

Multicriterial Analysis of the Assets of a Critical System in the Management Process of Information Security

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Abstract

The selection of an optimal solution for the identification of the critical assets is a rather complex process, as all the valuable assets of an organization have to be identified, classified and quantified under a common approach, within the risk management process. The paper proposes a quantitative method for the identification of critical assets/ services within information security assessment and analysis process which is based on multi-criteria analysis. The aim of this paper is to present a most objective method for the assessment, ranking and quantification of critical assets/services through the analysis of predefined criteria using TOPSIS method. We think that by using this method we can make best decisions in ranking critical assets/services.

Keywords: options/option, criteria, normalization, weight, selection of critical asset

References:

- [1] Ian Sommerville. Software Engineering. Addison Wesley, 7th edition, May 2004.
- [2] <http://www.internet-science.eu/groups/internet-critical-infrastructure-security-resilience-and-dependability-aspects>
- [3] U.S. Government, Uniting and Strengthening America by Providing Appropriate Tools Required to Intercept and Obstruct Terrorism (USA PATRIOT) Act of 2001, Public Law 107-56, Washington, DC, 2001.
- [4] Hwang C.L. and K. Yoon, Multiple Attribute Decision Making: Methods and Applications, Springer-Verlag, New York, NY, 1981.
- [5] Baker, D., Bridges, D., Hunter, R., Johnson, G., Krupa, J., Murphy, J. and Sorenson, K. (2002) Guidebook to Decision-Making Methods, WSRC-IM-2002-00002, Department of Energy, USA. http://emiweb.inel.gov/Nissmg/Guidebook_2002.pdf
- [6] Yoon K. P., Hwang C. L., “Multiple Attribute Decision Making, An Introduction”, Sage University Papers (Series: Quantitative Applications in the Social Sciences), 1995
- [7] An Introduction to Factor Analysis of Information Risk(FAIR)/A framework for understanding, analyzing, and measuring information risk/Jack A. Jones, CISSP, CISM, CISA/Risk Management Insight T (614) 441-9601 F 1 (815) 377-1163 info@riskmanagementinsight.com/
<http://www.riskmanagementinsight.com>
- [8] TRA-1 Harmonized Threat and Risk Assessment Methodology
- [9] ISO/IEC. ISO 27005 information technology security techniques information security risk management, 2008.

[10] Ic, Y. (2012). An experimental design approach using TOPSIS method for the selection of computer-integrated manufacturing technologies. Robotics and Computer-Integrated Manufacturing.