

Constructing an Information Security Governance Based on COBIT and ISO 27001 - Evidence from the Bureau of National Health Insurance

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ABSTRACT

Since 1997, Taiwan Government has already fulfilled the e-Government. The Bureau of National Health Insurance (BNHI) has developed IC-Card-based electronic patient records service such that it can save a lot of cost and reduce data exchange issues. However, the electronic patient records contain patients' privacy, and therefore our government must enhance the protection of patients' privacy data seriously. Therefore, the thesis is based on the relationship between the ISO27001 and COBIT to achieve information security governance for the BNHI. First, we give an overview of information security about the BNHI. Next, by combining the ISO27001 and COBIT, we interview the BNHI managers to derive a variety of propositions according to strategies, technologies, organizations, human resources, and environments. The derived results can provide several suggestions of information security governance strategies for the BNHI.

Keywords : information security management ; COBIT ; ISO 27001 ; information technology governance ; information security governance

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REFERENCES

- 一、中文部份 中央健康保險局(2008a), 中央健康保險局簡介[線上資料], 來源: http://www.nhi.gov.tw/webdata/webdata.asp?menu=1&menu_id=3&webdata_id=1159&WD_ID=16[2008, January 19]。中央健康保險局(2008b), 中央健康保險局全球資訊網隱私保護及安全政策[線上資料], 來源: <http://www.nhi.gov.tw/950322網站隱私權政策.htm>[2008, January 2]。中央健康保險局網站(2005), 全民健康保險統計動向[線上資料], 來源: [http://www.nhi.gov.tw/webdata/webdata.asp?menu=1&menu_id=4&webdata_id=2063&WD_ID=\[2008, January 21](http://www.nhi.gov.tw/webdata/webdata.asp?menu=1&menu_id=4&webdata_id=2063&WD_ID=[2008, January 21)。中華民國監察院(2004), 中央健康保險局之糾正案文[線上資料], 來源: <http://www.cy.gov.tw/index.asp>[2008, January 6]。朱惠中, 廖崇賢, 陳惠娟(2006), 從管理層面探討當前的資訊安全問題, 2006年資訊管理學術與實務研討會論文集, 161-168。行政院研究發展考核委員會(2008a), 行政院及所屬各機關資訊安全管理要點[線上資料], 來源: <http://www.rdec.gov.tw/lp.asp?CtNode=3608&CtUnit=743&BasedSD=7&nowPage=2&pagesize=25>[2008, January 20]。行政院研究發展考核委員會(2008b), 行政院及所屬各機關資訊安全管理規範[線上資料], 來源: <http://www.rdec.gov.tw/lp.asp?CtNode=3608&CtUnit=743&BasedSD=7&nowPage=2&pagesize=25>[2008, December 20]。李菱菱(2001), 國民健保IC卡之規劃與推動, 研考雙月刊, 25(1), 50-57。孫淑景(2003), 內控處理準則電腦資訊循環之個案研究-以BS7799資訊安全及COBIT控制目標為例, 中原大學會計學系未出版之碩士論文, 4-21。曹子珊, 曹偉駿(2004), 基於平衡計分卡架構設計適用於金融控股產業之資訊安全管理研究, 電腦稽核, 11, 54-69。葉俊榮(2005), 電子化政府資通安全發展策略與展望, 研考雙月刊, 29(1), 20-34。劉見祥(2006), 捍衛醫療資

訊隱私權健保憑證邁入新紀元[線上資料]，來源：http://www.nhi.gov.tw/webdata/webdata.asp?menu=1&menu_id=&webdata_ID=1419[2008, January 10]。

樊國楨(2003)，資訊安全管理系統與稽核，行政院國家科學委員會科學技術資料中心，台北：行政院國家科學委員會。謝安田(2006)，企業研究方法論(第三版)，彰化：著者發行。樊國楨，林樹國，鄭東昇(2005)，資訊安全保證框架標準初探：根基於ISO/IEC 17799：2005-06-15之12.6.1節，資通安全分析專論T94003，1-33。梁定澎(1997)，資訊管理研究方法總論，資訊管理學報，4(1)，1-6。李東峰(2001)，企業資訊安全控制制度之研究，第三屆全國資訊管理博士生聯合研討會論文集，1-22。吳琮璠(1997)，資訊管理個案研究方法，資訊管理學報，4(1)，7-17。

二、英文部份 Andersen, K. V., & Henriksen, H. Z. (2006). E-Government maturity models: Extension of the Layne and Lee model. *Government Information Quarterly*, 23(2), 236-248. Andersen, W. P. (2001). Information security governance. *Information Security Technical Report*, 6(3), 60-70. Elsevier Ltd. Bakry, S. H. (2004). Development of e-Government: A STOPE view. *International Journal of Network Management*, 14(5), 339-350. Bonoma, T. V. (1985). Case research in marketing: Opportunities, problems, and a process. *Journal of Marketing Research*, 22, 199-208. Broderick, J. S. (2006). ISMS, security standards and security regulations. *Information Security Technical Report*, 11(1), 26-31. Elsevier Ltd. Brown, A. E., & Grant, G. G. (2005). Framing the frameworks: a review of IT governance research, *Communications of the Association for Information Systems*, 15, 696-712. Churgin, P. G. (1995). Computerized patient records: The patients' response. *Hmo Practice / Hmo Group*, 9(4), 182-185. CNS 27001: 2007 (2007). Information Technology - Information Security Management System - Requirements, Chinese National Standard. Taipei: Author. CNS 27002: 2007 (2007). Information Technology - Information Technology - Security Techniques - Code of Practice for Information Security Management, Chinese National Standard. Taipei: Author. Computer Security Institute. (2007). 2007 computer crime and security survey. Arlington, Virginia. Dyer, C. (1986). Disclosure of medical records in litigation. *British Medical Journal*, 293, 1298. Eloff, M. M. & Von Solms, B. (2000). Information security management: An approach to combine process certification and product evaluation. *Computers & Security*, 19(8), 698-709. Esteves, J., & Joseph, R. C. (2008). A comprehensive framework for the assessment of e-Government projects. *Government Informa Forte*, D. (2008). Selling security to top management. *Network Security*, 2008(3), 18-20. Gadd, C. S., & Penrod, L. E. (2000). Dichotomy between physicians' and patients' attitudes regarding EMR use during outpatient encounters. *Proceedings/AMIA Annual Symposium*, 275-279. Hall, M. A., & Rich, S. S. (2000). Genetic privacy laws and patients' fear of discrimination by health insurers: the view from genetic counselors. *The Journal of law, medicine & Ethics: a journal of the American Society of Law, Medicine & Ethics*, 28(3), 245-257. Hardy, G. (2006). Using IT governance and COBIT to deliver value with IT and respond to legal, regulatory and compliance challenges, *Information Security Technical Report*, 11(1), 55-61. Elsevier Ltd. Hebert, M. A. (1998). Impact of IT on Health Care Professionals: Changes in work and the productivity paradox. *Health services management research: an official journal of the Association of University Programs in Health Administration / HSMC, AUPH*, 11(2), 69-79. Information Systems Audit and Control Association. (2002). IS Standards, Guidelines and Procedures for Auditing and Control Professionals. Illinois: Author ISO 27001: 2005. (2005). Information technology - Security techniques - Information security management systems - Requirements. International Organization for Standardization. Geneva, Switzerland: Author ISO 27002: 2005. (2005). Information Technology - Security Techniques - Code of Practice for Information Security Management. International Organization for Standardization. Geneva, Switzerland: Author. IT Governance Institute. (2007). COBIT: Control Objectives Management Guidelines Maturity Models (4.1th ed.). United States of America: Author. Johnson, E. C. (2006). Security awareness: switch to a better programme. *Network Security*, 2006(2), 15-18. Moulton, R., & Coles, R. S. (2003). Applying information security governance. *Computers & Security*, 22(7), 580-584. National Institute of Standards and Technology. (2007). NIST Special Publication 800-100, Information security handbook, A guide for managers. Organization for Economic Co-Operation and Development. (1992). OECD Guidelines for the Security of Information Systems. Paris: Author. Organization for Economic Co-Operation and Development. (2001). Guidelines for the Security of Information System. (Rev. Ed.). Paris: Author. Organization for Economic Co-Operation and Development. (2002). Guidelines of the Security Information System and Networks - Towards a Culture of Security. Paris: Author. Ozier, W. (1997). Generally accepted system security principles, *Computer Security Journal*, 13(2), 69-75. Pasquinnucci, A. (2007). Security, risk analysis and governance: a practical approach. *Computer Fraud & Security*, 2007(7), 12-14. Prakash, A., & Hart, J. A. (1999). Globalization and Governance: An Introduction. London: Routledge. Relyea, H. C. (2008). Federal government information policy and public policy analysis: A brief overview, *Library & Information Science Research*, 30(1), 2-21. Rusell, D. & Gangemi, G. T. (1992). *Computer Security Basics*. California: O'Reilly & Associates Inc. Saleh, M. S., Arabiah, A., & Bakry, S. H. (2007). Using ISO 17799: 2005 information security management: A STOPE view with six sigma approach. *International Journal of Network Management*, 7(1), 85-97. Schneider, E. C., & Therakalen, G. W. (1990). How secure are your system? *Avenues to Automation*, 68-72. Schultz, E. E., Proctor, R. W., & Lien, M. C. (2001). Usability and security an appraisal of usability issues in information security methods. *Computer & Security*, 20(7), 620-634. Schwarz, A., & Hirschheim, R. (2003). An extended platform logic perspective of IT governance: managing perceptions and activities of IT. *Journal of Strategic Information Systems*, 12(2), 129-166. *tion Quarterly*, 25(1), 118-132. Wilson, P. (2007). Governance and security: Side by side. *Computer Fraud & Security*, 2007(4), 15-16. Von Solms, B., & Von Solms, R. (2004). The 10 deadly sins of information security management. *Computers & Security*, 23(5), 371-376. Von Solms, B. (2005). Information security governance: COBIT or ISO 1997 or both? *Computers & Security*, 24(2), 99-104. Von Solms, B. (2006). Information security - The fourth wave. *Computers & Security*, 25(3), 165-168. Von Solms, R. (1996). Information security management: The second generation. *Computer & Security*, 15(4), 281-288. Von Solms, R., & Von Solms, B. (2006). Information security governance: A model based on the direct - Control cycle, *Computers & Security*, 25(6), 408-412. Yin, R. K. (1989). *Case study research: Design and methods*. (Rev. ed.). Newbury Park, California: Sage Publications. Yin, R. K. (2001). *Case study research: Deign and method*. Sage Publications.