The Innovation Management Activity and Technical Innovation Ability An Empirical Research of Biotechnology Industry in T

張曉虹、封德台

E-mail: 9418276@mail.dyu.edu.tw

ABSTRACT

Biotechnology industry is a typical knowledge-oriented industry; the development of which involves technology, financing and management, all three constructs are emphatic of proficient human resources. Hence it is essential for any corporation engaged in such an industry to be equipped with a efficient and efficacious management mechanism that comcurrently empowers knowledge innovation for the company to be competitive as well as to contribute to elevating overall human civilization and well-being. The purpose of the study was to investigate the correlation of Taiwan biotechnology industry's creative corporate governance and technical innovation, and further analyzed the manufacturing sector's innovative concentration, creative work environment and research and development management to determine if these elements influence production capacity, management capability and learning ability. The empirical findings revealed that: 1. Taiwan biotechnology industry's innovative concentration lay with product marketing and profitalility, and the questionnaires showed reservation in the innovation segment, resulting in ambivalent survey findings; 2. Given the extensive scope of creative work environment, the correlation pertinent to technical creativity was also insignificant; 3. The segment on R&D activities informed significant difference with technical creativity, attributed to the industry's short product lifecycle and fierce market competition that dictate continuous product research and development to maintain profitability. Hence in technical resource integration in addition to solicit clients for joint development, technical alliances were employed to eliminate fumbling and maximize development expediency that made the format vital.

Keywords : Biotechnology Industry ; Innovation Management Activity ; Technical Innovation Ability

Table of Contents

REFERENCES

一、 中文部份 1.丁明勇(1997), 「高科技廠商特性、研究發展管理活動與成效之研究－以科學園區廠商實證」, 交通大學管理科學研究所博士論文。 2.朱兆文(1995), 「生物技術產業現況與趨勢」, 1995ITIS產業現況與趨勢研討會, 台北。 3. 行政院國家科學委員會(1995), 「加強生物技術產業推動方案－生物產業」, 第六卷第三期, p12-24, 台北。 4.余清水(1995), 「創新理論及實例探討」, 國立清華大學工業工程研究所碩士論文, p16, 新竹。 5. 李連滋、江淑芬(1997), 「我國潛在新興產業SWOT分析－以生物技術產業為例」, 經濟情勢暨評論季刊, 第三卷第三期, p95-108。 6. 吳若君(1998), 〝網路事業知識整合與創新類型關係之研究〞, 國立政治大學科技管理

研究所碩士論文，1998 年，六月，p14。 7. 吳思華(1998)，「知識流通對創新的影響」，第七屆產業管理研討會。 8. 尾崎明彥，技術力提昇有秘訣，中國生產力中心之科技研發管理新知交流通訊第四期，頁21-24，民國82年。 9. 李國樑(2000)，「技術策略、技術創新能力與創新管理之關係研究－以台灣生物科技業為例」長榮管理學院經營管理研究所碩士論文。 10.周旭華譯(1998)，Tushman,M. and C.A., O'Reilly著作，「勇於創新:組織的改造與重生」，天下文化出版。 11.邱皓政(2000)，「組織創新環境的概念建構與測量工具發展」，國科會整合型計劃「創新與創造力－技術創造力的涵義與開發」研討會論文集。 12.俞慧芸(1995)，「政府科技專案技術移轉績效之研究－以台灣電子資訊產業為例」，國立中山大學企業管理研究所博士論文。 13.姜占魁，組織行為與行政管理，作者印，民國78年。 14.封德台(2000)，「技術學習與技術能力關係之研究－國內資訊軟體產業之實證」，國立政治大學企業管理學系博士論文。 15.許士軍(1990)，「關鍵資源與核心能力之基礎—知識管理的發展及系統觀」，中衛簡訊。 16.陳婷、徐中緒譯(1998)，Michio Kaku 原著「財富.生命與智慧,在未來20 年及之後的面貌」，北城總經銷，臺北。 17.曾信超、李國樑(1999)，「技術創新能力與創新管理之研究－ 以台糖公司為例」、1999 年中華民國科技管理論文研討會，中華民國科技管理學會。 18.黃佑安(1997)，「企業創新能力對新產品研發過程影響之研究」，國立政治大學企業管理研究所未出版博士論文。 19.黃家齊(2003)，「團隊多元化與知識分享、知識創造及創新績效」，台大管理論叢，13(2),6月:233-280 20.簡瑞峰(1995)，產業創新力的研究，臺灣大學商學研究所碩士論文。 二、英文部份 1. Afuah A.(2000)，“ Mapping Technological Capabilities into product markets and competitive advantage: the case of cholesterol drug ” strategic management Journal 23:pp.171-179 2. Amabile, T.M.(1988)，“ A model of creativity and innovation in organization. ” In Straw, B. M. and Cumming, L.L. eds, Research in organization behavior, Vol.10,pp.123-167. 3. Amabile,T.M.(1996)，“ Assessing the work environment for creativity, ” Academy of Management Journal,39(5),pp.1154-1184. 4. Andrew J. Parsons(1992), Building innovativeness in large U.S. Corporations, The Journal of Consumer Marketing, Vol.9, pp.35. 5.Baranson Jack, (1996)“ Transfer of Technical Knowledge By International Corporations to Developing Economics, ” American Economics Review 56, pp.311. 6. Bessant, J. & Cayn, S.,(1997)，“ High-Involvement Innovation through Management ”, International Journal of Technology Management, 14(1), pp.7-28. 7. Campion, M. A., Medsker, G.J. and Higgs, A.C.(1993)，“ Relations between work group characteristics and effectiveness: implications for designing effective work groups, ” Personnel Psychology,46,pp.823-850. 8. Castanias, R.P. & Helfat, C.E., (1991)，“ Managerial Resources and Rents ”, Journal of Management, 17(1), pp.155-171. 9. Chakrabarti,A.K.,(1991)“ Industry Characteristic Influencing The Technical Output: A Case of Small and Medium Size firms in The US, ” R&D Management,Vol.21, No. 2,pp139-152. 10. Clark, J. & Guy, K., (1998)，“ Innovation and Competitiveness ” A Review ”, Technology Analysis & Strategic Management, 10(3), pp.363-395. 11. Clausing, D.P., (1994)“ Total Quality Development, ” Mechanical Engineering, Vol.116,No.3,pp94-98. 12. Cohen,W.M. & Levinthal,D.A(1990).,"Absorptive Capacity: New Perspective on Learning and Innovation," Administrative Science Quarterly, 35, pp.128 13. Collis, D.J.,(1991) ,“ A Resourced-based Analysis of Global Competition: The Case of the Bearongs Industry ”, Strategic Management Journal, 12, pp.49-68. 14. Cusumano, M. A. and Nobeaka K.,(1992)“ Strategy, Structure and Performance in Product Development: Observation from the Auto Industry, ” Research Policy. Vol. 21, No.23,pp265-293. 15. Drucker,P.F.(1993). Post-Capitalist Society, London: Oxford, Butterworth Heneman, Harper Business. 16. Ellis, L. W. and Curtis, C.C., (1995)“ Measuring Customer Satisfaction, ” Research Technology Management,Vol.38, No.5 ,pp45-51. 17. Frankel,E.G (1990), ” Management of Technological Change ”, Kluwer Academic. 18. Henderson R.M. & Clark, K.M.,(1990)`Architectural Innovation: The Reconfiguration of Existing Product Technologies and the Failure of Established Firm´ ASQ,pp9-30 19. Higgins, J.M. (1995)，“ The Core Competence:Innovation ”, Planning Review, 23(6), pp.32-35. 20. Hollentein,H. (1996),"A Composite Indicator of a Firm's Innovativeness:An Emprical Analysis Based on Surver Data for Swiss Manufacturing," Research Policy,25(4),Jan,pp.633-645. 21. Husain, Z. & Sushil., (1997)，“ Management of Technology: A Glimpse of Literature ”, International Journal of Technology Management, 14(5), pp.539-578. 22. Irani, Z. & Sharp, J.N., (1997)，“ Integrating Continuous Improvement and Innovation into a Corporate Culture: A Case Study ”, Technovation, 17(4), pp.199-206. 23. Joe Tidd and Martin J. Trewhella (1997)“ Organizational and Technological antecedents for knowledge acquisition and learning, R&D Management 27,p.359-375. 24. Karagozoglu, N., and Brown, W.B., (1993)“ Time-base Management of the New Product Development Process, ” Journal of Product Innovation Management,Vol.No.3,pp204-215. 25. Karagozoglu, N.,(1993)“ Environmental Uncertainty, Strategic Planning, and Technological competitive Advantage, ” Technovation, Vol.13,No.6,pp335-347. 26. Lado, A.A., Boyd, N.G., & Wright, P., (1992)，“ A Competency-Based Model of Sustainbel Competitive Advantage: Toward a Conceptual Integration ”, Journal of Management, 18(1), pp.77-91. 27. Mabert, V. A., Muth, J. F., and Schmenner, R.W.,(1992)“ Collapsing New Product Development Time: Six case Studies, ” Journal of Product Innovation Management,pp200-212. 28. McDonoguh, E.F., (1993)“ Faster New Product Development: Investigating the Effects of Technology and Characteristics of the Project Leader and Team, ” Journal of Product Innovation Management, Vol.10,No.3,pp241-250. 29. McGourty.J. Tarshis.L.A. & Dominick.P.(1996)，“ Managing Innovation: Lessons from World Class Organizations ”, International Journal of Technology Management, 11(3/4), pp.354-368. 30. Millett, S.M., (1990)“ The Strategic Management of Technological R&D: An Ideal Process for the 1990s, ” International Journal of Technology Management,Vol.5,No.2,pp153-163. 31. Nonaka, I., and Takeuch, H.(1995)“ The knowledge creating company – How Japanese Companies Create the dynamics of Innovation ” Oxford University press, New York. 32. Oldham,G.R.and Cummings,A. (1996)，“ Employee creativity: Personal and contextual factors at work, ” Academy of Management Journal, 39(3),pp.607-634. 33. Pitt,M. & Clark,K.,(1997)`Innovation: Building Molecular Value´ , Journal of Business Stratergy March/April,pp.18-20 34. Rosenau, M.J, (1998)“ And Suddenly the Inventor Appeared: TRIZ, the Theory of Inventive Problem / solving (Second Edition) / The Science of Innovation: A Managerial Overview of the TRIZ Methodology, ” The Journal of Product Innovation Management, Vol.15,No.1,pp100-103. 35. Sharif(1988), M.N.“ Basis for Techno-Economic Policy Analysis ”, Science and Public Policy, 15-4,pp.217-229. 36. Steudel, H.J. and Sesruelle, P.,(1992)

“ Manufacture in the Nineties: How to Become a Mean Lean World Class Competitor, ” Van Nostrand Reingold,pp6. 37. Stuart, T.E. & Podolny, J.M.,(1996), “ Local Search and Evolution of Technological Capabilities ” , Strategic Management Journal, 17,pp.21-38. 38. Vrakking.W. J., (1990), “ The Innovative Organization. “ ,Long Range Planning ,23(2), pp.94-102. 39. Wong,J.K.(1995) “ Technology transfer in Thailand: descriptive validation of a technology transfer model ” , International Journal of Technology Management, Vol.10, No.7/8,pp.788-796. 40. Woodman,R.W.;Sawer,J.E.and Griffin,R.W.(1993). “ Toward a theory of organizational creativity, ” Academy of Management Review, 18,pp.293-321. 41. Youssef, M. A, (1994) “ Design for Manufacturability and Time-to-market, ” International Journal of Operations & Production Management,Vol.14,No.12,pp6-21.