

A Study on Enterprise Innovative Diagnosis Systems Using Systems Engineering and Platform-based Technology

許凱榮、金憲

E-mail: 9606888@mail.dyu.edu.tw

ABSTRACT

The topic of innovation has been conceptualized and studied broadly in many perspectives. Most of nowadays studies focus either on technology, product or process innovation. These studies not only lacks of the enterprise systems view, but also founded that most researches has done their work by questionnaire on certain industry, this resulted with the objectivities and the coverage of industries were insufficient. Enterprise has struggled for survival in an “ innovation or die ” hypercompetitive era; enterprise is still reluctant to put its limited resources into innovation activities due to lacking of a suitable diagnosis system to conducting their innovation resources planning for their decision making. As above mentioned, these are the reason why the present study would like to propose an analysis and formulate a new enterprise innovation diagnosis system which was based on the data base of the Enterprise Innovation Award in Taiwan. Present study conducts cases study, literatures review, statistics analysis, data mining, analytic hierarchy process (AHP) and systems engineering, generated an innovation diagnosis system for those enterprise either on manufacturing or services business, be able to measure their readiness of innovation by themselves accordingly. Furthermore, this innovation diagnosis system may also be a useful reference for Enterprise Innovation Award future policy refining.

Keywords : Enterprise Innovation Diagnosis ; E-platform ; Statistics Analysis ; Data Mining ; Analytic Hierarchy Process ; Systems Engineering

Table of Contents

第一章 緒論.....	1	1.1 研究背景與動機.....	1	1.2 研究目的.....	2	1.3 研究方法與流程.....	3
第二章 文獻探討.....	5	2.1 創新活動之相關文獻.....	5	2.1.1 創新定義.....	6	2.1.2 企業創新活動類型.....	7
2.2 企業創新衡量與評估方法相關文獻.....	12	2.2.1 企業創新衡量指標探討.....	13	2.2.2 企業創新評估模式.....	17	2.3 系統工程.....	21
2.3.1 系統工程定義.....	21	2.3.2 系統工程內容.....	22	2.3.3 系統工程程序.....	23	第三章 企業創新診斷服務平台.....	25
3.1 企業創新衡量指標探討.....	26	3.1.1 研究對象.....	26	3.1.2 企業創新指標研究架構與假設.....	27	3.1.3 信度分析.....	30
3.1.4 企業創新指標建立.....	31	3.2 企業創新診斷模式探討.....	33	3.2.1 資料探勘與粗略集合理論.....	33	3.2.2 Rosetta軟體介紹.....	36
3.2.3 企業創新診斷模式建構.....	37	3.3 企業創新資源規劃.....	45	3.3.1 企業創新資源規劃架構與流程.....	45	3.3.2 企業創新資源各構面權重之建構.....	47
3.3.3 建立企業創新資源規劃之計算公式.....	55	3.4 企業創新診斷服務平台.....	58	3.4.1 需求分析.....	59	3.4.2 功能分析.....	60
3.4.3 功能配置.....	77	3.4.4 設計綜整.....	78	3.4.5 創新診斷服務平台架構.....	81	第四章 案例應用與驗證.....	82
4.1 案例介紹.....	82	4.2 規則化診斷分析.....	83	4.3 創新資源規劃.....	86	4.4 案例驗證.....	91
第五章 結論與建議.....	95	參考文獻.....	97	附錄一 企業創新投入/產出資料表.....	100	附錄二 層集分析法專家諮詢問卷.....	101

REFERENCES

- [1]. Wolfe, R.A, “ Organizational innovation: Review, critique and suggested research directions ” Journal of Management Studies, 31,1994,405-430.
- [2]. Hongbo Lan, Yucheng Ding, Jun Hong, Hailiang Huang and Bingheng Lu, “ A web-based manufacturing service system for rapid product development ” , Computers in Industry 54,2004, 51 – 67.
- [3]. Thomas Agotnes, “ Extending ROSETTA: The embedding of a programming language ” , Project Report, Department of Computer and Information Science, Norwegian University of Science and Technology, 1998.
- [4]. Aleksander Ohrn , “ Discernibility and Rough Sets in Medicine:Tools and Applications ” , Department of Computer and Information Science, Norwegian University of Science and Technology, N-7491 Trondheim, Norway,1999.

- [5]. LIU Gaojun and ZHU Yan , “ Credit Assessment of Contractors:A Rough Set Method ” , Department of Construction Management, Tsinghua University, Beijing 100084, China,2006.
- [6]. Amabile, T. M , “ A model of creativity and innovation in organization ” , Edited by Behavior, 10:123-167,1988.
- [7]. Bagozzi, R. P., & Yi,Y., “ On the Evaluation of Structure Equations Models ” ,Academy of Marketing Science, 16: 76-94,1999.
- [8]. Andrew Pettigrew, Silvia Massini and Tsuyoshi Numagami , “ Innovative forms of organizing in Europe and Japan ” , European Management Journal, London, 18 (3) :259-273,2003.
- [9]. Blandchard, B.S. and Fabryky, W.J., “ Systems Engineering and Analysis ” , Prentice-Hall, Inc., NJ , 3rd ed, 1990.
- [10]. INCOSE, “ Systems Engineering Handbook ” ,2002.
- [11]. European Commission, “ Innovation policy in a knowledge-based economy ” , A MRIT Study Commissioned by the European Commission, 2000.
- [12]. Chin, D.H., Chang, L. and Wang, T.J. , “ An Innovative Mechanism in Systems Engineering Application to the Knowledge Intensive Service Industries ” , submitted to International Journal of Innovation and Incubation (revised) ,2004.
- [13]. Sage, A.P. , “ Introduction to Systems Engineering Methodology and Applications ” , IEEE Press, 1-10, 1977.
- [14]. 戴維拉, 亞賓斯坦, 薛爾頓著, 李瑞芬譯, 「創新地圖」, 培生集團, 2006。
- [15]. 陳澤義, 陳啟斌著, 「企業診斷與績效評估－平衡計分卡之運用」, 華泰文化, 2006。
- [16]. 克里斯丁生, 雷諾著, 李芳齡, 李田樹譯, 「創新者的解答」, 天下雜誌, 2004。
- [17]. 朱桂瑩, 「應用粗略集合於外傷資料檢傷分類之研究」, 電子商務與數位生活研討會, 2006。
- [18]. 謝龍發, 「以熊彼得理論觀點探討企業創新活動之研究-以生物科技產業為例」, 私立中原大學醫學工程學系博士學位論文, 2001。
- [19]. 莊立民, 「組織創新模式建構與實證之研究-以台灣資訊電子業為例」, 國立成功大學企業管理研究所博士學位論文, 2002。
- [20]. 林至鴻, 「影響知識整合機制因素與新產品開發技術之研究」, 私立輔仁大學管理學研究所碩士論文, 2000。
- [21]. 滕步旭, 「應用系統工程建構產品開發之研發聯盟模式」, 國立交通大學管理學院碩士論文, 2004。
- [22]. 葉宗翰, 「應用系統工程及整合平台技術於創新服務系統之研究」, 私立大葉大學工業工程與科技管理所碩士論文, 2006。
- [23]. 呂欣怡, 「評量產業創新衡量指標」, 私立龍華科技大學商學與管理所碩士論文, 2003。
- [24]. 陳秋景, 「台灣地區企業診斷模式之研究--以資源及創新能力觀點實證」, 國立雲林科技大學企業管理系碩士論文。
- [25]. 林晉祺, 「以AHP衡量圖書出版業導入CRM系統之關鍵成功因素之研究」, 南華大學出版事業管理所碩士論文。
- [26]. 張臨江, 金憲, 「台灣新興服務業科專計畫之系統化創新機制」, 產業論壇, 6(5), 141-161, 2004。
- [27]. 吳榮義, 「台灣科技創新與國際競爭力」, Wireless & Optical Communication Conference, 2003。
- [28]. 史欽泰, 「創新能力仍知識經濟之核心」, 電工資訊, 第119期, 第16-18頁, 2000。