

無線區域網路資訊安全管理之研究：以中部某大學為例

鄭宗恆、曹偉駿

E-mail: 9707378@mail.dyu.edu.tw

摘要

本研究係探討目前IEEE 802.11x無線區域網路(Wireless Local Area Networks, WLAN)之資訊安全管理。建立一個無線區域網路資訊安全管理系統(Information Security Management System, ISMS) , 確保組織機構的安全，是刻不容緩的議題。學校是企業營運模式的縮影，在無線區域網路所遭遇的安全性議題是相同的，讓學校最擔心頭疼的是個人隱私資料外洩，或是無線區域網路環境遭到有心人士癱瘓與破壞。故在無線區域網路環境，確有急需導入資訊安全管理的必要性，如此一來可彌補資訊安全技術的不足，且讓組織無線區域網路的安全能夠防範於未然。本研究所採用的ISO 27001是導入資訊安全管理實務上的標準，可以提供良好的標準化安全管理機制；整合能力成熟度模型(Capability Maturity Model Integration , CMMI)可用來評估與改善組織的資訊管理流程，藉此強化在無線區域網路的資訊安全管理系統。本研究雖然是以校園無線區域網路為例，其成果亦可延伸應用至企業之管理，為政府、企業、學校等組織於資訊安全管理領域提出改善之方法與建議。

關鍵詞：無線區域網路;資訊安全管理;ISO 27001;整合能力成熟度模型

目錄

中文摘要	iii	英文摘要	iii
iv 誌謝辭	iv	v 內容目錄	v
vi 表目錄	vi	viii 圖目錄	viii
ix 第一章 緒論	1	第一節 研究背景	1
1 第二節 研究動機	3	第三節 研究目的	3
4 第四節 研究流程	6	第二章 文獻探討	6
8 第一節 無線區域網路安全	8	第二節 資訊安全管理	8
23 第三節 ISO 27001與CMMI之探討	28	第三章 研究方法	28
33 第一節 研究方法的選擇	33	第二節 研究流	33
程	38	第三節 研究對象	39
究範圍與限制	41	第五節 資料分析	41
個案探討	44	第一節 研究對象	45
第二節 命題推導	49	第三節 研究結果	60
第五章 結論與建議	61	第一節 結論	61
61 第二節 建議	62	參考文獻	62
63			

參考文獻

- 一、中文部份 BSI 英國標準協會著(2005) , 資訊科技-安全技術-資訊安全管理系統要 , BSI 英國標準協會。林秉忠 , 陳彥銘(2003) , 802.11 無線網路安全白皮書 , 台灣電腦網路危機處理?協調中心(TWCERT/CC)。樊國楨(2003) , 資訊安全管理系統與稽核-資通安全專輯之十 , 行政院國家科學委員會科學技術中心編印。謝安田(2006) , 企業研究方法論(第3版) , 韶化:著者發行。二、英文部份 Ahern, D. M., Clouse, A., & Turner, R. (2004). CMMI Distilled Second Edition. Addison-Wesley. Ahire, S. L., & Dreyfus, P. (2000). The impact of design management and process management on quality: An empirical investigation. Journal of Operations Management, 18(5), 549-575. Anderson, E. E., & Choobineh, J. (2008). Enterprise information security strategies. Computers & Security, 27(1-2), 22-29. Anderson, J. M. (2003). Why we need a new definition of information security? Computers & Security, 22(4), 308-313. Baghaei, N., & Hunt, R. (2004). Security performance of loaded IEEE 802.11b wireless networks. Computer Communications, 27, 1746 – 1756. Barnard, L., & Von Solms, R. (2000) A formalized approach to the effective selection and evaluation of information security controls. Computers & Security, 19(2), 185-194. Bassellier, G., Benbasat, I., & Reich, B. H. (2003). The influence of business managers' IT competence on championing IT. Information Systems Research, 14(4), 317-336. Bassellier, G., Reich, B. H., & Benbasat, I. (2001). Information technology competence of business managers: A definition and research model. Journal of Management Information Systems, 17(4), 159-182. Bharadwaj, A. S. (2000). A resourced-based perspective on information technology capability and firm performance: An empirical investigation. MIS Quarterly, 24(1), 169-196. Boland, H., & Mousavi, H. (2004). Security issues of the IEEE

802.11b wireless LAN. Canadian Conference on Electrical and Computer Engineering, 1, 0333-0336. Boynton, A. C., Zmud, R. W., & Jacobs, G C. (1994). The influence of IT management practice on IT use in large organizations. MIS Quarterly, 18(3), 299-318. Broderick, J. S. (2006) ISMS, security standards and security regulations. Information Security Technical Report, 11(1), 26-31. Chen, J. C., Jiang, M. C., and, Liu, Y. W. (2005). Wireless LAN security and IEEE 802.11I. IEEE Wireless Communications. Christopher, M. K., Curtis, E. D., & Osmanoglu, T. E. (2002). Security architecture: Design, deployment and operations. The McGraw-Hill Companies.Inc. CNS27001. (2007). Information technology - Security techniques - Information security management systems - Requirements. Chinese National Standards. CNS27002. (2007). Information technology - Security techniques - Code of practice for information security management. Chinese National Standards. Craiger, J. P. (2002). 802.11, 802.1x, and wireless security. SANS Institute. Forte, D. (2008). An integrated approach to security incident management. Network Security, 2008(2), 14-16. Gordon, L. A., Loeb, M. P., Lucyshyn, W. & Richardson, R. (2006). 2006 CSI/FBI computer crime and security survey. Computer Security Journal, 22(3), 1-21. Gordon, L. A., Loeb, M. P., Lucyshyn, W. & Richardson, R. (2005). The 2005 CSI/FBI computer crime and security survey. Computer Security Journal, 21(3), 1-21. Ho"ne, K., & Elof, J. H. P. (2002). Information security policy - what do international information security standards say? Computers & Security, 21(5), 402-409. IEEE Communications (2000). IEEE 802.11-1999 standard. IEEE Communications. ISACA. (2008). COBIT 4.1. Information Systems Audit and Control Association [Online]. Available: <http://www.isaca.org/> [2008, February 2]. ISO / ICE TR 13335. (2008). Information technology - guideline for the management of IT security (All Parts). International Organization for Standardization [Online]. Available: <http://www.iso.org/> [2008, April 4]. Karnik, A., & Passerini, K. (2005). Wireless network security - a discussion from a business perspective. Wireless Telecommunications Symposium, 2005, 261-267. Kritzinger, E., & Smith, E. (2008). Information security management: an information security retrieval and awareness model for industry. Computers & Security, In Press, Accepted Manuscript, Available online 7 June 2008. Lapotis, G., Kim, B., Das, S., & Anjum, F. (2005). A policy-based approach to wireless LAN security management. Workshop of the 1st International Conference on Security and Privacy for Emerging Areas in Communication Networks, 2005, 175-183. Maiwald, E. (2004). Network security a beginner ' s guide second edition. The McGraw-Hill Companie .Inc. Milanovic, S., & Mastorakis, N. E. (2003). Integration of the wireless LANs into enterprise security architecture. Recent Advances in Communications and Computer Science, 2003, 373-378. NCHC. (2008). National Center for High-Performance Computing [Online]. Available: <http://www.nchc.org.tw/> [2008, March 9]. NIST. (2008). National Institute of Standards and Technology [Online]. Available: <http://www.nist.gov/> [2008, May 20]. Relyea, H. C. (2008). Federal government information policy and public policy analysis: A brief overview. Library & Information Science Research, 30(1), 2-21. Richardson, R. (2007) CSI survey 2007. Computer Security Institute. SEI. (2008). CMMI 1.2. Software Engineering Institute [Online]. Available: <http://www.sei.cmu.edu/> [2008, May 5]. SGS Group. (2008). ISO 27001 ISMS. International Organization for Standardization [Online]. Available: <http://www.iso.org/> [2008, April 4]. Thong, J. Y. L. (1999). An integrated model of information systems adoption in small business. Journal of Management Information Systems, 15(4), 187-214. Thuraisingham, B. (1993) Multilevel security for information retrieval systems. Information & Management, 24(2), 93-103. Von Solms, R., Van de Haar, H., Von Solms, B., & Caelli, W. J. (1994). A framework for information security evaluation. Information & Management, 26(3), 143-153. Wilson, J. L., Turban, E., & Zviran, M. (1992) Information systems security: A managerial perspective. International Journal of Information Management, 12(2), 105-119. Yin, R. K. (2001) Applications of case study research(2nd ed.). Thousand Oaks: Sage Publications.