

Effects of Innovative Diffusion : The Perspective of Consumer Decision Process

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ABSTRACT

The famous and usage in Diffusion Theory is Bass Model, but it is regrettable that effects of diffusion, coefficient of innovation and imitation, are wised after the sales volume by multi-regression. Diffusion and Consumer Decision Theory is the core of this study, and make good use of statistics and system dynamics. Effects, coefficient of innovation and imitation, through consumer decision process are calculated by statistics, and go on use system dynamics to simulate the DSC life cycle in Taiwan. While consumers face the high-involvement new product, there are all influenced by media and word of mouth. During information search process, the communication channels are not only media and word of mouth, but also endorsers and network, and degree of these are media, endorsers, word of mouth, and network. In system dynamics model, the DSC will turn into maturity in 2018, from 2012 to 2013 will be the golden age in Taiwan.

Keywords : Diffusion of Innovation model, Consumer Decision Process, External Effect, Internal Effect, System Dynamics.

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REFERENCES

中文部分: 1.方世榮 譯 (1995) , (原著者Philip Kotler) , 行銷管理學 , 第八版。台北:東華。 2.林宏怡 (2002) , 新產品擴散之動態研究 - 系統動力學觀點 , 大葉大學事業經營研究所碩士班未出版碩士論文。 3.林亮德 (2000) , 消費者創新產品之採用行為與產品屬性評估之研究 - 以數位影音光碟機 (DVD) 為例 , 國立中央大學資訊管理學系碩士論文。 4.林俊宏 (2002) , 消費者特性、新產品屬性及環境變數對創新購買意願之影響 , 國立成功大學碩士論文。 5.陶在僕 (1999) , 系統動態學 , 第一版。台北:五南。 6.陳正平 譯 (2000) , (原著者Geoffrey Moore A.) , 跨越鴻溝。台北:臉譜。 7.張俊惠 (1999) , 消費者對資訊線索來源使用差異之研究-構建式觀點 , 國立台灣大學商學研究所博士論文。 8.張嘉訓 (2002) , 高科技產品多代擴散模型之研究 - 以DRAM為例 , 真理大學管理科學研究所 碩士論文。 9.齊思賢 譯 (2000) , (原著者Malcolm Gladwell) , 引爆趨勢。台北:時報。 10.楊文壽 (2000) , 行動電話手機消費者之涉入程度及購買決策相關因素之關聯性研究 , 國立 交通大學經營管理研究所碩士論文。 11.楊志宏/莫季雍 譯 (1996) , (原著者Densi McQuail & Sven Windahl) , 傳播模式 , 第二 版。台北:正中。 12.楊哲萍 譯 (1999) , (原著者Winslow Farrell) , 大爆熱門。台北:遠流。 13.資策會資訊市場情報中心 , 工研院電子研究所 (1998) , 數位相機市場發展趨勢分析。 14.資策會資訊市場情報中心 , 工研院電子研究所 (2000) , 談全球數位相機價格趨勢分析。 15.資策會資訊市場情報中心 , 工研院電子研究所 (2001) , 2000年全年我國數位相機產業產銷分析。 16.資策會資訊市場情報中心 , 工研院電子研究所 (2001) , 2001年上半年台灣數位相機產業產銷分析。 17.蔡永福 (2002) , 購買涉入、購買動機、網站環境特性對網路生鮮蔬菜購買意願之影響 , 國立 中興大學行銷學系碩士論文。 18.羅世輝 (2000) , 系統動力學理論與方法介紹 , 未出版之上課講義。 英文部分 1.Alwin Mahler & Everett M. Rogers (1999) , The diffusion of interactive communications innovations and the critical mass: the adoption of telecommunications services - by German banks, Telecommunications Policy, Vol. 23: 719-740. 2.Bass Frank M. (1969) , A new product growth for model consumer durables, Management -t

Science, Vol.15: 215-227. 3.Bass Frank M. (1980) , The relationship between diffusion rates, experience curves , and demand elasticities for consumer durable technological innovations, Journal -of Business, Vol. 53: 51-67. 4.Bayus, B. L. (1987) , Forecasting Sales of New Contingent Products: An Application -to the Compact Disc Market, Journal of Product Innovation Management, Vol. 4: 243-255. 5.Boyd, Thomas C. and Charlotte H. Mason (1999) , The Link Between Attractiveness o -f 'Extrabrand' Attributes and the Adoption of Innovations, Journal of the Academy of Marketing Science, Vol. 27: 306-319. 6.Christophe V. den B. (2000) , New Product Diffusion Acceleration: Measurement and A -nalysis, Marketing Science, Vol. 19: 366-380. 7 Engel, James F., Roger D. Blackwell & David T. Kollat.(1995), Consumer Behavior, 8t -h ed., TheDrydenPress, Harcourt Brace College Publisher. 8.Filiz Tabak & Steve H. Barr (1999) , Propensity to adopt technological innovation -s: the impact of personal characteristics and organizational context, J. Eng. Tec -hnol. Manage., Vol. 16: 247-270. 9.Fourt, L. A. & J. W. Woodlock (1960) , Early Prediction of Market Success for Groc -ery Products, Journal of Marketing, Vol. 25: 31-38. 10.Frank H. Maier (1998) , New product diffusion models in innovation management-a s -ystem dynamics perspective, System Dynamics Review, Vol. 14: 285-308. 11.Geroski P. A. (2000) , Models of technology diffusion, Research Policy, Vol. 29: 6 03-625. 12.Guiltinan, Joseph P. (1999) , Launch Strategy, Launch Tactics, and Demand Out com -es, Journal of Product Innovation Management, Vol. 16: 509-529. 13.Holak, Susan L. (1988) , Determinants of Innovative Durables Adoption an Empirical S -tudy With Implications for Early Product Screening, Journal of Product Innovation M -anagement, Vol. 5: 50-69. 14.Jain, D. C., and R. C. Rao (1990) , Effect of Price on the Demand for Durables: Mod -eling, Estimation and Finding, Journal of Business and Economic Statistics, Vol. 8: 163-170. 15.James R. Bettman (1979) , Memory Factors in Consumer Choice: A Review, Journal of M -arketing, Vol. 43. 16.James R. Bettman, Mary Frances Luce, and John W. Payne (1998) , Constructive Consume -r Choice Processes, Journal of consumer research, Vol. 25. 17.James R. Bettman & Michel A. Zins (1977) , Constructive Processes in Consumer Choic -e, Journal of Consumer Research, Vol. 4. 18.James R. Bettman & C. Whan Park (1980) , Effects of Prior Knowledge and Experience a -nd Phase of the Choice Process on Consumer Decision Processes: A Protocol Analysis, Journal of Consumer Research, Vol. 7. 19.Jones, J. M., and C. J. Ritz (1991) , Incorporating Distribution Into New Product D -iffusion Models, International Journal of Research in Marketing, Vol. 8: 91-112. 20.J?rn-Henrik Thun, Andreas Gr??ler and Peter M. Milling (2000) , The diffusion of goo -ds considering network externalities. A system dynamics-based approach, Proceedin -gs of the 18th International Conference of the System Dynamics Society, Sustainability in the Third Millennium, Edited by: P?l Davidsen, David N. Ford and Ali N. Ma -shayekhi, Bergen, Norway. 21.Kalish, S. (1985) , A New Product Adoption Model with Pricing Advertising and Uncert -ainty, Management Science, Vol. 31: 1569-1585. 22.Mahajan V. & R. A. Peterson (1978) , Innovation Diffusion in a Dynamic Potential Ado -pter Population, Management Science, Vol. 24: 1589-1597. 23.Mahajan V. & R. A. Peterson (1979) , Integrating Time and Space in Technological Sub -stitution Models, Technological Forecasting and Social Change, Vol. 14: 231-241. 24.Mahajan V. & R. A. Peterson (1985) , Models for Innovation Diffusion, Beverly Hill -s, CA: Sage Publications. 25.Mahajan V. & Muller Eitan (1979) , Innovation diffusion and new product growth mode -ls in marketing, Journal of Marketing, Vol. 43: 55-68. 26.Mahajan V., E. Muller, and F. M. Bass (1990) , New Products Diffusion Models in Mar -keting: A Review and Direction for Research, Journal of Marketing, Vol. 54: 1-26. 27.Mahajan V. & E. Muller (1996) , Timing, diffusion and substitution of successive gene -rations of technological innovations: The IBM Mainframe Case, Technological Forecast -ing and Social Change, Vol. 51: 109-132. 28.Mansfield, E. F. (1961) , Technical Change and the Rate of Imitation, Econometrica, V -ol. 29: 741-766. 29.Matthew S. Eastin (2002) , Diffusion of e-commerce: an analysis of the adoption of f -our e-commerce activities, Telematics and Informatics, Vol. 19: 251-267. 30.Mark Paich & John D. Sterman (1993) , Boom, Bust and Failures to Learn in Experiment -al Markets, Management Science, Vol. 39. 31.Markin, R. J. & Narayana , C. L.(1975) , Consumer behavior & product performance: A -n alternative conceptualization, Journal of Marketing, Vol. 10: 1-6. 32.Midgley, David F. and Grahame R. Dowling (1993) , A Longitudinal Study of Product F -orm Innovation: the Interaction Between Predispositions and Social Messages, Journ -al of Consumer Reserch, Vol. 19: 611-625. 33.Mohammed Quaddus & Arunee Intrapairot (2001) , Management policies and the diffusio -n of data warehouse: a case study using system dynamics-based decision support sys -tem, Decision Support Systems, Vol. 31: 223-240. 34.Nijssen Ed J.& Karin F. M. Lieshout (1995) , Awareness, Use, and Effectiveness of M -odels and Methods for New Product Development, European Journal of Marketing, PP. 27-44. 35.Norton, J. A. and F. M. Bass (1987) , A diffusion Theory Model of Adoption and Subs -titution for Successive Generations of High Technology Products, Management Scienc -e, Vol. 33: 1069-1086. 36.Norton, J. A. and F. M. Bass (1992) , Evolution of Technological Generations: The L -aw of Capture, Sloan Management Review, winter, pp.66-77. 37.Robert G. Cooper & Elko J. Kleinschmidt (1991) , New Product Processes at Leading I -ndustrial Firms, Industrial Marketing Management, Vol. 20: 137-147. 38.Robertson Thomas, (1967) , The Process of Innovation and the diffusion of Innovatio -n, Journal of Marketing, 31 (January), PP:14-19. 39.Rogers E. M. & Shoemaker F. F. (1971) , Communication of Innovations: A Cross-Cultu -ral Approach, New York: The Free Press 40.Rogers Everett M. (1962) , Diffusion of innovations, The Free Press of Glencoe, NY. 41.Rogers Everett M. (2002) , Diffusion of preventive innovations, Addictive Behavior -s, Vol. 27: 989-993. 42.Speece, M. W. & D. L. MacLachlan (1992) , Forecasting Fluid Milk Package Type with a Multigeneration New Product Diffusion Model, IEEE Transactions On Engineering Man -agement, Vol. 39: 169-175. 43.Sterman John D. (2000) , Business Dynamics: Systems Thinking and Modeling for A Com -plex World, McGraw-Hill, USA. 44.Tens, J.T.C., Grover, V. and Guttler, W.,(2002) , Information technology innovatio -ns: General diffusion patterns and its relationships to innovation characteristic -s, IEEE Transactions on Engineering Management, Vol. 49: 13-27. 45.Trijntje V?llink, Ree Meertens and Cees J. H. Midden (2002) , Innovating "Diffusion of Innovation" theory: Innovation characteristics and the intention of utility com -panies to adopt energy conservation interventions, Journal of Environmental Psycho -logy, Vol. 22: 333-344. 46.Veryzer, Robert W. Jr.(1998) , Discontinuous Innovation and the New Product Develop -ment Process, Journal of Product Innovation Management Vol.15: 304-321. 47.Wright, M. (2000) , Modelling the adoption of new grocery products by

supermarkets, In A. O'Cass(Ed.), ANZMAC 2000: Visionary Marketing for the 21st Century: Facing the Challenge: Proceedings of the Australian & New Zealand Marketing Academy Conference [CD-ROM]. November 28-December 1, Griffith University, Gold Coast, QLD. Nathan, QLD: Griffith University.