

The determinants of Japanese new product successes. *Journal of Marketing Research*, 34(1), 64-76. Song, X. M., & Parry, M. E. (1999). Challenges of managing the development of breakthrough products in Japan. *Journal of Operations Management*, 17, 665-688. Stigler, G. (1939). Production and distribution in the short run. *Journal of Political Economy*, 47(3), 305-327. Suarez, F. F., Cusumano, M. A., & Fine, C. F. (1995). An empirical study of flexibility in manufacturing. *Sloan Management Review*, Fall, 25-32. Suarez, F. F., Cusumano, M. A., & Fine, C. H. (1996). An empirical study of manufacturing flexibility in printed circuit board assembly. *Operations Research*, 44(1), 223-240. Swamidass, P. M., & Newell, W. T. (1987). Manufacturing strategy, environmental uncertainty and performance: A path analytic model. *Management Science*, 33(4), 509-524. Thonmke, S., & Reinentsen, D. (1998). Agile product development: Managing flexibility in uncertain environment. *California Management Review*, 41(1), 8-30. Tidd, F. (1991). *Flexible Manufacturing Technologies and International Competitiveness*. London: Pinter Publishers, 17-32. Ulrich, K. T. & Eppinger, S. D. (2000), *Product Design & Development*, 2nd ed., N. Y.: McGraw-Hill, Inc. Upton, D. M. (1994). The management of manufacturing flexibility. *California Management Review*, Winter, 72-89. Upton, D. M. (1995). Flexibility as a process probability: The management of plant capabilities for quick response manufacturing. *Journal of Operations Management*. 12(3/4), 205-224. Ward, A. C., Liker, J. K., Cristiana, J. J., & Sobek, D. K. (1996). The second toyota paradox: How delaying decisions can make better car faster. *Sloan Management Review*, 36(3), 43-61. Zahra, S. A., Nash, C., & Bickford, G. (1994). Creating competitive advantage from technological pioneering. *IEEE Engineering Management Review*, Spring, 76-83. Zelanovic, D. M. (1982). Flexibility-a condition for effective production system. *International Journal of Production Research*, 20(3), 319-337. Zirger, B. J., & Maidique, M. A. (1990). A model of new product development: an empirical test. *Management Science*, 36, 867-883.