Mgr. Lenka Jakubcová, prof. Ing. Bedřich Šesták, DrSc.
Police Academy of the Czech Republic in Prague
Faculty of Security Management
Department of Crisis Management
Dr. Zdeněk Kovařík, CSc.
Police Academy of the Czech Republic in Prague
Department of Science and Research

Exact estimation of factor composition of security threats for the Czech republic

After a longer period of relative security, Europe faces a deteriorating security situation again. After inhibition of the economic crisis in recent years, e.g. the crisis which shook the European public's trust in some aspects of integration, Europe faces an extraordinary wave of migration which raises a number of pressing issues of a social, humanitarian, political, cultural and security nature. The number of terrorist attacks in the European Union is steeply rising. After nearly two decades, armed conflict broke out in Europe. The security situation in all aspects, including the military aspect, deteriorated dramatically over the periphery of Europe and its immediate neighbourhood in recent years. After the long years, the European Union must solve the complicated international situation and potential military threat in remote foreign countries, as well as in the close vicinity.[1]

Threats, their resources and the bearers have both state and also more and more non-state and transnational characteristics, and consequently an asymmetric nature. Trends in the global environment reinforce the potential of these growing asymmetric threats and they also increase the possibility of their spread from relatively remote areas of local or regional conflicts and clashes. A characteristic feature of the current environment is the fact that even instability and conflicts far beyond Europe can have a direct impact on our security.[2]

The Czech Republic responded adequately to the changing security situation in 2015 by approving the new **Security Strategy of the Czech Republic 2015**, which, based on analysis of the security environment, identified 11 threats[3] relevant for the territory of the Czech Republic by their impacts.

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[1] *Audit národní bezpečnosti*. Praha: Ministerstvo vnitra České republiky, 2016, s. 2.

[2] *Bezpečnostní strategie České republiky 2015*. Praha: Ministerstvo zahraničních věcí České republiky, p. 8.

[3] Weakening of the mechanism of cooperative security as well as political and international law obligations in the field of security; instability and regional conflicts in the Euro-Atlantic area and its surroundings; terrorism, propagation of weapons of mass destruction and their carriers; cyber attacks; negative aspects of international migration; extremism and increase of interethnic and social tensions; organised crime - in particular serious economic and financial crime, corruption, trafficking of human beings and drug crime; threats to critical infrastructure functionality; suppression of supplies of strategic raw materials or energy; disasters of a natural and anthropogenic origin and other emergencies.

In the same year,[1] the expert group, following the tasks posed by the **Population Protection Concept by 2020 with a view to 2030**[2] and taking into account Decision No.1313/2013/EU of the European Parliament and Council, dated on 17. 12. 2013 - Civil Protection Mechanism of the Union, developed the **Threat Analysis for the Czech Republic**.[3] At a national level, a total of 72 types of threats were identified, out of which 22 were identified as threats with unacceptable risk which should be given priority attention in individual levels of public administration. In the context of risk management activities, a new methodology and structure of type plans should be developed for threats with unacceptable risk.

In 2016, the Government of the Czech Republic discussed and adopted the document called the **National Security Audit** (hereinafter referred to as „Audit").[4] The authors of Audit wanted to find out how the Czech Republic (in 2016) was ready to face security threats in the most important areas identified and what is the state's resistance in direct confrontation with danger. The Audit assessed, in particular, the setting of legislative environment and assessed the capacities allocated by the state for prevention or response to individual types of threats, including their cooperation and communication. This work resulted in suggestions and recommendations for optimising the current state; the other output for the future should be action plans for performance of individual tasks resulting from Audit results.

The Audit Expert Group,[5] which is involved in the Audit process, decided to limit topics to those threats which are directly related to the state's internal security. Ten topics (areas) were selected, including those which, by their importance, reach the level in which they are likely to significantly damage the quality of the state's internal security.[6] Each area was fitted with specific security threats;[7] many of them were evaluated by selected experts (100 qualified experts), regarding their relevance, using the scale: high, medium, low.[8] Unfortunately, the Audit does not contain specific information about the content of individual areas, nor about the evaluation of relevance

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[1] Working group of HZS ČR (Fire Rescue Team of the Czech Republic) called „Analysis of Risks". The document was elaborated on the basis of the sub-documents provided by ministries and the central administrations concerned.

[2] It was accepted by Resolution of the Government of the Czech Republic No. 805 of 23 October 2013.

[3] *Analýza hrozeb pro Českou republiku*: *Závěrečná zpráva*. Praha: Ministerstvo vnitra České republiky, 2015. 9 s.

[4] Available in: https://www.vlada.cz/assets/media-centrum/aktualne/Audit-narodni-bezpecnosti-20161201.pdf.

[5] It is composed of members of the security community and representatives of some central bodies of state administration.

[6] Terrorism, extremism, organised crime, actions of foreign power, security aspects of migration, natural threats, anthropogenic threats, threats in cyberspace; energy, raw material and industrial security; hybrid threats and their impact on the security of Czech citizens.

[7] But not all of them, because this rating is not applicable for some threats, as stated by some authors.

[8] Threat evaluation works with likelihood of occurrence, as well as the rate of importance of the impacts on protected interests, including the secondary impacts.

of individual threats. It can only be assumed that these are rough estimates of relevance which do not allow more sophisticated quantitative processing.

This article is aimed at showing the possibilities and procedure of exact assessment of relevance of individual security threats with which the Audit works; it is also aimed at defining their integration into adequate areas on the basis of the quantitative concept of relevance of individual security threats for the Czech Republic.

Concept of security threats for the Czech Republic

As already pointed out, the Audit proceeded to group security threats with regard to their material content. In total, ten areas were identified and individual security threats were assigned thereto. In a part of these security threats, with support of the classification of qualified experts, the Audit determined their relevance for the Czech Republic on the above-mentioned three-step scale (high relevance, medium relevance, low relevance).

The article will deal with these security threats, despite the Audit not always specifying the relevance of them. The following text provides an overview of areas and individual security threats, complemented by the relevance of individual security threats according to the Audit and the relevance according to research findings.

Relevance of security threats according to this research is quantified by the mean value on the scale (1 - high relevance, 2 - medium relevance, 3 - low relevance). The scale evaluated should correspond to the scale used by the Audit. In total, 233 respondents participated in the research, including 127 specialists in the field of university education of security units members with specific professional orientation (police activities, legal disciplines, issued of social sciences, crisis management), members of HZS ČR (Fire Rescue Team of the Czech Republic), the Czech Police, Customs Administration of the Czech Republic and officials from the relevant central administrative authorities (or within other public authorities) dealing with security issues. (Values with a decimal point represent the mean value).

1. TERRORISM
- *Islamic radicalism* – relevance according to the Audit – low,
  according to the Police Academy of the Czech Republic – 1.72
- *Political radicalism* – relevance according to the Audit – low,
  according to the Police Academy of the Czech Republic – 2.31
- *Lone wolves* – relevance according to the Audit – medium,
  according to the Police Academy of the Czech Republic – 1.83
- *Foreign warriors* – relevance according to the Audit – medium,
  according to the Police Academy of the Czech Republic – 2.40

2. EXTREMISM
- *Right-wing extremism* – relevance according to the Audit – 1.71;[1]
  according to the Police Academy of the Czech Republic – 2.44

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[1] It was calculated as the mean value of seven security threats within right-wing extremism.

- *Left-wing extremism* – relevance according to the Audit – 2.29;[1] according to the Police Academy of the Czech Republic – 2.51

3. ORGANISED CRIME

- *Increase of organised crime to public administration and law enforcement authority* – relevance according to the Audit – high, according to the Police Academy of the Czech Republic – 1.64
- *Misuse of public procurement* – relevance according to the Audit – high, according to the Police Academy of the Czech Republic – 1.38
- *Organised tax crime* – relevance according to the Audit – high, according to the Police Academy of the Czech Republic – 1.54
- *Legalisation of profits from crime activities* – relevance according to the Audit – medium, according to the Police Academy of the Czech Republic – 1.65
- *Abuse of legitimate services for the purpose of organised crime* – relevance according to the Audit – medium, according to the Police Academy of the Czech Republic – 2.04
- *Crime associated with insolvency proceedings* – relevance according to the Audit – low, according to the Police Academy of the Czech Republic – 2.20

4. ACTIONS OF FOREIGN POWERS

- *Influencing public opinion* – relevance according to the Audit – high, according to the Police Academy of the Czech Republic – 2.07
- *Influencing decision-making on all levels of state administration against the interests of the Czech Republic* – relevance according to the Audit – high, according to the Police Academy of the Czech Republic – 2.25
- *Obtaining legally protected information* – relevance according to the Audit – medium, according to the Police Academy of the Czech Republic – 2.25

5. SECURITY ASPECTS OF MIGRATION

- *Threat of non-controlled migration* – relevance according to the Audit – none; according to the Police Academy of the Czech Republic – 1.68
- *Threat of unsuccessful integration* – relevance according to the Audit – none; according to the Police Academy of the Czech Republic – 1.72

6. NATURAL THREATS

- *Flood* – relevance according to the Audit – none; according to the Police Academy of the Czech Republic – 1.68
- *Long-term drought* – relevance according to the Audit – none; according to the Police Academy of the Czech Republic – 1.87

7. ANTHROPOGENIC THREATS

- *Leakage of hazardous chemicals* – relevance according to the Audit – none; according to the Police Academy of the Czech Republic – 2.18
- *Radiation accident* – relevance according to the Audit – none; according to the Police Academy of the Czech Republic – 2.61
- *Large-scale disruption of drinking water supply* – relevance according to the Audit – none; according to the Police Academy of the Czech Republic – 2.39

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[1] It was calculated as the mean value of seven security threats within left-wing extremism.

- *Large-scale disruption of food supply* – relevance according to the Audit – none; according to the Police Academy of the Czech Republic – 2.61

8. THREATS IN CYBERSPACE

- *Cybernetic espionage* – relevance according to the Audit – high, according to the Police Academy of the Czech Republic – 1.71
- *Failure or reduction of resistance of IT infrastructure* – relevance according to the Audit – high, according to the Police Academy of the Czech Republic – 1.91
- *Enemy campaigns* – relevance according to the Audit – high, according to the Police Academy of the Czech Republic – 2.45
- *Failure or reduction of eGovernment security* – relevance according to the Audit - medium, according to the Police Academy of the Czech Republic – 2.26
- *Cyberterorism* – relevance according to the Audit – medium, according to the *Police Academy of the Czech Republic – 1.77*

9. ENERGY, RAW MATERIAL AND INDUSTRIAL SECURITY

- *Large-scale disruption of electric power supply* – relevance according to the Audit – none; according to the Police Academy of the Czech Republic – 2.23
- *Large-scale disruption of gas supply* – relevance according to the Audit – none; according to the Police Academy of the Czech Republic – 2.34
- *Large-scale disruption of petroleum supply* – relevance according to the Audit – none; according to the Police Academy of the Czech Republic – 2.15
- *Raw-material security* – relevance according to the Audit – none; according to the Police Academy of the Czech Republic – 2.37
- *Industrial security* – relevance according to the Audit – none; according to the Police Academy of the Czech Republic – 2.47

10. HYBRID THREATS AND THEIR IMPACT ON THE SECURITY OF CZECH CITIZENS

- *Hybrid threats* – relevance according to the Audit – none; according to the Police Academy of the Czech Republic – 2.22

Looking closer at the aforementioned comparison of security threats relevance, it is possible to observe that the greatest discrepancy is in the area of threats No. 4 – Effect of Foreign Power. The Audit attributes higher relevance to these threats, compared to those in the research. Some discrepancy, though not so great, can be found in area 8 – Threats in Cyberspace. In addition to cyber-terrorism, the higher relevance of Audit threats is obvious. In Area No. 1 – Terrorism – there is greater relevance in the threat of Islamic radicalism, attributed to it by the research. Relevance is not significantly different in other areas of security threats.

Classification of security threats with regard to their relevance for the Czech Republic

In the first part of this article, there are ten broader security areas specified in accordance with the Audit, including 34 specific security threats. The research which has been announced attempted to implement another approach to classifying security threats using exploratory factor analysis. Instead of substantive content of security threats, the relevance rates of specific security threats for the Czech Republic was

used for the classification. This quantitative approach was based on the assumption that this would simplify the Audit approach - using a smaller number of meaningful security circuits instead of 10 areas.

A simple questionnaire was used to collect the data; the questionnaire included 34 specific security threats, with the possibility to judge their relevance on the scale 1 – high relevance to 6 - no relevance. This ordinal scale has become the basis for data collection and has also allowed for its later reduction to the three-step scale as used by the Audit. The results of the research on the reduced three-step scale were used to compare the degree of relevance of security threats obtained by the Audit and research, as specified in the first part of the article. The survey was attended by 233 respondents on a voluntary basis. Arrangement of the type of respondents is shown in Table 1 below.

Table 1

	Frequency	Percentage
Civilians[1]	106	45.5
Police of the Czech Republic	26	11.2
HZS ČR (Fire Rescue Team of the Czech Republic)	35	15.0
Customs Administration of the Czech Republic	10	4.3
Others (officials)[2]	20	8.6
Experts in the field of university-level education of security unit members[3]	36	15.5
In total	**233**	**100.0**

The table shows that the greatest part of the amount is represented by civilians without professional experience. The remaining 127 respondents represent the professional public, e.g. those respondents who have their own professional experience in the security area. Data preparation and initial analysis for the purposes of creation of a polychoric correlation matrix have shown that successful exploration factor analysis requires inclusion of all respondents, including civilians, to obtain a suitable correlation matrix.

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[1] Having theoretical insight into security issues; however, not having any own professional experience.

[2] Addressing the security issues at the relevant central administrative authorities (possibly within other public administration authorities).

[3] Experts in the field of university-level training of members of the security forces with specific professional orientation (police activities, legal disciplines, social sciences, crisis management).

Brief introduction to exploration factor analysis

Exploratory Factor Analysis (hereinafter referred to as EFA) seeks to uncover the underlying structure of a relatively large set of variables.[1] The researcher's priority is to find a link between indicator variables (individual security threats) and factors (common areas) with which individual security threats are related in exact meaning as coefficients of regression on common factors (if sometimes the term „correlation" is used in this context, in fact it is about regression coefficients).[2]

This is the most common form of factor analysis. There is no need for any previous theory which would justify a specific assignment of the particular indicator variables and factors. EFA looks for the factor structure separately; it even does not require determination of the necessary number of factors. The purpose of EFA is to find covariances or correlations of the original variables by using few common factors so that these covariances or correlations with the factors are perfectly explained.[3] Common factors are unknown variables selected to explain correlations in the meaning of partial correlation (common factors represent the associated areas of security threats).

Using exploration factor analysis

Input for the analysis is represented by 34 variables (individual security threats) transformed to the scale of 1 to 3 (1 – high relevance, 2 – medium relevance, 3 – low relevance). The scale is adjusted according to the Audit. An overview of these security threats is provided in Annex 1. The selected set included 233 respondents (see Table 1).

For the purposes of analysis, the freely available freeware product, the latest version of FACTOR 10.5.01, was used.[4]

> Validated research assumption:
>
> In terms of relevance for the Czech Republic, composition of 34 security threats is associated in less than 10 Audit-identified areas.

The data of Annex 3, Fig. 2.2a, clearly show according to the Mardi test that the multidimensional normality of all 34 variables cannot be rejected. This is a positive finding that can rarely be achieved with ordinal variables. Regarding this result and independence of individual observations and ordinal character of the variables, it can be concluded that the basic assumptions for EFA have been met.

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[1] The term „proměnná" is used as a Czech expression of the English term „variable", which is an implicit part of the statistical software used.
[2] For more details, see: MCDONALD Roderick P. *Faktorová analýza a příbuzné metody v psychologii*. Praha: Academia, 1991, p. 40.
[3] See: MCDONALD Roderick P. *Faktorová analýza a příbuzné metody v psychologii*. Praha: Academia, 1991, p. 35.
[4] Urbano LOREZO-SEVA and Pere Joan FERRANDO are the authors. The manual and the programme itself are available in: http://psico.fcep.urv.es/utilitats/factor/Download.html.

In accordance with the standard setting of Factor 10.5.01 software, we used the Unweighted Least Squares (ULS) method for factor extraction and the PROMIN factor rotation method to achieve a simple factor structure.[1]

To determine a sufficient number of factors, the Kelly Criterion for determining the maximum value of average standardised residues was preferentially used. This is a relatively good procedure based on comparison of the proposed factor model with the original data (see Annex 3).

If the square root of the mean value of residues is lower than the value expected according to the Kelly Criterion, the number of extracted factors can be considered as sufficient. In other words, when low residue levels are reached, it can be concluded that the method of common factor extraction filtered out essential relevant information from the data. The analysis results presented by us comply with this principle. All information specified in Fig. 2.2c to 2.2e (see Annex 3) provide the necessary reasons for adopting the five-factor model.

The resulting five-factor model of 34 security threats for the Czech Republic has the following composition (see Table 2.2a – 2.2e):
1. Endangering the state's competence and its economic stability.
2. Threats in cyberspace.
3. Threats from migration.
4. Threats of extremism.
5. Energy, raw material and industrial threats.

The first factor (**threatening the state's competence and economic stability**) is associated with the security threats defined below (Table 2.2a). Security threats are downwardly sorted by the size of correlation coefficient with a particular factor.

Table 2.2a

Influencing public administration by foreign power	0.7540
Misuse of public contracts and budgets	0.7160
Abuse of legitimate services for the purpose of organised crime	0.7100
Increase of organised crime through public administration	0.6970
Organised tax crime	0.6790
Influencing public opinion by foreign power	0.6740
Legalisation of profits from crime	0.6450
Obtaining legally protected information by foreign power	0.5880
Crime associated with insolvency proceedings	0.5060

It is clear from the contents of these security threats that the first factor links the threats associated with organised crime and the threats associated with foreign powers. This is primarily a criminogenic factor in a broad sense.[2] It is aimed

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[1] LOREZO-SEVA, U. (1999). Promin: a method for oblique factor rotation. Multivariate Behavioural Research, 34, pp. 347–356.

[2] For more details, see: SCHEINOST, Miroslav at al. *Kriminalita očima kriminologů*. Prague: Institute for Criminology and Social Prevention, 2010. 238 p. ISBN 978-80-7338-096-0. Available in: http://www.ok.cz/iksp/docs/371.pdf

at weakening the power of the state and disrupting the legally established economic environment.

The second factor (Table 2.2b) is filled with **threats in cyberspace**. Interestingly, hybrid threats have been incorporated into this factor, despite the fact that they correlate poorly with that factor.

Table 2.2b

Cybernetic espionage	0.9090
Violation of the IT infrastructure's resistance	0.8040
Cyberterorism	0.6870
Disruption of eGovernment security	0.6390
Enemy campaigns	0.3220
Hybrid threats	0.3060

Hybrid threats [1] represent a relatively new construct. It is a combination of the tools of conventional as well as non-conventional war; they can include various forms of aimless violence and coercion, evocation of criminal confusion, etc. The content of these threats is very diverse and cyberspace can be meant as an arena where the threats are manifested. The fact that respondents have included these threats with regard to their relevance for the Czech Republic to the threats of cyberspace is therefore well founded. However, it must be acknowledged that the Audit's opinion related to the special status of these threats is also significant.

Table 2.2c

Uncontrolled migration	0.7290
Islamic radicalism	0.7210
Terrorism of lone wolves	0.7050
Foreign fighters	0.6980
Threat of unsuccessful integration	0.3900

Table 2.2c shows that the third factor – **security aspects of migration** – consists of threats which are directly related to migration. Respondents of the survey clearly understand that manifestations of Islamic radicalism, lone wolves and foreign fighters are closely linked to migration. It is therefore irrevocable that, given their relevance for the Czech Republic, these threats are perceived as an integral part of the security aspects of migration.

Table 2.2d

Right-wing extremism	0.8620
Political extremism	0.7000
Left-wing extremism	0.6160

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[1] What we understand under the hybrid threat (hybrid wars, hybrid ways of conflict management, hybrid campaigns) is primarily the method in which confrontation or conflict is led. This means of conflict management represents a broad, comprehensive, adaptable and integrated combination of conventional and unconventional methods, open and hidden activities primarily having the nature of coercion and subversion, as those carried out by military, semi-military, and various civilian actors.

The fourth factor - **factor of extremism** - is associated with the three threats. It also contains the threat of political extremism which is classified by the Audit to the area of terrorism.[1] It is necessary to realise that the term "political extremism" does not have any clear technical foundation. Because of its vague content, respondents perceive it as a part of wider extremism.

The last factor, e.g. the fifth factor, is the factor with the greatest number of threats. It is made up by **energy, raw-material and industrial threats**. It also contains some anthropogenic threats.

Table 2.2e

Large-scale disruption of food supply	0.8450
Large-scale disruption of gas supply	0.7260
Large-scale disruption of electricity supply	0.7220
Large-scale disruption of petroleum supply	0.6990
Large-scale disruption of drinking water supply	0.6910
Radiation accident	0.6070
Industrial safety	0.5770
Raw material safety	0.5280
Hazardous substance leakage	0.4000
Flood	0.2310
Long-term drought	0.0210

In Table 2.2e, we can see that natural threats – floods and long-term droughts – were assigned to the fifth factor. However, their regression coefficients are very low. For this reason, it is possible to assume that these threats have been assigned to the fifth factor due to mere necessity of listing them. In fact, however, it is obvious that both of these threats should be outside the given factor. Although they are the result of primarily natural causes, the secondary influence of man cannot be excluded. However, the decisive influence of human error can be seen in other threats of the particular factor. This fact greatly differentiates these threats from those which are natural. Interestingly, both floods and long-term droughts were not included in a separate factor, which could have been expected. However, the mutual correlation between these two threats is only 0.207. This represents a very low correlation, making it difficult to integrate both threats into a common factor. There is not enough additional information to gain a deeper understanding of these issues.

Based on the records specified in Annexes and Tables 2.2a to 2.2e, it is possible to conclude that the assumption was valid.

Validated research assumption:

In terms of relevance for the Czech Republic, the composition of 34 security threats is associated in less than 10 Audit-identified areas.

This research prerequisite cannot be rejected.

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[1] Terrorist attack may also be committed by "political extremist".

Conclusion: Results of security threat composition validation

Classification of security threats can be considered with regard to their substantive content, as it was done by the aforementioned Audit, or with regard to their relevance for the Czech Republic. Both approaches are possible.

The results of the exploratory factor analysis in 34 security threats show the fact that the quantitative approach to finding a wider structure for framing individual security threats based on their relevance for the Czech Republic is able to produce meaningful results. The results of the analysis show how the quantitative estimates of the relevance of security threats are, in most cases, highly functionally and clearly related to their substantive content. It results in a functional connection between quantitative and qualitative approaches.

The obtained results show the importance of exploration factor analysis within the reduction of variables, even in the area of the structure of security threats. For a deeper verification of this structure (composition), it would be advisable to use confirmatory factor analysis in the future, which will require an extension of the sample.

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R E S U M É

Příspěvek se soustřeďuje na problematiku uspořádání vybraných 34 bezpečnostních hrozeb, se kterými pracuje Audit národní bezpečnosti, do šířeji pojatých oblastí na základě jejich relevance pro ČR. S využitím explorační faktorové analýzy je na základě kvantitativního přístupu ověřován výzkumný předpoklad o nižším počtu stanovených oblastí, než jak je pojímá uvedený Audit. Výzkum byl uskutečněn u 233 respondentů. Analýza dat ukázala, že pro smysluplné uspořádání 34 bezpečnostních hrozeb je dostatečný pětifaktorový model. Článek obsahuje všechny náležitosti, které jsou nutné pro vědecké intersubjektivní ověření uvedených výsledků. Výsledky explorační faktorové analýzy byly dosaženy s využitím volně šiřitelného software pro explorační faktorovou analýzu ordinálních proměnných Factor 10.5.01.

Klíčová slova: Explorační faktorová analýza, polychorická korelační matice, rotovaná matice zátěží - šikmá rotace PROMIN, Bartletův test sféricity, koeficient KMO, McDonaldův koeficient omega spolehlivosti mnoho-rozměrného faktorového modelu, RMSR – druhá odmocnina z průměru reziduí.

S U M M A R Y

The paper focuses on the issue of organisation of 34 selected security threats with which the National Security Audit works into broader areas, based on their relevance for the Czech Republic. Using the exploratory factor analysis, a research assumption on the lower number of defined areas is verified on the basis of a quantitative approach, compared to the audit mentioned. The research was carried out with 233 respondents. The data analysis showed that the five-factor model is sufficient for a meaningful arrangement of 34 security threats. The article contains all the particulars which are necessary for a scientific intersubjective verification of the results. The results of the exploration factor analysis were achieved using the freely extensible software for exploration factor analysis of ordinal variables – Factor 10.5.01.

Keywords: Exploration factor analysis, polychoric correlation matrix, rotated matrix of loads – PROMIN oblique rotation, Bartlet's sphericity test, KMO coefficient, McDonald's omega coefficient of reliability of multi-dimensional factor model, RMSR – square root from residues average.

Annex 1: Overview of 34 security threats

P01	Islamic radicalism
P02	Political extremism
P03	Terrorism of lone wolves
P04	Foreign fighters
P05	Right-wing extremism
P06	Left-wing extremism
P07	Increasing organised crime through public administration
P08	Misuse of public contracts and budgets
P09	Organised tax crime
P10	Legalisation of profits from crime
P11	Abuse of legitimate services for the purpose of organised crime
P12	Crime associated with insolvency proceedings
P13	Influencing public opinion by foreign power
P14	Influencing public administration by foreign power
P15	Obtaining legally protected information by foreign power
P16	Uncontrolled migration
P17	Threat of unsuccessful integration
P18	Flood
P19	Long-term drought
P20	Hazardous substance leakage
P21	Radiation accident
P22	Large-scale disruption of drinking water supply
P23	Large-scale disruption of food supply
P24	Cybernetic espionage
P25	Violation of the IT infrastructure's resistance
P26	Enemy campaigns
P27	Disruption of eGovernment security
P28	Cyberterorism
P29	Large-scale disruption of electricity supply
P30	Large-scale disruption of gas supply
P31	Large-scale disruption of petroleum supply
P32	Raw material safety
P33	Industrial safety
P34	Hybrid threats

Annex 2: Polychoric correlation matrix of 34 security threats (233 respondents)

	P01	P02	P03	P04	P05	P06	P07	P08	P09	P10	P11	P12
P01	1,000											
P02	0,000	1,000										
P03	0,502	0,128	1,000									
P04	0,423	0,305	0,585	1,000								
P05	0,000	0,651	0,007	0,104	1,000							
P06	0,000	0,393	0,158	0,208	0,574	1,000						
P07	-0,025	0,085	0,000	0,000	0,104	0,160	1,000					
P08	-0,246	0,007	0,000	0,000	0,086	0,000	0,666	1,000				
P09	-0,091	0,000	0,000	0,000	0,084	0,044	0,470	0,664	1,000			
P10	-0,037	0,000	0,000	0,000	0,057	0,020	0,438	0,421	0,588	1,000		
P11	0,000	0,024	0,000	0,000	0,024	0,086	0,495	0,372	0,480	0,574	1,000	
P12	-0,133	0,000	-0,088	0,000	0,022	0,062	0,267	0,237	0,397	0,416	0,584	1,000

	P13	P14	P15	P16	P17	P18	P19	P20	P21	P22	P23	P24	P25	P26
P13	1,000													
P14	0,759	1,000												
P15	0,573	0,648	1,000											
P16	0,000	0,000	0,000	1,000										
P17	0,000	0,000	0,000	0,537	1,000									
P18	0,006	0,000	0,000	-0,054	0,000	1,000								
P19	0,000	0,000	0,000	0,000	0,000	0,207	1,000							
P20	0,000	0,000	0,000	0,000	0,062	0,498	0,000	1,000						
P21	0,000	0,185	0,175	0,033	0,168	0,108	0,000	0,460	1,000					
P22	0,000	0,030	0,008	0,010	0,087	0,101	0,007	0,205	0,532	1,000				
P23	-0,098	0,000	0,000	0,000	0,071	0,084	0,000	0,242	0,551	0,816	1,000			
P24	0,142	0,047	0,255	0,000	0,184	0,000	0,000	0,000	0,221	0,000	0,016	1,000		
P25	0,000	0,000	0,130	0,021	0,219	0,000	0,000	0,000	0,234	0,060	0,187	0,752	1,000	
P26	0,383	0,262	0,250	-0,037	0,000	0,077	0,000	0,000	0,000	0,000	0,000	0,200	0,151	1,000

	P27	P28	P29	P30	P31	P32	P33	P34
P27	1,000							
P28	0,694	1,000						
P29	0,376	0,510	1,000					
P30	0,370	0,427	0,778	1,000				
P31	0,318	0,367	0,621	0,710	1,000			
P32	0,361	0,341	0,434	0,414	0,497	1,000		
P33	0,437	0,373	0,357	0,347	0,504	0,586	1,000	
P34	0,321	0,368	0,322	0,235	0,275	0,393	0,410	1,000

Annex 3:

Fig. 2.2a – Mardi's multidimensional normality test

```
Analysis of the Mardia's (1970) multivariate asymmetry skewness and kurtosis.

                                   Coefficient     Statistic     df       P

Skewness                            282.953        7592.579     7140     0.9999
Skewness corrected for small sample 282.953        7742.249     7140     1.0000
Kurtosis                           1213.288          -1.374              0.0848
```

Fig. 2.2b – Suitability of correlation matrix of 34 variables for factor analysis

```
ADEQUACY OF THE CORRELATION MATRIX

Determinant of the matrix    = 0.000000071420270
Bartlett's statistic         =  2432.6 (df =    561; P = 0.000010)
Kaiser-Meyer-Olkin (KMO) test = 0.79055 (fair - good suitability of correlation matrix for
FFA)
```

Fig. 2.2c – Residual difference between data and the five-factor model

```
Root Mean Square of Residuals (RMSR) =  0.0642
Expected mean value of RMSR for an acceptable model =  0.0791 (Kelly Criterion)
Kelly, 1935, p. 146; see also Harman, 1962, p. 21 of the 2nd edition)
```

Fig. 2.2d – Indexes of suitability of five-factor model

```
ROBUST GOODNESS OF FIT STATISTICS

              Root Mean Square Error of Approximation (RMSEA) =   0.038;
                    Estimated Non-Centrality Parameter (NCP) = 160.400
                                     Degrees of Freedom = 401
                                     Test of Approximate Fit
                                     H0 : RMSEA < 0.05;  P = 1.000

Minimum Fit Function Chi Square with 401 degrees of freedom = 370.318 (P = 0.861847)
Robust Mean-Scaled Chi Square with 401 degrees of freedom = 494.809 (P = 0.000945)
Chi-Square for independence model with 561 degrees of freedom = 4326.779

                       Non-Normed Fit Index (NNFI; Tucker & Lewis) =   0.965
                                    Comparative Fit Index (CFI) =   0.975
                  Schwarz's Bayesian Information Criterion (BIC) = 1531.416

                                       Goodness of Fit Index (GFI) =   0.947
                          Adjusted Goodness of Fit Index (AGFI) =   0.926
             Goodness of Fit Index without diagonal values (GFI) =   0.914
       Adjusted Goodness of Fit Index without diagonal values(AGFI) =   0.880
```

Fig. 2.2e – Reliability of a five-factor model

```
McDonald's Omega = 0.816712
Standardized Cronbach's alpha = 0.854815


Factor       Variance                      ORION


    1        4.308                         0.880
    2        3.004                         0.845
    3        1.806                         0.789
    4        4.472                         0.895
    5        2.422                         0.815
```