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# An economic modelling approach to information security risk management

Rok Bojanc ... Borka Jerman-Blažič

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### Abstract

This paper presents an approach enabling economic modelling of information security risk management in contemporaneous businesses and other organizations. In the world of permanent cyber attacks to ICT systems, risk management is becoming a crucial task for minimization of the potential risks that can endanger their operation. The prevention of the heavy losses that may happen due to cyber attacks and other information system failures in an organization is usually associated with continuous investment in different security measures and purchase of data protection systems. With the rise of the potential risks the investment in security services and data protection is growing and is becoming a serious economic issue to many organizations and enterprises. This paper analyzes several approaches enabling assessment of the necessary investment in security technology from the economic point of view. The paper introduces methods for identification of the assets, the threats, the vulnerabilities of the ICT systems and

proposes a procedure that enables selection of the optimal investment of the necessary security technology based on the quantification of the values of the protected systems. The possibility of using the approach for an external insurance based on the quantified risk analyses is also provided.



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## Keywords

ICT security tools; Risk management; Technology investment

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**Rok Bojanc** is currently CIO of ZZI, a software solution firm active in e-business

exchange area. He has been involved with IT and information security for over 10 years. Prior to ZZI, Mr. Bojanc spent over 9 years as instructor; he has written several training courses for subjects including IT, networks, security, and Microsoft server systems. He is a frequent lecturer and speaks about IT and security on many seminars and conferences. As both a technical lead and project manager, he has worked in designing, developing, implementing and managing information systems/networks for more than 7 years. He has written many handbooks and technical articles related to IT. In addition, he teaches undergraduate courses in the areas of information science. He holds a Master's degree in Physics from University of Ljubljana and is pursuing his Ph.D. on Information Management. He is a Microsoft Certified System Engineer (MCSE).



**Borka Jerman-Blažič** holds an MS in Electrical Engineering from the University of Ljubljana and a Ph.D. in natural and computing sciences from the University of Zagreb.

Prof. Dr. Borka Jerman-Blažič is a full professor at the University of Ljubljana, Department of Economics and is heading the Laboratory for Open Systems and Networks at Jozef Stefan Institute.

She is teaching undergraduate courses in electronic communications and information security and postgraduate courses in Telecommunication Services and Technologies, Legal aspects and standards in ICT and E-commerce. Prof. Dr. Borka Jerman-Blažič is a member of the IEEE Computer Society, a member of the ACM, member of the New York Academy of Science since 1991, member of IFIP. She is appointed member to UNECE/CEFAT UN (Economic Commission for Europe) group for Internet enterprise development, appointed member of eTEN management committee of EU and a member of EU FP7 Programming Committee on Security, Chair (2004–2007) of the Internet Society of Europe ([www.isoc-ecc.org](http://www.isoc-ecc.org)), Distinguished Member of Slovene Society for Informatics, member of the editorial board of the international journal of Technology Enhanced e-Learning. She is holding Plaque of appreciation of the Thai branch of IFIP and ACM for her services in Internet development and awards for best papers (IADIS IEEE conference)

Prof. Dr. Borka Jerman-BlaÅ¾iÄ has been involved in more than 150 international conferences and workshops as a speaker, invited speaker and chair or a member of the programming committees. She has published more than 90 papers in refereed scientific journals, 154 communications on scientific meetings, 15 Chapters in scientific books, 6 books and other 142 scientific contributions. She has as well experience in editorship from books published by Kluwer P.C and IOS Press (2001â€“2004).

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