

Gašpar, Dražena; Mabić, Mirela; Ćorić, Ivica

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Risk Management Software – Standpoints of Users

Dražena Gašpar, Mirela Mabić

University of Mostar – Faculty of Economics, Bosnia and Herzegovina

Ivica Ćorić

Hera company, Bosnia and Herzegovina

Abstract

The paper presents results of research related to the standpoints of users about the main attributes that risk management software should have. This research was based on a survey of appropriate number of companies in Croatia and Bosnia and Herzegovina. The authors developed the questionnaire in order to investigate the standpoints of risk managers, quality managers and others in charge of risk management, about functionality they expect risk management software should support. Namely, in today's global environment, managers and risk managers across all lines of business are accountable for a sustainable risk framework. Adequate software support enables them to take an innovative, risk-based approach to governance and compliance, to gain a holistic, enterprisewide view of risk exposure and near-real-time risk management and monitoring. Software support for risk management process should enable organisations with efficient risk evaluation and assessment, continuous monitoring, reporting and easier improvement of the process. Results of research show the main attributes that risk management software should have in order to fulfill user expectations. Finally, the paper provides some important guidelines and suggestions for risk management software development and improvement.

Keywords: risk management, software, survey study

JEL classification: O39

Introduction

Risk management provides a disciplined environment for continuously assessing what could go wrong (i.e., assessing risks) determining which risks to address (i.e., setting mitigation priorities) implementing actions to address high-priority risks and bring those risks within tolerance (AS/NZS, 2010). Understanding and integrating of risk management as a key part of the business strategy is a crucial step forward both for the risk management and for the development of a sustainable performance. The implementation of ERM must be staffed by people with the necessary facilitation, project management and analytical skills along with knowledge of risk management leading practices. However, people aren't enough. To be efficient, they must be supported by the right technology. Fortunately, a large number of software vendors have entered the ERM space, and each year brings innovations and improved offerings. However, risk management tools and technology vary in maturity and capability. In fact, most organizations today are struggling to identify the best way to acquire adequate software solution for risk management process.

Finding software that will fit organization's need can be difficult, while changing the organization to fit the software overwhelming. There are as many variations of ERM, at a detailed level, as there are organizations practicing ERM. On the other

hand, functionality of ERM technology solutions is far more consistent across the spectrum of ERM processes.

Recently researches were made both about software vendors and the main characteristics of their solutions and expectations of users (Jingyue et al, 2008), (Thoits, 2009), (Neves et al, 2013), (Tweedy, 2013), (Osborn&Chambers, 2014), (Aon, 2014). Authors used those researches as starting point for conducting own research related to the standpoints of users, from Croatia and Bosnia and Herzegovina, about the main attributes that risk management software should have. The authors focused to users' standpoints because in those countries the number of domestic ERM software is still small and there are not enough products for comparison.

The main goals of presented research were to find the attributes that risk management software should have in order to fulfill user expectations, at least in Croatia and B&H, and to provide some important guidelines and suggestions for risk management software development and improvement. Namely, software companies that developed or plan to develop ERM software, could use the result of this research in order to check if their software has the attributes that users expect. The authors developed the questionnaire in order to investigate the standpoints of risk managers, quality managers and others in charge of risk management about functionality they expect risk management software should support.

Results of research show the main attributes that risk management software should have in order to fulfill user expectations.

Methodology

In order to explore which technical and functional characteristics a software for risk management needs to have, an empirical research based on appropriate sample was carried out. Over the last couple of seminars, organized by "Oskar" – A centre for development and quality, from Zagreb, participants were asked to voluntarily take part in the research. Filling out the questionnaires took about 7-8 minutes. A total of 47 questionnaires were distributed. After collecting the questionnaires, a logical and technical control of those questionnaires were carried out, and a total of 41 were interpreted.

The survey questionnaire was prepared on the basis of theoretical knowledge and practical experiences in software developing. It was consisted of two major parts:

- 1) A part related to companies – number of employees, income, information about the department for risk management,
- 2) A part related to expected technical and functional characteristics of the risk management software.

The aforementioned parts were explored through two sets of characteristics (technical and functional) wherein participants marked each one of them with the proper ratings, 1 to 5 (ratings: 1 – no need at all; 2 – not necessary; 3 – doesn't matter; 4 – preferable; 5 – a must have).

A descriptive analysis was carried out over gathered information – the results were shown in absolute (f) and relative frequencies (%), whereas mean (M) and standard deviation (SD) were also calculated.

Results

A total of 41 participants were involved in the research. 14.6 % of them work in big companies, 26.8 % in medium-sized companies, 46.3 % in small companies, while 12.2 % of the participants work in micro-companies.

As for the existence of department for risk management in those companies, 9.8 % of the participants confirmed it, while 90.2 % of the participants negated the existence of that department. According to participants' statements regarding that department, the number of employees goes from 1 up to 6. As a matter of fact, those 9.8 % of participants were also managers of the department for risk management in their respectable companies, 12.2 % of participants were board members for risk management, 26.8 % were managers for quality, while 51.2 % of participants have stated that they perform other functions.

Regarding the question "Does your company own a software for risk management?", 87.8 % of the participants gave a negative response, only four participants gave a positive response, while one of them stated that he didn't know. One of the companies have been using the software since 2006, another one since 2012, while two of companies have implemented the system this year.

In table 1, a set of different technical characteristics are shown. The software for risk management should provide those characteristics.

Table 1

A set of technical software characteristics

Code	A software for risk management should	Code	A software for risk management should
TZ1	... enable data acquisition from different external sources	TZ11	... enable users with screen adjustments (colours, fonts..)
TZ2	... be installed on the local user's equipment	TZ12	... enable usage on mobile devices (smart phones)
TZ3	... be web oriented	TZ13	... enable usage on tablets (iPad, Android)
TZ4	... be offered as "Software as a service" (SaaS)	TZ14	... have technical support or help desks 24/7/365
TZ5	... have a context for help (help)	TZ15	... enable sending automated e-mails
TZ6	... enable exporting reports in MS Word	TZ16	... enable displaying the risks on the map
TZ7	... enable exporting reports in PDF	TZ17	... enable automatic warnings (alerts)
TZ8	... enable exporting reports in MS Excel	TZ18	... contain dashboards
TZ9	... enable working with multiple Currencies	TZ19	... enable the adjustment of dashboards
TZ10	... be multilingual	TZ20	... enable working with multiple Organizations

Source: author's calculations

Descriptive statistics by specific characteristics is shown in Table 2.

Table 2

Descriptive statistics for the set of technical software characteristics

Code	% participants							M±SD	D
	1	2	1+2	3	4	5	4+5		
TZ1	0	9,8	9,8	4,9	56,1	29,3	85,4	4,05±0,86	4
TZ2	0	2,4	2,4	7,3	48,8	41,5	90,2	4,29±0,72	4
TZ3	0	2,4	2,4	14,6	63,4	19,5	82,9	4,00±0,67	4
TZ4	0	9,8	9,8	26,8	48,8	14,6	63,4	3,68±0,85	4
TZ5	0	2,4	2,4	7,3	58,5	31,7	90,2	4,20±0,68	4
TZ6	0	0	0	7,3	58,5	34,1	92,7	4,27±0,59	4
TZ7	0	0	0	4,9	58,5	36,6	95,1	4,32±0,57	4
TZ8	0	0	0	2,4	63,4	34,1	97,6	4,32±0,52	4
TZ9	0	7,3	7,3	31,7	39,0	22,0	61,0	3,76±0,89	4
TZ10	0	17,1	17,1	26,8	43,9	12,2	56,1	3,51±0,93	4
TZ11	0	14,6	14,6	31,7	48,8	4,9	53,7	3,44±0,81	4
TZ12	2,4	9,8	12,2	19,5	63,4	4,9	68,3	3,59±0,84	4
TZ13	0	9,8	9,8	14,6	68,3	7,3	75,6	3,73±0,74	4
TZ14	0	2,4	2,4	9,8	53,7	34,1	87,8	4,20±0,71	4
TZ15	2,4	4,9	7,3	14,6	68,3	9,8	78,0	3,78±0,79	4
TZ16	0	2,4	2,4	7,3	61,0	29,3	90,2	4,17±0,67	4
TZ18	0	0	0	4,9	58,5	36,6	95,1	4,32±0,57	4
TZ19	0	2,4	2,4	14,6	58,5	24,4	82,9	4,05±0,71	4
TZ20	0	4,9	4,9	17,1	58,5	19,5	78,0	3,93±0,75	4

M – mean; SD – standard deviation; D – mode

Source: author's calculations

In table 3, a set of functional characteristics is shown. The software for risk management should provide that

Table 3

Set of functional software characteristics

Code	Software for risk management should	Code	Software for risk management should
FZ1	... enable integration of standard Key Performance Indicators (KPI) and Risk Indicators	FZ16	... enable binding documents with risk
FZ2	... contain standard risk definitions and process taxonomy	FZ17	... enable connection of loss with risk
FZ3	... be in compliance with the ISO 31000 standard	FZ18	... enable risk analysis
FZ4	... be in compliance with COSO ERM framework	FZ19	... enable follow-up of history of events connected with activities and risk being assessed
FZ5	... enable working with multiple organizations	FZ20	... enable automatic evaluation and risk ranking
FZ6	... enable customization of organization's hierarchy	FZ21	... enable definition of Risk Treatment Plan
FZ7	... enable users to define rights for data access	FZ22	... enable definition of reporting and responsibilities
FZ8	... contain a register of risk management system users	FZ23	... enable definition of risk treatment rules on the basis of defined level of risk tolerance
FZ9	... enable categorization, establishing threat hierarchy	FZ24	... support the process of risk approval (i.e. risk acceptance....)
FZ10	... enable definition of criteria for	FZ25	... enable risk quantification

Code	Software for risk management should	Code	Software for risk management should
	risk assessment		
FZ11	... enable definition of risk matrix	FZ26	... enable qualitative risk assessment
FZ12	... enable definition of structure for all activities in process or project	FZ27	... enable quantitative risk assessment
FZ13	... enable definition of structure of all threats and threat sources that could arise in the structure of activities in project or process	FZ28	... enable definition of treat indicators
FZ14	... enable identification of threats and threat sources	FZ29	...enable connection(treatment) of risk (control and action) that is definition of measures to be taken in the process of risk treatment
FZ15	... enable risk identification		

Source: prepared by authors

Descriptive statistics by specific characteristics is shown in the Table 4.

Table 4

Descriptive statistics for set of functional software characteristics

Code	% participants							M±SD	D
	1	2	1+2	3	4	5	4+5		
fz1	0	0	0	0	63,4	36,6	100,0	4,37±0,49	4
fz2	0	0	0	9,8	56,1	34,1	90,2	4,24±0,62	4
fz3	0	0	0	12,2	53,7	34,1	87,8	4,22±0,65	4
fz4	0	0	0	22,0	61,0	17,1	78,0	3,95±0,63	4
fz5	4,9	0	4,9	29,3	61,0	4,9	65,9	3,61±0,80	4
fz6	0	2,4	2,4	9,8	61,0	26,8	87,8	4,12±0,68	4
fz7	0	4,9	4,9	0	36,6	58,5	95,1	4,49±0,75	5
fz8	0	4,9	4,9	4,9	46,3	43,9	90,2	4,29±0,78	4
fz9	0	0	0	2,4	36,6	61,0	97,6	4,59±0,55	5
fz10	0	0	0	0	34,1	65,9	100,0	4,66±0,48	5
fz11	0	0	0	0	36,6	63,4	100,0	4,63±0,49	5
fz12	0	0	0	0	41,5	58,5	100,0	4,59±0,50	5
fz13	0	0	0	2,4	43,9	53,7	97,6	4,51±0,55	5
fz14	0	0	0	4,9	26,8	68,3	95,1	4,63±0,58	5
fz15	0	0	0	2,4	24,4	73,2	97,6	4,71±0,51	5
fz16	0	0	0	4,9	43,9	51,2	95,1	4,46±0,60	5
fz17	0	0	0	2,4	36,6	61,0	97,6	4,59±0,55	5
fz18	0	0	0	0	24,4	75,6	100,0	4,76±0,43	5
fz19	0	0	0	0	36,6	63,4	100,0	4,63±0,49	5
fz20	0	0	0	0	41,5	58,5	100,0	4,59±0,50	5
fz21	0	0	0	2,4	34,1	63,4	97,6	4,61±0,54	5
fz22	0	0	0	0	29,3	70,7	100,0	4,71±0,46	5
fz23	0	0	0	2,4	51,2	46,3	97,6	4,44±0,55	4
fz24	0	0	0	0	56,1	43,9	100,0	4,44±0,50	4
fz25	0	0	0	0	41,5	58,5	100,0	4,59±0,50	5
fz26	0	0	0	0	41,5	58,5	100,0	4,59±0,50	5
fz27	0	0	0	2,4	43,9	53,7	97,6	4,51±0,55	5
fz28	0	0	0	0	43,9	56,1	100,0	4,56±0,50	5
fz29	0	0	0	0	51,2	48,8	100,0	4,49±0,51	4

M – mean; SD – standard deviation; D – mode

Source: author's calculations

Discussion

Analysis of descriptive statistics for the set of technical software characteristics (Table 2) shows that 11 of 20 attributes were marked as "obligatory" because they were in sum evaluated as preferable (4) and must have (5) by more than 80% participants (Table 5). Just two attributes (T12 – "enable usage on smart phones" and T15 – "enable sending automated e-mails") were evaluated as "no need at all", but by only 2.4% of participants. It is interesting that attribute T4 – "Software as a Service (SaaS)" was evaluated as "not necessary" (9.8%) and as "doesn't matter" (26.8%). The reason could be that in Croatia and B&H renting of software is not prevailing option because the users still prefer to own software. Similar situation is with attributes T12 and T13, e.g. "enable usage on smart phones" and "enable usage on tablets" respectively. It could be concluded that smart phones and tablets are not fully recognized as devices for business software applications.

Table 5
"Obligatory" set of technical software characteristics

Code	A software for risk management should
TZ1	... enable data acquisition from different external sources
TZ2	... be installed on the local user's equipment
TZ3	... be web oriented
TZ5	... have a context for help (help)
TZ6	... enable exporting reports in MS Word
TZ7	... enable exporting reports in PDF
TZ8	... enable exporting reports in MS Excel
TZ14	... have technical support or help des 24/7/365
TZ16	... enable displaying the risks on the map
TZ18	... contain dashboards
TZ19	... enable the adjustment of dashboards

Source: prepared by authors

Table 6
Obligatory set of functional software characteristics

Code	Software for risk management should
FZ1	... enable integration of standard KPI s and Risk Indicators
FZ10	... enable definition of criteria for risk assessment
FZ11	... enable definition of risk matrix
FZ12	... enable definition of structure for all activities in process or project
FZ18	... enable risk analysis
FZ19	... enable follow-up of history of events connected with activities and risk assessed
FZ20	... enable automatic evaluation and risk ranking
FZ22	... enable definition of reporting and responsibilities
FZ24	... support the process of risk approval (i.e. risk acceptance....)
FZ25	... enable risk quantification
FZ26	... enable qualitative risk assessment
FZ28	... enable definition of treat indicators
FZ29	... enable connection (treatment)of risk (control and action) that is definition of measures to be taken in the process of risk treatment

Source: prepared by authors

Analysis of descriptive statistics for the set of functional software characteristics (Table 4) shows that with the exception of attribute FZ5 "enable working with multiple organizations", all other were in sum evaluated as preferable (4) and must have (5) by more than 80% participants. In Table 6 were, as "obligatory", shown attributes which were in sum evaluated as preferable (4) and must have (5) by all participants (100%). It is obvious, when functional software attributes are in questions, that users prefer "as much as possible".

In interpretation of this research one could be aware of its limitations. As the main limitation could be state the fact that the most participants (87,8%) temporarily do not use any risk management software. It means that their evaluation is not result of working experience with some risk management software, but more assumption what attributes such kind of software should have.

The further research should include more participants that on daily basis use risk management software. It should allow comparison of evaluation between actual and potential users of risk management software. Also, adequately increase of the sample, by including more participants from big companies, could allow a comparison of results between small and big companies.

References

1. Aon (2014), "RM Professional 2014 Software Survey", available at: https://www.theirm.org/media/1163669/software_survey.pdf (accessed February 27th 2015)
2. AS/NZS (2010), "Risk Management – Principles and Guidelines, AS/NZS ISO 31000:2009", Australian Government Comcover, available at: http://www.finance.gov.au/sites/default/files/COV216905_Risk_Management_Fact_Sheet_FA3_23082010_0.pdf (accessed March 5th 2015)
3. Jingyue, L., Slyngstad, O.P.N., Torchiano, M., Morisio, M., Bunse, C. (2008), "A State-of-the-Practice Survey of Risk Management in Development with Off-the-Shelf Software Components", IEEE Transactions on Software Engineering, Vol. 34, No. 2.
4. Neves, S.M., Silva, C.E.S., Salomon, V.A.P., Santos, A.L.A., (2013), "Knowledge-Based Risk Management: Survey on Brazilian Software Development Enterprises, Intelligent Systems and Computing", Vol. 206, pp. 55-65.
5. Osborn, T., Chambers, M. (2014), "Risk software survey 2014: risk, compliance and capacity", Risk magazine, available at: <http://www.risk.net/risk-magazine/analysis/2385869/risk-software-survey-2014-risk-compliance-and-capacity> (accessed April 3rd 2015)
6. Thoits, M. (2009), "Enterprise Risk Management Technology Solutions, Risk and Insurance Management Society", Inc. (RIMS), available at: <https://www.rims.org/resources/ERM/Documents/ERM%20Technology%20Solutions.pdf> (accessed April 8th 2015)
7. Tweedy, D. (2013), "2013 RMIS Review", Advisen Insurance Intelligence, available at: http://pdf32.keenbooks.org/pdf/for-now-7_5p6pp.pdf (accessed May 17th 2015)

About the authors

Dražena Gašpar is full time professor of Database Systems and Accounting Information Systems at the Faculty of Economics, University of Mostar. Her research interests include databases, data warehouse, business information systems and software application in business and education. She is co-founder of a "Hera" software company in Mostar and has almost two decades of experience in developing and implementing business information systems. Author can be contacted at drazena.gaspar@sve-mo.ba

Mirela Mabić is a PhD student at the Faculty of Economics, University of Mostar. At the same Faculty works as an assistant at the Department for Business Informatics. Her research interests include business information systems, the practical application of software and web technologies both in business and in education, quality of higher education and applied statistics. Author can be contacted at mirela.mabic@sve-mo.ba

Ivica Ćorić is a PhD student at the Faculty of Economics, University of Mostar. He is co-founder of a "Hera" software company in Mostar and has more than two decades of experience in developing and implementing business information systems. Author can be contacted at ivica.coric@hera.ba