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THE THEORETICAL MODEL OF *PROFILING*, AND ITS POSSIBLE APPLICATIONS IN COUNTERINTELLIGENCE ACTIVITY

Abstract

The study examines the possibilities for improving the activity of counterintelligence organizations by resorting to several profiling methods. It describes the possible applications of the personal, group and structural profiles, focusing on the profiling of target persons with the help of human resources. In this regard, the study makes distinction between direct and indirect security threats posed by the target persons. The author has also drawn a good illustration about the counterintelligence cycle, demonstrating each step of the counterintelligence process.

Keywords: theoretical model, profiling methods, military counterintelligence, criminal profiling, security profiling, identifying the risks, information collection.

The theory of national security is composed of intelligence and counterintelligence, as well as the analysis and assessment activity closely linked to them. Fundamentally, it is not the differently used methods that make distinction between the two branches of national security, but their basic duties, functions, and the direction and nature of their activities. Based on these findings, it seems evident that the differences – to a greater or lesser extent – influence the complex system of intelligence analysis and assessment, too.

One of the most adequate methods of developing national security theory – including intelligence and counterintelligence – is to carry out scientific research in the fields of their activity.[1] The up-to-date approach to national security should include the

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[1] I believe that within the Hungarian national security community, the military intelligence conducts the most progressive – actual – theoretical processing of intelligence analysis. This is not stemming merely from the processing of international theories. The set of methods used during daily practice also

processing of international theory, the adaptation of foreign practices in a way to correspond to the national environment, and also the revision and modernization of the existing national knowledge. In my opinion, this can be examined from two aspects. The first evident method would be the presentation and targeted application – in accordance with the domestic conditions – of intelligence analysis theories published in international specialized literature. However, this should not be the only method to be applied. When examining foreign intelligence analysis theories, one ought to concentrate on the methods which have real practical "values". The other method would include systematically processing the practical experiences of the Hungarian national security environment, and transforming them into a theory. By presenting a specific method, this study opts for the latter solution.

Counterintelligence – including military counterintelligence – has not fully presented and processed yet the international specialized literature on intelligence analysis and assessment. The full spectrum of national security activity is characterized by the unbreakable unity of theory and practice. Thus, I intend to study the method of *profiling*[2] – the focal point of this study – from a practical approach.

As I have already mentioned it before, the interaction between theory and practice has a heightened importance within the methods of intelligence analysis. The best way to acquire information on certain elements of the activities is to examine the methods of intelligence analysis. My essay studies the method of *profiling*, which is categorized as a simple method. The distinctive feature of my essay is that it pays special attention to the characteristics specific to counterintelligence. The Hungarian national security practices have played the most significant role during the elaboration of the outlined model. In this regard, we can state that so far, the terminus technicus of *profiling* has not received an autonomous "status" within the professional conceptual sphere of counterintelligence. However, if one studies the substantive elements of profiling, it can be stated that the examination and application of its basic elements – which provide the

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contributes to the development. In every case, the strategic level management and assessment of the crises – and their characteristic security risks and threats – improve the operation of the national security sphere. This especially holds true to the security and national security environment, where the risks and threats also have a dominant military nature.

[2] In order to draw a distinction between the two concepts – criminal profiling and profiling – the national security terminology uses the word *profiling*. *Criminal profiling* refers to the method used in criminalistics.

essence of this method – are present in certain fields of counterintelligence analysis and assessment.

Therefore, profiling can be classified as a method of intelligence analysis and assessment. It belongs to the simple, logical practices.[3] *Profiling* can be best interpreted on the tactical level of counterintelligence. It is related to the means and methods of secret intelligence collection; and fundamentally, it might have a decisive role in supporting national security operations. This is based on the fact that the support of counterintelligence operations is a critically important element of the tactical level activities of counterintelligence. Based on all these, it can be declared that practical experiences definitely have an important role within the field of *profiling*, which is in the focus of this article.

The strategic tasks of counterintelligence include also the support of law enforcement duties and activities. However, it must be understood that the application of profiling in law enforcement field cannot and should not mean the adoption in counterintelligence of the full law enforcement and anti-criminal profiling methods. It is very important to have a clear understanding of this issue, as criminal profiling is a quite unique tool within the field of criminalistics. Criminal profiling is a generally used, legitimate method in crime prevention and law enforcement, which allows the given organizations to outline the possible perpetrator's character and personality. It allows the organizations with an investigative authority – relying on the available, but may be insufficient information – to use their powers and tools in a concentrated, more purposeful way. This renders it possible for them to narrow down the circle of possible perpetrators, thus promoting more effective law enforcement.[4] On a theoretical level, criminal profiling includes the identification of available information, the preparation of different prognoses, and the measures to be taken on the basis of the findings. In general, there are two types of this method: descriptive and predictive criminal profiling. In the first case, the essential aim is to explain, while in the second case the primarily aim is to forecast the events.

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[3] Kenedli Tamás-Vida Csaba: Elemző-értékelő tevékenység. In: A nemzetbiztonság általános elmélete. Dobák Imre (Ed.) NKE NBI. Budapest. 2014. pp. 196-198.
https://opac.uni-nke.hu/webview?infile=&sobj=8964&source=webvd&cgimime=application%2Fpdf%0D%0A (accessed on March 10, 2016)
[4] Tatár László: Profilalkotás a bűnüldözésben. In: Emlékkönyv Irk Albert egyetemi tanár születésének 120. évfordulójára. Korinek László, Kőhalmi László, Herke Csongor. (Eds.) PTE ÁJK. Pécs. 2004. pp. 177–181.

In relation to criminal profiling for law enforcement purposes, the difference between the two procedures is determined by the intention, whether the method is used to investigate and report the already committed crimes (descriptive method), or to try to reveal crimes that have not been committed – or investigated – yet (predictive method), meaning that so far, the authorities have not received any specific information about the possible events.[5]

One possible approach to profiling would be the examination and application of the means and methods of secret information collection. However, when it comes to the means and methods used in collecting counterintelligence information for profiling, we cannot talk about exclusiveness.[6] Naturally, there are a few cases when the aspects of profiling are counterintelligence-specific, and play a primary role in the process (such as a conspired study of living conditions, HUMINT information gathering, asking for clarification etc.)

From the aspect of profiling for national security purposes, three different types of profiling subjects can be differentiated. This division is still debated; since it points beyond the category of an individual profile. The subjects of profiling can be divided into the following three categories:

- personal profile;
- group profile;
- structural profile.[7]

The unique feature of a personal profile is that it is exclusively related to an individual. Regarding personal profiles, the professional operations that ensure the implementation of national security tasks can be divided into well-defined functions, such as the following:

- controlling, vetting the target person;

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[5] M. Tóth Balázs: Az etnikai profilalkotás a bűnmegelőzésben és a bűnüldözésben. Doktori értekezés. ME ÁJK. Miskolc. 2011. pp 30-31. http://www.uni-miskolc.hu/~wwwdeak/tothb_ert.pdf (accessed on March 8, 2016)

[6] The situation is similar with the means and methods of secret intelligence collection as well. In that case, we cannot talk about the specific characteristics of counterintelligence either. See Hetesy Zsolt: A titkos felderítés. Doktori értekezés. Pécs. PTE ÁJK DI. 2011. pp. 75-76 http://ajk.pte.hu/files/file/doktori-iskola/hetesy-zsolt/hetesy-zsolt-vedes-ertekezes.pdf (accessed on March 8, 2016)

[7] In this study, I choose not to explain in detail the categories I defined as *group* and *structural* profiles. I believe the *group profile* includes the inspection of organized crime groups and networks that establish corrupt relations; while the *structural* profile relates to the targeted investigation of adversary intelligence services.

- conducting human source information collection / investigation profile;
- carrying out security check on the person under national security supervision.

The function closest to the profiling for criminalistics purposes is the control of a *target person* who engages in unlawful activities, or poses a national security risk. This is especially true if the counterintelligence has to perform duties in relation to an unknown person. In such cases, the means and methods of counterintelligence must be concentrated on identifying the target. Perhaps this procedure is the closest to the criminal profiling, particularly to its descriptive method.

In the course of profiling the target persons, the most prominent aspect might be that the characteristics signs of the investigated person must also be taken into consideration when planning the secret intelligence gathering.

Profiling cannot mean the simple listing of profile-elements gained about the target persons. The essence of this method lies within achieving, analysing and summarizing such elements that are directly connected with the national security aims. Thus, profiling helps in conducting such an analysis and assessment process that leads a qualitative change in the available pieces of information, producing an added value. Although the profile can offer a good guidance, it cannot render possible/prove or preclude/deny national security acts by itself. It can be viewed merely as an instrument of using the means and methods of secret intelligence collection. However, it is important to point out that while planning counterintelligence operations, and outlining different scenarios, we can and have to make use of the possibilities offered by profiling. Later on, we can compare the elaborated profile with the real situation, thus we can have a feedback on the success of our work. Profiling for national security purposes can be seen as a complex activity; the possible tools can include psychology, sociology, and communication as well. In addition, I believe that behavioural sciences can also play a decisive role in our work. I consider behavioural sciences[8] to be particularly significant as they comprise the understanding of all − emotional, intellectual and volitional − activities of the personality; the behavioural patterns; and also the sound (positive) development and the developmental disorders of a person.[9] All

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[8] Kopp Mária – Skrabski Árpád: Alkalmazott magatartástudomány. Corvinus Kiadó. Budapest. 1995. pp. 9-15.

[9] In my opinion, it facilitates the revealing of a national security risk.

these fields are investigated on an individual level, in relation to how they affect the given person's social relations, and how they interfere with his biological, sociological, psychological and economic features. All of these fields have a security dimension as well.

Profiling can significantly contribute to the professionalism of secret intelligence collection from a human source. The task – which can be interpreted as a separate function – is basically related to finding an opportunity to gather information. Many elements of the profile elaborated from this approach, are identical with the personal characteristics examined during the national security vetting (loyalty, stable way of life, rational assumption of risks etc.). It is the qualitative indicators linked to these characteristics that can best determine the reliability and applicability of the given person. It is but natural that the profiles prepared to this end have to be considered as dynamic ones, because the changes in the operational environment can have an impact also on the results of profiling.

From the aspect of the state's proper operation and security, national security checks – *substantially, the investigation of a person undergoing a national security check –*, have been gaining more and more importance. It is a basic criterion of the rule of law that the people wielding great public power, who have access to information that is extremely significant for state policy-making, and also the people in important positions should be able to fulfill their duties in a lawful way, free from external influence.[10] The national security check – essentially carried out by the counterintelligence services in democratic countries – can ensure the fulfillment of this criterion in an institutionalized way. As I have already mentioned it before – being a subject of a national security situation – a specific person can be subjected to investigations as well. The means of profiling must also be used to detect human risks. The national security check allows counterintelligence to investigate the security relationship network of a given person based on some specific factors. People's security situation includes many factors that are subject to profiling (such as personal features, health and mental state, interests etc.)

On the one hand, the security check aims to detect risk factors which could render the affected person vulnerable to unlawful influencing. The essential factor of this is

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[10] Dezső Lajos - Hajas Gábor: A nemzetbiztonsági tevékenységre vonatkozó jogszabályok. (Kommentár a gyakorlat számára) HVG-ORAC Lap- és Könyvkiadó. Budapest. 2000. pp. 328-330.

that the person has to be conscious of the fact that he is in a vulnerable position, due to these risks (*direct threat*). These threats include bribery and blackmailing.

The other big group of risks includes the ones that would make the affected person unconsciously fall victim to influencing *(indirect threat).* Gossiping and being well-informed are excellent examples of this. Profiling allows us to recognize these risks in time. It can primarily help to unveil indirect threats.

Within the counterintelligence activity, the work process of national security check has a particular supportive function, aiming to preserve security. Recognizing risks needs specialized knowledge. However, profiling by itself is not a sufficient way of detecting national security risks.

Profiling can be examined from the aspect of national security situation as well, which is a different approach. In this case, the profile of the field to be protected is a determining factor. The given field – which represents a key factor from a national security aspect – can be examined through the presentation of the national security situation, which constitutes the basis for the counterintelligence cycle.
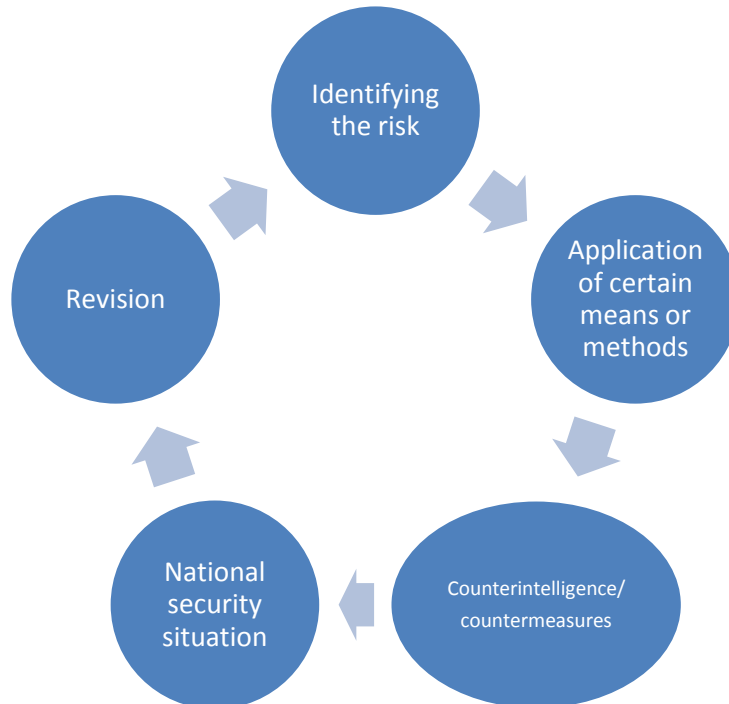

Figure no. 1: The counterintelligence cycle (self-edited image)

The national security situation is the entirety of the natural and artificial conditions and relations of a field to be protected – designated from a particular national security aspect – at a given time; and the assessment of the risks identified in this field, according to a specific set of criteria.[11] The profile's elements can only be analysed through the complex system of natural conditions and relations, as they include the objective characteristics and basic data of the subject. On many occasions, military counterintelligence applies the method of profiling, when assessing the risks based on the national security situation.[12] Profiling is a determining factor in its capacity, and has an undisputed influence on the organization of national security activity. A few examples of this are the following:

- military organization; the elements of the profile include its system of duties, function, the number of its personnel etc.
- military facility; the elements of the profile include its geographic location, the criminal infection of the territory, the homogeneity of the building etc.
- military operation; the elements of the profile include whether it is based on a foreign or a home base; its duration etc.
- a person; the elements of the profile include their position, education, personal relationships etc.

To sum it up, as I examined the subject of my investigation from the aspect of practical experiences, I would like to draw attention to the following factors in relation to the implementation of profiling:

- the basic characteristics and features related to the subject of profiling;
- the available time for profiling;
- the specific national security aim of profiling, and the available means and methods used to achieve these goals;
- the processing of past experiences that could improve profiling.

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[11] Szabó Károly: Gondolatok a katonai elhárításról. Szakmai szemle. 2015/1 szám. p. 12.
[12] From a different approach, this can take place with the application of the intelligence analysis method of enumeration, which is a simple, logical procedure.

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DR. SÁNDOR SZAKÁLY

FROM THE EVIDENZBUREAU TO THE ESTABLISHMENT OF THE INDEPENDENT HUNGARIAN MILITARY INTELLIGENCE[1]

Abstract

The author deals with such an important issue that has already been studied by some researchers, but rather neglected by the younger Hungarian generation, including our young officers as well.

For this reason, it is essential for us to "revive" this topic and draw some lessons from the history of the Hungarian armed forces and military intelligence and counterintelligence.

The author describes the first and the following strenuous efforts made by the Hungarian political and military leaders to take concrete steps towards the establishment of an independent army. He analyses in detail the development of intelligence and counterintelligence organizations, relying on a great number of relevant literatures. He does not forget about the presentation and appreciation of those political and military leaders who made their best to set up and modernize the Hungarian intelligence and counterintelligence organizations.

Keywords: Royal Hungarian Army, VKF-2 Department, Austro-Hungarian Monarchy, Evidenzbureau (Record Office), Major Stojakovics, Ministry of War, Trianon, 8th Department, Major General Táncos, Col. Stromfeld, Miklós Horty, Col. Hermann Pokorny.

So far only a relatively small number of studies have been published about the history of intelligence and counterintelligence service working at the interwar armed forces of Hungary (until 4th Jan 1922 the National Army, then the Royal Hungarian Army).[2] This has essentially several reasons, among which the most significant may be

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[1] This article is an abridged version of the author's presentation given at the conference held on the occasion of the 90th anniversary of Hungarian Military Reconnaissance. The article was translated by Zsófia Kaszab.

[2] See the writings studying this topic at the end of this study, under "References".

the relatively small number of documents, while the existing ones were "dispersed" or "closed" from researchers in the last decades.

The number of source materials is not likely to increase in the future; however, the opportunities to have access to the already existing ones have greatly improved. Today, researching the documents kept in the War History Archives (Hadtörténelmi Levéltár) and the Historical Archives of the Hungarian State Security (Állambiztonsági Szolgálatok Történeti Levéltára) does not represent problems, but it requires a thorough and time-consuming research. Besides the documents of the former VKF-2 Department, the memoirs of the officers who served in the department can be mainly found in these archives. From among them, the most important is the manuscript by István Ujszászy[3], which is now accessible in a book format, and the manuscript by Gyula Kádár, of which an edited version – in the form of a memoir – was published three decades ago.[4] A further important task for the researchers is to examine the lawsuits conducted by the people's court and military court against the former military attachés, VKF-2 commanders, their deputies and other officers. These documents can be found in the Budapest City Archives, the War History Archives and the Historical Archives of the Hungarian State Security.

It would be important for the researchers to utilize the recollections by the former members of the Hungarian military emigration[5] and the additional original documents that are supposedly lurking in different places. It is well known that a significant part of the original VKF-2 documents – mainly those written in the years of World War II – were destroyed by the personnel of the department during the German invasion of Hungary – 18-19 March 1944 –, while a significant part of the remaining documents was transported abroad by the emigrating department, or was destroyed.[6]

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[3] The memoirs of the former leader of the VKF-2 Department and the Centre for State Protection were edited by György HARASZTI under the title "Vallomások a holtak házából" (*Confessions from the house of the dead*). See the detailed bibliographic data under "References". (Hereafter: UJSZÁSZY.)

[4] Gyula KÁDÁR: *A Ludovikától Sopronkőhidáig*. (*From the Ludovika to Sopronkőhida.*) Magvető Könyvkiadó, Budapest, 1978. The manuscript – which served as the basis of the book – can be found in its entirety in the Historical Archives of the Hungarian State Security. Publication is in preparation.

[5] A few years ago, the lengthy memoir of Jenő ANDREÁNSZKY got home from Mulhouse, France (War History Archieves Personalia. The legacy of Jenő ANDREÁNSZKY). ANDREÁNSZKY wrote in detail about his job at the VKF-2 Department, and also gave details about the "requests" of western intelligence organizations after 1945.

[6] Among others, Gyula KÁDÁR wrote about the destruction at the VKF-2 department in his cited memoir. p. 666.

It will be the task of future studies and researchers to explore and publish – in a monograph – the history of the independent Hungarian military intelligence and counterintelligence – established in the autumn of 1918 – and the activities of the department that merged in one organization the two functions. This study cannot undertake this task, since its author has not carried out deep researches, and he gained most of his knowledge by examining the activities of some important persons. Therefore, this current work can only be considered as a "sketch", which might help future researchers in determining their further tasks.

The first national defence steps towards independence

The establishment of the independent Hungary is the result of the so-called "Aster Revolution" of 31 October 1918, and the preceding political, social and economic changes and developments. The so-called "Compromise", which was concluded between Hungary and Austria – more precisely, between Hungary and the Ruler – in 1867, made Hungary – an almost fully powered member, a partner country – a constituent state of the state formation assuming the name Austro-Hungarian Monarchy; however, it did not ensure for Hungary all the necessary components of independent statehood – among others – an independent foreign policy and completely independent military and financial affairs.

The Ruler – Emperor and King Franz Joseph I – and the determinant politicians of the Royal Court insisted on that the armed forces of the empire should not be composed of independent armies of the member countries, but common, imperial armed forces should be set up.

This was also applied to the foreign affairs: neither Austria, nor Hungary had an independent foreign policy or the necessary organization. In order to ensure the financial needs of these two significant fields – foreign affairs and military policy –, a common financial ministry was even established.

Despite this specific state structure, both Hungary and Austria had their "own" possibilities (as well) in the field of military and financial matters. In the case of their "own" armed forces, the Royal Hungarian Army and the Austrian k. k. Landwehr trained those troops that were regarded as "second-line forces", since these were not fully structured armed forces, due to the lack of several military branches, units,

command levels, etc. Accordingly, they obviously did not have independent intelligence and counterintelligence organizations.

The Austro-Hungarian Monarchy – disintegrating as a result of the world war defeat (that time the "first" attribute was not used) – fell to pieces, due to the different revolutionary and nationality movements.

The disintegration of the empire – at the same time – resulted in the establishment of the independent Hungarian state, which, however, was also threatened by a similar disintegration. The primary cause of this was the significant ratio of nationalities living on the territory of the Hungarian Kingdom. According to 1910 census data, approximately 50% of the population in the Hungarian Kingdom were of different nationalities[7], and most of them demanded to secede from Hungary. By the end of 1918, this threat became so serious that it led to an irreversible process, that is, the "historical Hungary" broke up. The different ethnic councils declared the separation from Hungary of the territories inhabited by ethnic groups, and their accession to the neighbouring old or freshly established countries.

The new Hungarian government – established on 31 October 1918 and led by Count Mihály Károlyi – and the following government – led by Dénes Berinkey and set up on 11 January 1919 – made efforts to transform the previous national defence leadership as well, and to organize new armed forces from the former Royal Hungarian Army and the former units of the "joint" armed forces. The soldiers joined the new army on voluntary basis.

The military-administrative organization – operating under the name Ministry of Defence until 31 October 1918 – was renamed Ministry of War (MoW), and, simultaneously, the organization and reorganization of the new Hungarian armed forces started. This was an essential task, since the majority of the Hungarian officers – or the officers with Hungarian citizenship –, who had served in the disintegrating joint army or in the Royal Hungarian Army, wanted to serve in the future as well; and this was also

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[7] According to the 1910 census data, the ethnic distribution of the population of Hungary – without Croatia – was the following: Hungarian 54.5%, Romanian 16.1%, Slovak 10.7%, German 10.4%, Ruthenian 2.5%, Serb 2.5%, Croat 1.1%, other 2.2%. In: *Magyarország történeti kronológiája.* (*The Historical Chronology of Hungary.*) Chief editor: Kálmán BENDA. Vol. 3., 1848-1944, Akadémiai Kiadó, Budapest, 1982. p. 819.

the interest of the country. It seemed indispensable to establish a new national army from those soldiers who served in the former Royal Hungarian Army or in the so-called "joint armed forces", even if there were certain political forces, which considered this step as needless.

The "former" "national" and "joint" officers and non-commissioned officers sought to find for themselves – in accordance with their citizenships, nationalities and sympathies – a new homeland and a new army.

Their number was high compared to the "remaining Hungary". Both the Károlyi and the Berinkey governments calculated only with a few tens of thousands soldiers, and wanted to establish the new army from voluntary applicants. As a result of the new armed forces – planned to include a smaller number of soldiers compared to the previous period –, tens of thousands of officers had to leave the army, while – in accordance with the decision of the government – almost every general and colonel were retired. At the same time, the organizational bodies of the general staff, the artillery staff and the engineer staff were also dissolved.[8]

However, together with and despite the reductions, there was a constant need for the new Ministry of War and an army command.

The organizational changes in intelligence and counterintelligence

While organizing the Ministry of War, the earlier models were only partially taken into consideration, since the (Hungarian) Defence Forces, and later the People's Army (16 November 1918 – 21 March 1919) did not have their own general staffs, the Ministry of War was compelled to (or should have to) take over such duties and functions that it had not had earlier.

Such a duty was to pursue intelligence and counterintelligence activities. In the armed forces of the Austro-Hungarian Monarchy, these tasks were provided for by the so-called "Evidenzbureau" (Records Office), which was one of the "competent" offices of the general staff of the joint armed forces.

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[8] See the list of relevant decrees in: Sándor SZAKÁLY: *A Magyarországi Tanácsköztársaság Vörös Hadseregének tisztikara*. (*The officer corps of the Red Army of the Hungarian Republic of Councils.*) In: Sándor SZAKÁLY: *Hadsereg, politika, társadalom*. (*Army, politics, society*.) Lánchíd Kiadó, Budapest, 1991, p. 30.

In the freshly organized Hungarian Ministry of War, the 1st Department of the ministry was "assigned" to perform these tasks. It was tasked to deal with *"military operations, intelligence, records and theoretical issues"*.

The department was practically established on 1 November 1918, under the leadership of Staff Major Demeter Stojakovics[9]. He served in the "centre" (in the Evidenzbureau), and, during the world war years, at the operating headquarters and at the intelligence section of the Balkans forces.

Stojakovics assigned such young general staff officers to his department, who had already had some knowledge, and their foreign language skills and knowledge were better than the average. The new head of department – who cooperated with the similarly freshly organized Military Policy Department of the Ministry of War, which mainly dealt with the questions of "foreign relations" – can be considered as the creator of Hungarian military intelligence and counterintelligence. Major General Gábor Tánczos[10] was tasked with heading the Military Policy Department (the 8th Department of the Ministry of War after 1 January 1919), who also had military diplomatic experiences, since previously he had been the military attaché of the Austro-Hungarian Monarchy in Belgrade, Athens and Sofia.

On 1 January 1919, the department led by Demeter Stojakovics became the 5th Department of the Ministry of War – due to the organizational changes in the ministry –, but it had the same duties as before, that is, *"military operations, intelligence, records and theoretical issues"*.

The department of Stojakovics made efforts mainly to obtain information from the Hungarian territories occupied by hostile powers – Czechoslovakia, Romania and Serbia – and to hinder espionage conducted for the hostile powers, but the planning of military operations was also among its tasks.

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[9] Döme SZTÓJAY (Versec, 5 January 1883 – Budapest, 24 August 1946), professional military officer, his highest rank was Reservist General. See the information concerning his military career in Sándor SZAKÁLY: *Az ellenforradalmi Magyarország (1919-1944) hadseregének felső vezetése.* (*The high command of the army of the counter-revolutionary Hungary (1919-1944).*) Adattár II. Rész L-Z. (Database II. part L-Z.) Hadtörténelmi Közlemények, 1984/3. szám. p. 591. (Hereafter: Database II.)

[10] Gábor TÁNCZOS (Budapest, 22 January 1872 – Hajdúnánás, 11 August 1953), professional military officer, his highest rank was Honorary General. Concerning his military career, see: Adattár II. (Database II.) pp. 591-592. Between 7 and 15 August 1919, he filled the minister of foreign affairs position with a temporary assignment.

The responsibilities of the department – and the composition of its personnel – did not effectively change even after 21 March 1919, when the so-called Hungarian Republic of Councils was established, whose name, in the second half of June 1919, was modified to Socialist Allied Republic of Councils of Hungary. The Ministry of War transformed into the People's Commissariat for War, and henceforth its 5th Department was responsible for *"military operations, armed force questions, intelligence and deployment issues"*.

The April 1919 Czech(slovak) and, later, the Romanian attack did not bring fundamental changes in the tasks of the department, but did change its subordination. From 5 May 1919, the 5th Department of the People's Commissariat for War left the military-administrative organization, and, as the Group II of the established Red Army High Command got into the direct subordination of the commander-in-chief. This change meant that military intelligence and counterintelligence, and, partially, the planning of military operations got into an operational command, within which, the effective control was concentrated in the hand of the chief of staff of the High Command – in that time, former Staff Colonel Aurél Stromfeld.[11]

We do not have substantive information about the efficiency of Group II of the Red Army High Command, but – in connection with subsequent recollections – it can be stated that the organization – that had been operating for only a few weeks/months – did come up to the expectations of the political and military leadership of the Hungarian Republic of Councils.

While the Red Army – whose officers were almost completely from the former national defence and "joint" personnel – was fighting against the Czech(slovak) and Romanian forces occupying a significant portion of the country, the so-called "counterrevolutionary government" – led by Count Gyula Károlyi[12] – was established in Szeged. Its minister of war became Rear Admiral Miklós Horthy de Nagybánya[13] –

[11] Aurél STROMFELD (Budapest, 19 September 1878 – Budapest, 10 October 1927), professional military officer, Staff Colonel. Between 20 April and 29 June 1919, he was the chief of staff of the Eastern Army and the Red Army. See his life in Tibor HETÉS: *Stromfeld Aurél.* Kossuth Könyvkiadó, Budapest, 1978.
[12] Count Gyula KÁROLYI (Nyírbakta, 7 May 1871 – Budapest, 23 April 1947), big estate owner, politician. President of the first counterrevolutionary government in Szeged between 30 May and 12 July 1919. Concerning his other ministerial or prime ministerial positions, see: József BÖLÖNYI – László HUBAI: *Magyarország kormányai 1848-2004.* (*The governments of Hungary 1848-2004.*) Akadémiai Kiadó, Budapest, 2004. Ötödik, bővített és javított kiadás. (Fifth edition.) pp. 360-361.
[13] Miklós HORTHY de Nagybánya (Kenderes, 18 June 1868 – Estoril (Portugal), 9 February 1957), professional navy officer, Rear Admiral. Minister of war of the counterrevolutionary government in

the last commander of the Navy fleet of the Austro-Hungarian Monarchy –, who issued a decree about the organization of the National Army[14] on 6 June 1919.

Naturally, the so-called National Army – organized on the basis of this decree – also established its own intelligence and counterintelligence service. Rear-Admiral Miklós Horthy – as minister of war – approved the recommendation submitted by the I. Group responsible for operations in the National Army, which proposed the organization of an intelligence department.

The drafters of the recommendation worded the responsibilities of the new department as follows: *"1. Defensive intelligence service on the territory of the city of Szeged, and within the operational area; 2. Offensive intelligence service both on the nearby and the remote territories; 3. Exact registering of the political climate and the potential counterrevolutionary movements prevailing in the different parts of the country."*[15]

The directive determined for the department that the Ministry of War needed to be immediately notified about important foreign political events. To the head of this department of military operations group in the National Army, Staff Major Károly Ottrubay[16] was appointed, who – during his peacetime service – served also at the military office of the Ruler, and, in the World War I, he was the staff commander of a division.

It has to be mentioned that the counterrevolutionary government in Szeged – whose existence could be attributed to the benevolence of the French occupying authorities – named the ministerial counsellor András Siket as the leader of the department, in order to conceal the military nature of the department.

Szeged between 6 June and 12 July 1919, then commander-in-chief of the National Army until 1 March 1920. Between 1 March 1920 and 15 October 1944, the head (governor) of the Hungarian state.

[14] The decree about the establishment of the National Army can be found in: *Csak szolgálati használatra! Iratok a Horthy-hadsereg történetéhez 1919-1938.* (*For service use only! Documents to the history of the Horthy army 1919-1938.*) Zrínyi Katonai Kiadó, Budapest, 1968. pp. 57-61. (Hereafter: For service…)

[15] Quoted in Lajos ÁROKAY: *Az önálló magyar katonai attasé szolgálat létrehozásának előzményei 1918-1919.* (*Antecedents of the establishment of the independent Hungarian military attaché service 1918-1919.*) Hadtörténelmi Közlemények, 1983/1. szám. p. 87. (Hereafter: ÁROKAY I.) Quotation translated by the translator of this study.

[16] Károly OTTRUBAY (Arad, 19 February 1883 - ?), professional military officer, his highest rank was Staff Lieutenant Colonel.

Following the fall of the Hungarian Republic of Councils, a peculiar duality emerged in the field of intelligence and counterintelligence as well. On 12 July 1919, Miklós Horthy resigned from his position as minister of war, and took over the leadership of the National Army as commander-in-chief ("Fővezér"), and this way he practically became the one-person leader – with full powers – of the counterrevolutionary armed forces.

According to the situation on 1 August 1919 – in the meantime, the People's Commissariat for War transformed into the Ministry of War again, with its headquarters in Budapest –, the 5.a and 5.b Departments of the organization dealt with *"intelligence, counterintelligence and press issues"*. Demeter Stojakovics remained the leader of the 5.b Department, while at the High Command of the National Army, the Group II (also named as records group) dealt with the aforementioned questions. Its leader was still the previously appointed Staff Major Károly Ottrubay. (He remained in this position until the group had been reorganized in mid-November 1919.)

Ending this duality as soon as possible was an elemental interest of both the military and the political leadership, although the possibilities of the latter one were significantly limited at that time. The competent officials maintained the opinion that the duplicated role and the parallelisms could negatively influence efficiency, and, in some cases, a certain degree of rivalry could even appear between the two "institutions". Thus, in order to close the parallelisms out, the intelligence (5.b) Department of the Ministry of War and the (records) Group II of the High Command were merged. It was from these two organizations that Group II of the High Command was established, which was afterwards re-named as Records Office of the Chief of the General Staff of the National Army, and, later, the Records Office of the Chief of the Hungarian Royal General Staff. The leadership of this was taken over by Demeter Stojakovics on 17 November 1919, continuing his uninterrupted organizing and leading work started more than a year before. The position of Károly Ottrubay had ceased, and he himself left active service at the beginning of the 1920's.

Stojakovics took over into the staff of Group II those officers who earlier belonged to the different departments or groups dealing with intelligence and counterintelligence, with whom he started building up the organization. The threefold division of the organization – intelligence, records, counterintelligence – was organized in accordance with the old Austro-Hungarian – or we might as well say "international" – practice.

In his 7 December 1919 order, Major General Béla Berzeviczy[17], the Chief of the General Staff of the National Army, said the following about the new organization of the intelligence service: *"As a result of the regrouping of some departments and the rearrangement of their responsibilities, the Group II of the High Command – from now on – will perform only offensive information service-tasks (*under this name, military and political reconnaissance against hostile and foreign states is to be understood*), and in addition, it will carry out the closely connected tasks of counterintelligence service (Spionageabwehr), and will register the military and political situation of hostile and foreign states. All the other responsibilities that had previously belonged to Group II of the High Command (anti-communist and national defence propaganda and press) have been transferred to Group VI of the High Command."*[18]

With this latter decision, the 24/II Decree of the High Command of the National Army – issued on 21 August 1919 – was practically repealed, which decree had assigned such tasks to the Department II.b of the High Command that related manly to the active participation in eliminating the former "red system".[19]

In the life of the organization, an important – although not significant – change occurred on 1 April 1920, when – following the ceasing of the High Command – the Chief of the Hungarian Royal General Staff position was created, and under the subordination of the chief of the general staff, the so-called "general staff offices (later departments)" were set up. The *"Records Office"* was one of these offices, which gained an important role in collecting and analysing the information needed for accomplishing those duties, which were determined in a proposal – drafted on 22 May 1920 – as follows: *"The chief of the general staff pays eager attention to foreign politics, and processes the questions related to it. He exercises – from military*

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[17] Béla BERZEVICZY de Berzevicze and Kakaslomnicz (Nagylomnic, 6 November 1870 – Budapest, 17 February 1922), professional military officer, his highest rank was Lieutenant General. From 1 December 1919 until his death, the Chief of the General Staff of the National Army, later the Chief of the Hungarian Royal General Staff, and the Chief of group VI (general staff) of the Ministry of War. See his military career in: Sándor SZAKÁLY: *A magyar királyi Honvéd Vezérkar főnökei 1919. augusztus 12. – 1945. május 9.* (*Chiefs of the Hungarian Royal National Defence General Staff 12 August 1919 – 8 May 1945.*) In: Sándor SZAKÁLY: Honvédség és tisztikar 1919-1947. Válogatott írások 1984-2002. Ister Kiadó, Budapest, 2002. pp. 187-188.

[18] Quoted in: Lajos ÁROKAY: *A rejtett magyar katonai attasé szolgálat első állomáshelyeinek felállítása 1920-1923.* (*Establishing the first posts of the hidden Hungarian military attaché service 1920-1923.*) Hadtörténelmi Közlemények, 1983/3. szám, pp. 356-357. (Hereafter: ÁROKAY II.) Quotation translated by the translator of this study.

[19] See the relevant decree in: *Csak szolgálati…* (*For service…*) pp. 188-189.

viewpoints – a guiding influence on foreign policy, in full agreement with the minister of national defence. In this subject, and for the sake of mutually inform each other, the chief of the general staff directly communicates with the minister of foreign affairs, simultaneously informing the minister of national defence."[20]

Later, the actual Chief of the National Defence General Staff – the name was modified on several occasions between 1919 and 1945: Chief of the Hungarian Royal General Staff, Head of MoW Directorate VI, Head of the MoW Military Main Directorate, and then Head of MoW Directorate VI again, without any substantive change in the sphere of authorities – did make use of these possibilities. For instance, the fact that the actual leaders of military intelligence and counterintelligence – obviously, with the knowledge and according to the orders of the Chief of the National Defence General Staff – could and did personally inform the head of state, the prime minister and the minister of foreign affairs every week/month, was due to the aforementioned possibilities.

About the working conditions

For building up the organization of the Hungarian military intelligence and counterintelligence – that started in November 1918 – it was important to draft the documents on the regulations and the directives needed for the efficient "working/operating" conditions and for the selection and recruitment of suitable experts. Serious efforts were made to prepare these documents, based on the official papers of the former joint armed forces.

Obtaining the regulations and directives – that were in effect and in use by the former joint armed forces – did not cause difficulties for the officers working on the building up of the Hungarian military intelligence and counterintelligence, since the new organization – still in the making – sent military representatives and attachés into the neighbouring countries as soon as the autumn of 1918. It was among their duties to obtain and send these previous directives and regulations home. (This attempt, namely the establishment of the military attaché service could be realized only partially. However, the military representative in Vienna was able to send the requested documents home, thus – by taking over and redrafting the old regulations and directives – the related Hungarian rules were completed.)

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[20] Quoted in ÁROKAY II. p. 357. Quotation translated by the translator of this study.

One of the primary responsibilities of military intelligence and reconnaissance was – and still is today as well – to obtain confidential political and military documents of foreign countries. The encryption of some of these documents prevents the intelligence organization from understanding their content. Therefore, decoding these encrypted documents is a fundamental interest for every intelligence and reconnaissance service. This was also the case for the forming Hungarian military intelligence and counterintelligence. In this field, the Hungarian service – that had been only operating for a few months – could consider it as a significant success that it was able to win to itself – as an active officer of the new Hungarian armed forces – one of the most well-prepared, well-experienced staff officers of the armed forces of the Austro-Hungarian Monarchy, Lieutenant Colonel Hermann Pokorny.[21]

The officer, who started his career in the k. k. Landwehr (the Austrian "national defence forces"), decoded almost all intercepted Russian telegrams during the world war. From 1919, he had been serving in the Hungarian armed forces, and due to his vast language knowledge – German, French, Russian, Polish, Serbian, Czech, Slovakian, Bulgarian, etc. – he was able to carry out several confidential missions, until he received the task of organizing the (decryption) Sub-department X of the Intelligence and Counterintelligence Department.

He successfully solved this task as early as 1920, and until 30 April 1925, he was the Head of Sub-Department X. After he had been transferred to another position, his successor became his former deputy, Colonel Vilmos Kabina.[22] Colonel Kabina retired on 1 March 1927, but he directed the sub-department until 31 January 1935. During his retirement, the head of state appointed him General, and he finally retired on 1 May 1935. At the head of Sub-Department X of the MoW VI-2 Department (the contemporary name of the VKF-2 Department), he was followed by Colonel István Petrikovits[23], who directed decryption from 1 February 1935 until 2 May 1945, even

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[21] Hermann POKORNY (Kremsier, Moravia, 7 April 1882 – Budapest, 18 February 1960), professional military officer. His highest rank was Lieutenant General. From 1 November 1945, he became Ret. Colonel General. About his life and activities, see his memoir: Hermann POKORNY: *Emlékeim. A láthatatlan hírszerző.* (*My memories. The invisible intelligence officer.)* Petit Real, Budapest, 2000. (Hereafter: POKORNY.)
[22] Vilmos KABINA (Léva, 4 May 1876 - ?), professional military officer, his highest rank was General (1 March 1930).
[23] István PETRIKOVICS (Galgóc, 24 September 1888 – Budapest, 16 April 1947), professional military

after his retirement on 1 November 1942. On 20 May 1943, Petrikovits was appointed Honorary Major General, "*exceptionally and of mercy*".

Thanks to the activities of the sub-department, there were almost no European countries, whose diplomatic and military encrypted telegrams were not decoded between 1920 and 1945.

Pokorny – as he wrote it in his memoir – immediately after setting up the sub-department, made efforts to find adequate recruits and educate new and well-prepared colleagues. He organized for them several week-long courses at the department.[24]

In connection with his activities and the field directed by him, he also told that the Hungarian intelligence and counterintelligence found it important to build up relations with other countries that could be considered as friendly ones[25], and – due to the loss of the world war and to the Peace Treaty of Trianon – were among the former losers: Germany, Turkey, and partially Bulgaria and Poland. As a result, a close relationship formed between the Hungarian and the German military intelligence services already in the beginning of the 1920s, which relationship strengthened later. The fundamental reason for the interdependence was represented by the "common" world war defeat and the common demand for changing the prevailing peace system.

In order to build and strengthen the relations, not only the German officers visited Hungary, but – among others – also Pokorny travelled to Berlin already in the beginning of the 1920s.[26]

The development of the relationship became almost complete during the activities of Staff Colonel Jenő Ruszkay (Ranzenberger until 31 October 1928)[27] as the Head of the VKF-2 Department (that time the department was called MoW VI-2 Department).

Maintaining personal relationship with the competent leaders of the Reichswehr, Jenő Ruszkay concluded such agreements that were beneficial for both sides. In connection with Ruszkay's visit to Berlin between 27 April and 2 May 1932, an

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officer. His highest rank was Honorary Major General. Between 2 May 1945 and 28 July 1946, he was a prisoner of war, detained by the USA. He died soon after his returning home.

[24] POKORNY p. 113.

[25] POKORNY pp. 112-113.

[26] POKORNY p. 112.

[27] Vitéz Jenő RUSZKAY (RANZENBERGER) (Budapest, 1 January 1887 – Budapest, 22 June 1946), professional military officer, his highest rank was Honorary General. See his military career in: Sándor SZAKÁLY: *A magyar katonai felső vezetés 1938-1945. Lexikon és Adattár.* (*The Hungarian military high command 1938-1945. Encyclopedia and Database.*) Ister Kiadó, Budapest, 2003. Második, javított, kiegészített kiadás. p. 294. (Hereafter SZAKÁLY.)

agreement was completed that ensured several new opportunities for the Hungarian intelligence and counterintelligence services. It was an important element of the agreement that the occasional meetings were replaced by regular, annual meetings of the different desk officers and experts; furthermore, a qualitative progress took place also in the information exchange.[28]

The Hungarian competent officials made efforts to achieve a similar cooperation with the Italians as well, and, later on, some cooperation was also formed with the Polish and the Bulgarian services. In every case, cooperation was based on common and mutual interests. However, there were situations when the sides had opposite interests as well. For instance, the Hungarian VKF-2 Department was in a difficult situation, when the Germans requested information on Poland, because this was inconsistent with the good Hungarian-Polish relationship and cooperation. Therefore, it is not a coincidence that Jenő Ruszkay wrote – among others – the following in his 12 May 1932 report: *"in the Polish direction, our military attaché is forbidden to conduct offensive reconnaissance, and thus, they (*the Germans*) can count only on general assessments"[29]*).

Building up the military attaché service

One of the most important elements of military intelligence and counterintelligence is the delegated person who is legally present in a foreign country, namely, the military attaché. Demands for developing the attaché service were formulated already in connection with the establishment of the independent Hungarian statehood; moreover, the first steps had already been made to establish the service. However, it turned out that, as a result of the consequences of the lost war, and the prohibitions of the Peace Treaty of Trianon –, the attaché service could not be appropriately built up.

The network of military persons tasked with different duties, and later, that of the military representatives was only – secretly – established finally after 1920.[30] Those in

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[28] The text of the memorandum of the Berlin meetings was published in: *For service…* pp. 309-313.
[29] Ibid. p. 310.
[30] In connection with the establishment of the covered military attaché service, see: ÁROKAY I and II, and ÁROKAY: *A rejtett magyar katonai attaséi szolgálat tevékenysége 1923-1928 között.* (*The activities of the covered Hungarian military attaché service between 1923 and 1928.)* Hadtörténelmi Közlemények, 1983/4. szám, pp. 574-591.

covered positions received the title of "military experts" in the first third of the 1920s, and performed their services in the staff of the Hungarian royal embassies.

A substantive change took place after 1927, when the foreign military supervision of Hungary had finally ceased, and the Inter-Allied Military Commission finished its work in the country. Subsequently, the Hungarian state could legally send military attachés to the receiving countries, usually on the basis of mutuality.

Building up the military attaché service took several years, and the establishment of posts evolved in accordance with the Hungarian military interests and requests for information. The military attachés came from among the most well-prepared general staff officers, who received a significant leeway from the chief of the general staff; and at their posts, they formed a relationship based almost on equality with the leaders of the Hungarian embassies. They sent their reports bypassing the Hungarian ambassador, directly to the chief of the general staff, significantly influencing the political and military political decision making.

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GEOPOLITICS

GYÖRGY NÓGRÁDI

NATIONAL DEFENCE WITH A BARBED WIRE: THE HUNGARIAN ASPECTS OF THE MIGRATION CRISIS[1]

Abstract

This study offers a comprehensive picture about the present state of migration and the expected, future events in this respect. It describes in detail the precedents of migration and the relevant data registered in EU member states. The author has taken a great care in analysing the financial background of migration, as well as the aids provided to migrants by several international organizations.

He explains the several risks and threats posed by the current migration wave, and points out the Hungarian measures aimed at preventing illegal migration and terrorism. He concludes that the current European laws and administrative systems have too many loopholes and deficits, and in order to ensure security in Europe, the present laws and regulations have to be revised.

Keywords: migrants, terrorism, data on migration, Hungarian Border Barrier, migration routes, financing migration and terrorism, the need for Europe to revise its existent, relevant laws and regulations.

The precedents of migration

The migration – the extent of which has been unprecedented since the mass resettlements after the Second World War – held up a mirror to the ones who forecasted more peaceful international relations after the emergence of a multipolar world order. At the same time, there is still no evidence of the clash of civilizations, predicted by Samuel P. Huntington. The current situation is still beyond the grasp of the existing theories on international relations. Nor the units of international organizations, nor the aid organizations, nor the peacekeepers were able to halt the destabilization and

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[1] Translated by: Réka Kacsándi.

radicalization processes, which have been perceivable in several countries of the Middle East for years.

Instead of the traditional clashes, asymmetric warfare and a "new type" terrorism pose the most significant threat to Europe's security. However, the terrorist organizations[2] active in several African states (Chad and Nigeria are primarily affected) and in the destabilized regions of the Middle East (Syria, Iraq) pose a traditional threat as well to the lives of the local population on a daily basis. The unstable – or fallen – political leadership, the spreading of radical ideologies and the acute hostility between tribes (and religious groups) also contributed to the gaining ground of these terrorist organizations.

The extremist groups do not refrain from committing violence, massacres and making unyielding people's lives untenable.[3] The lives of people living in states with an already weak administrative and political system were threatened primarily by the Boko Haram, the radicalized units of al-Qaeda in Africa, the Islamic State[4] – and the groups that pledged allegiance to them – in the Middle East. It is not much of a surprise that – due to the above facts –, people have started collectively leaving the crisis areas for Europe, which seems more stable, is governed by the rule of law and offers more economic opportunities.

The motivations of African migrants also include that – even though the continent itself is performing economic development –, there is only a minimum amount of available social welfare benefits in most countries. The most evident motives behind radicalization are the terrorist organizations' actions and the fact that several domestic, tribal and other sorts of conflicts render people's lives extremely difficult.

According to the data of the Migration Policy Institute, in 2010, altogether 284,975 persons filed asylum applications in the EU/EFTA countries. Next year, this number started to grow, and by 2015, the number of applicants has reached 900,000. While in 2010, most of these people came from Afghanistan and Russia, owing to the changing international situation, the number of Syrian applicants suddenly skyrocketed (from 5,600 persons to 25,000) already by 2012. By 2015, only the number of Syrian refugees

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[2] 64 terrorist and separatist organizations are active in Africa.
KISS Álmos Péter: Afrikai terrorista- és szakadárszervezetek. Honvéd Vezérkar Tudományos Kutatóhely (HVK TKH), Budapest, 2015. p. 4.
[3] BESENYŐ János – PRANTNER Zoltán – SPEIDL Bianka – VOGEL Dávid: Az Iszlám Állam – Terrorizmus 2.0; Történet, ideológia, propaganda. Kossuth Kiadó, Budapest, 2016. pp. 60–81.
[4] The short name of the Islamic State of Iraq and the Levant (ISIL).

has reached 221,000 persons. In addition, in 2014, a significant number of Eritrean and Nigerian migrants set out on their way from Africa.[5]

According to an assessment of the United Nations Economic and Social Council – issued in 2011 – already in 2010, the number of migrants – including the refugees – has increased. Till 2010, the majority of the 214.1 million international migrants (according to some estimation, around 69.9 million persons) were admitted by Europe.[6]

In proportion with the demand, smuggling activity has increased; as the number of groups engaged in such crimes (as well) has grown. The smugglers of the transit countries cooperated with the smugglers in the countries of departure, and used to transport the refugee groups in an organized way, several times a day.[7] It also moderately contributed to the migration that – in contrast to most countries of origin – the European legal system and administration offered basic living conditions to the refugees. Great Britain provided a financial support of 53 dollars[8], France 81 dollars, and Germany and Sweden provided approximately 50 dollars on a weekly basis to those who had an immigrant status.[9] Among other things, this generated the phenomenon that not only the inhabitants of the war-torn countries, but also the citizens of the neighbouring states – who faced some economic difficulties – have joined the mass of people, flowing into Europe without any particular supervision. In Hungary, migrants receive 7,000 forints monthly until their application is reviewed. If they do not request catering, they get 1,000 forints a day for food, but only if the Constitution Protection Office finds their persecution story legitimate after the first hearing, and it ordered the detailed examination of the refugee case.[10] European politics has always backed the handling of humanitarian problems, therefore, when the migration crisis began, the

[5] Migration Policy Institute: Asylum Applications in the EU/EFTA by Country, 2008-2015 (Q3). http://www.migrationpolicy.org/programs/data-hub/charts/asylum-applications-euefta-country-2008-2015-q3width=1000&height=850&iframe=true; (accessed on 17 February, 2016)
[6] UN Department of Social and Economic Affairs (2011): International Migration Report, p. 2. http://www.un.org/en/development/desa/population/migration/publications/migrationreport/docs/MigrationReport2011.pdf; (accessed on 17 February, 2016)
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[10] HVG.hu: Hat tévhit a menekültekről. http://hvg.hu/itthon/20150802_Hat_tevhit_a_menekultekrol; (accessed on 27 February, 2016)

European community – with the lead of German Chancellor Angela Merkel – supported the admission of refugees. Germany still does so, even in the midst of the crisis.

The European agreements relating to immigration and emigration – especially the provisions of the Schengen Treaty and the Dublin Regulation, and the EURODAC system, which compels the participating countries to lift the fingerprints of migrants – failed to implement the regulations that worked well in theory. The external borders of the Schengen Area were continuously besieged; and when in the end of 2014 and the beginning of 2015, Europe faced the never-before seen mass of people and the thousands of applications for immigrants status, the coherent European system of regulations collapsed. This change has rendered migration easier, since – in the lack of supervision – at the same time, a lot more people could flow into the European territories, which provided an asylum to them. It also should not be forgotten that the lack of control made it possible for radicalized persons to enter Europe, so the level of security has significantly decreased in the region.

The Islamic State has announced in its propaganda several times that thousands of its members – who have pledged allegiance to the organization – have arrived in Europe among the migrants.[11] Even though the assessments of the national security services[12] and the declarations of the defence ministers[13] have not reinforced this possibility, they admitted that it is possible that some people belonging to some terrorist organizations, or unstable (easily radicalized) persons could have entered Europe by making use of the lack of control. Although according to some assessments, the second generation migrants are much more likely to commit terrorist attacks than the refugees who arrived now in Europe[14], the general security perception of the people – one element of security – has considerably worsened during the migration wave.

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[11] Express.co.uk: 'Just wait…' Islamic State reveals it has smuggled THOUSANDS of extremists into Europe. http://www.express.co.uk/news/world/555434/Islamic-State-ISIS-Smuggler-THOUSANDS-Extremists-into-Europe-Refugees; (accessed on 17 February, 2016)

[12] Police Lieutenant Colonel BÖRÖCZ Miklós: Az illegális migráció és a terrorizmus közti összefüggések vizsgálata. http://tek.gov.hu/tt_pdf/2014/Borocz_Miklos_Az_illegalis_migracio.pdf; (accessed on 17 February, 2016)

[13] Nebojsa Stefanovic, the Interior Minister of Serbia – a country that lies alongside the migration route – declared that „There were refugees who fought alongside the armed rebels; however, they did not support IS and neither of them were wanted criminals."
http://www.b92.net/eng/news/politics.phpyyyy=2015&mm=10&dd=15&nav_id=95732; (accessed on 17 February, 2016)

[14] Colonel BESENYŐ János: Not the invention of ISIS: terrorists among immigrants. In: Journal of Security and Sustainability Issues, Volume 5 Number 1. p. 10. http://dx.doi.org/10.9770/jssi.2015.5.1(1); (accessed on 17 February, 2016)

Migration wave in practice

Data

The newest migration wave has started around September 2013, along with the escalation of the situation in Syria and Middle Africa. According to the data of the United Nations High Commissioner for Refugees (UNHCR), by 2014, the number of violently persecuted persons has increased to 59.5 million, which is the highest number ever since the Second World War.[15] In 2014, the EU has already registered 626,710 asylum applications; and by 2015, this number has increased[16] to 900,000 persons.[17] Most of these people were from Syria, Afghanistan, Iraq and Kosovo. The majority of the migrants are young and middle-aged men, but there are a huge number of children among them as well.[18]

Germany can be considered as their primary destination country, as 30% of asylum applications are filed there. An additional 42% was filed in Hungary, France, Italy and Sweden. In proportion to the country's population, Sweden is at the head of the list, as for every 100,000 inhabitants, 1,570 asylum applications have been filed there.

Member states	Proportion of asylum applications (%)	Number of applicants (persons)
Germany	30,6	202,815
Sweden	12,3	81,325
Italy	9,7	64,625
France	9,7	64,310
Hungary	6,4	42,775
England	4,8	31,945
Austria	4,2	28,065
The Netherlands	3,7	24,535
Switzerland	3,6	23,770
Belgium	3,4	22,850

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[15] The New York Times: Global Refugee Crisis, Region by Region. 26 August.
http://www.nytimes.com/interactive/2015/06/09/world/migrants-global-refugee-crisis-mediterranean-ukraine-syria-rohingya-malaysia-iraq.html; (accessed on 18 February, 2016)

[16] According to EUROSTAT data, their number has exceeded 1.2 million persons. EUOSTAT (2016): Asylum and new asylum applicants - monthly data.
http://ec.europa.eu/eurostat/tgm/refreshTableAction.do?tab=table&plugin=1&pcode=tps00189&language=en; (accessed on 18 February, 2016)

[17] Migration Policy Institute: Asylum Applications in the EU/EFTA by Country, 2008-2015 (Q3)

[18] Eurostat: Share of male (non-EU) asylum applicants in the EU-28, by age group and status of minors, 2014 (%) YB15 III.png.
http://ec.europa.eu/eurostat/statistics-explained/index.php/File:Share_of_male_(non-EU)_asylum_applicants_in_the_EU-28,_by_age_group_and_status_of_minors_2014_(%25)_YB15_III.png; (accessed on 17 February, 2016)

Denmark	2,2	14,715
Norway	1,7	11,480
Bulgaria	1,6	11,080
Greece	1,4	9,435
Poland	1,2	8,025
Spain	0,8	5,615
Finland	0,5	3,625
Cyprus	0,2	1,745
Romania	0,2	1,545
Ireland	0,2	1,450
Malta	0,2	1,350
Czech Republic	0,17	1,155
Luxembourg	0,17	1,150
Croatia	0,06	450
Portugal	0,06	445
Lithuania	0,06	440
Slovenia	0,05	385
Latvia	0,05	375
Slovakia	0,04	330
Estonia	0,02	155
Total		**661,965**

Figure no. 1. The proportion of asylum applications in certain European countries[19]

The migrants have arrived in Europe from seven main directions; however, the smugglers' routes continuously adjusted to the international regulations and environmental conditions. With Hungary establishing a Temporary Border Barrier (TBB), the migrants reached Austria through Croatia instead of Hungary. From there, they continued their journey towards (among others) Germany and Sweden.

The seven main migration routes – in order of their importance – are the following:[20]

- Eastern Mediterranean: It is one of the busiest routes used by Turkish and Middle Eastern migrants. Around 885,000 migrants have arrived in Europe in 2015 through this route only. Most of them reached the continent by crossing the island of Lesbos. The number of migrants using this route has drastically increased in January 2015, and in April, as many as 216,000 migrants have flown into Europe

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[19] Eurostat, Asylum and first time asylum applicants by citizenship, age and sex Annual data (rounded). http://appsso.eurostat.ec.europa.eu/nui/show.do; (accessed on 17 February, 2016)

[20] FRONTEX: Migratory routes map. http://frontex.europa.eu/trends-and-routes/migratory-routes-map/; (accessed on 17 February, 2016) Katie KUSCHMINDER – Julia DE BRESSER – Melissa SIEGEL: Irregular Migration Routes to Europe and Factors – Influencing Migrants' Destination Choices. Maastricht University, 2015.
http://www.merit.unu.edu/publications/uploads/1436958842.pdf; (accessed on 17 February, 2016)

in the course of one single month. Similarly to the other migration routes, the number of people using it has decreased in November and December. Most of the migrants who use this route are from Syria, Afghanistan and Somalia.

- Western Balkans: 764,000 persons coming from the Mediterranean Sea have used the route across Greece, Macedonia, Serbia and Hungary (after the fence had been constructed, they crossed Croatia and then Slovenia instead), leading towards Germany.

- Central Mediterranean: 153,946 persons have used this route. During the migration wave between 2014 and 2015, the migrants have been continuously arriving at the Italian shores from the sea. This route was busier in 2014; since by 2015, the Western Balkans route has become more popular among migrants (in 2015, approximately 157,000 persons have reached Europe through the Middle Mediterranean route). Most of these people arrived at the gathering point in Libya from Eritrea, Nigeria and Somalia. From there, they travelled on jam-packed boats across the sea to Lampedusa or Malta. Owing to the insufficient conditions of these cargo boats, several catastrophes have happened.[21] The coastal states and the units of FRONTEX also attempted to solve these crises.[22]

- Western Mediterranean – 7,614 persons arrived in Europe through this route. Migrants have been arriving in Spain through Morocco since 2005. Most of them are from Algeria and several conflict-ridden states of the Sub-Saharan region.

- From the eastern borders of Europe, from the direction of Romania and Ukraine – 1,920 persons have reached Europe through this route, most of them from Afghanistan, Iraq and Somalia.

- Western Africa – 874 persons have arrived in Europe using this route. The Canary Islands' communication with Senegal, Morocco and Mauritania was a frequently used migration route in the past. However, owing to the security

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[21] In April 2015, 1,300 persons have drowned in the sea in their attempt to reach Lampedusa. UNHCR: Press Coverage of the Refugee and Migrant Crisis in the EU: A Content Analysis of Five European Countries.
http://www.unhcr.org/cgi-bin/texis/vtx/home/opendocPDFViewer.html?docid=56bb369c9 &query=migrant%20sank; (accessed on 18 February, 2016)
[22] In November 2014, the Italian-led operation „Mare Nostrum" – which had been dominant up until that time – had been replaced by the operation „Triton" of the FRONTEX, which took over naval duty in the area. In order to strengthen the defence of the borders, and also to supplement the operation Triton, in May 2015, the EU launched an operation called as "EUNAVFOR MED-Sophia". The latter concentrates on detaining smugglers and exploring smuggling routes.

measures introduced, the people coming with the newest migration wave did not use it so often.

- Through the Puglia and Calabria regions in Italy. Owing to these regions' immediate naval connection, these crossings have accepted migrants as well. In comparison with the other migration routes, traffic has been low on this route. Most of the persons using it were from Egypt or Turkey.

The weather in summer and autumn was beneficial to the migration flow, as the migrants had to surmount only a limited number of natural obstacles. However, the arrival of the wintery, colder weather has reduced the migration wave. Expectably, with springtime drawing closer, a newer wave of the remaining migrants – who have not been able to leave their homes so far because of their financial situation – will set out on their way towards Europe. The representatives of the V4 countries have drawn attention to this fact following their session in February 2016.[23]

Finances and aids

Starting a journey to Europe costs a significant amount of money. The smugglers usually ask for thousands of dollars – generally transferred through the hawala system[24] – for bringing the migrants to Italy or Greece. The sum depends on the distance taken, the conditions of the road, the level of control and naturally, on the migrant as well. According to the Guardian's survey from April 2015, a person from the Sub-Saharan region has to pay approximately 800-1,000 dollars; a Syrian pays 2,500 dollars; while a Moroccan citizen pays 1,500 dollars to reach the Italian shores.[25] In many cases, the migrants have sold all of their belongings prior to the journey in order to supplement their salary of several months that they set aside for the migration.[26] Those who – even

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[23] Czech Republic Government: V4 countries express their solidarity with the Balkan countries in the handling of the migration crisis. http://www.vlada.cz/en/media-centrum/aktualne/joint-statement-on-migration-of-the-prime-ministers-of-the-visegrad-group-countries-140197/tmplid-81/; (accessed on 20 February, 2016)

[24] It is a money circulation system used in North Africa, Western and Southwest Asia. The transaction between the client and the smuggler is conducted by a broker called as the hawaladar. Since there are no receipts of the transaction, it cannot be tracked down; and it is also a lot cheaper than the official transaction method. KISS Álmos Péter: Felderítés és negyedik generációs hadviselés. In: Felderítő Szemle, Volume 8 No. 4, December 2009, p. 73.

[25] http://www.theguardian.com/world/2015/apr/24/libyas-people-smugglers-how-will-they-catch-us-theyll-soon-move-on; (accessed on 18 February, 2016)

[26] KOSER Khalil: Why Migrant smuggling pays. In: International Migration vol. 46. No.2, 2008. p. 13. http://onlinelibrary.wiley.com/doi/10.1111/j.1468-2435.2008.00442.x/abstract; (accessed on 18 February, 2016)

by using this method – still lack the necessary amount of liquid capital, resort to drug transportation or other illegal acts to acquire the missing sum.[27] According to the data of the UNHCR, the total expenses of the migrants fluctuate between 400 and 2,500 dollars.[28]

The path connecting the Greek shores with Hungary is also crossed by smuggling routes. The cost of transportation can be the multiple of the original price. According to the daily paper Spiegel, the smugglers ask for 300-400 euros for taking the migrants from Hungary to Vienna, even though train tickets from Budapest to Vienna can be bought even for 36 euros.[29]

According to the data of the United Nations Office on Drugs and Crimes (UNODC), only in 2008 – before the start of the migration wave –, the smugglers have acquired 150 million dollars only from delivering people from Africa to Europe.[30]

The refugees can only apply for allowances in the country where they filed the asylum application. Aside from the financial support of international organizations (the UNHCR has provided 480 million dollars altogether to settle the migration crisis[31]), the aid organizations help the migrants alongside the migration routes by offering food and necessary supplies on several occasions.

In the first few weeks of the migration wave, the Hungarian-based Migration Aid collected 1 million forints to help the migrants. Later, the organization accepted only contributions in kind. From this above sum – and the different contributions, – it managed to cover one warm meal a day, some clothes and other kinds of supplies for

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[27] UNODC: Transnational Organised Crime Threat Assessment, Chapter 3, Smuggling of Migrants. p. 35. In: UNODC: Issue Paper: Smuggling of Migrants by Sea, p. 12. http://www.unodc.org/documents/human-trafficking/Migrant-Smuggling/Issue-Papers/Issue_Paper_-_Smuggling_of_Migrants_by_Sea.pdf; (accessed on 18 February, 2016)
[28] UNHCR: Mediterranean migrant smugglers 'violent and audacious': agencies. http://www.unhcr.org/cgi-bin/texis/vtx/refdaily?pass=52fc6fbd5&id=552f5d4e5; (accessed on 18 February, 2016)
[29] Spiegel.de: Asylum's Dark Side: The Deadly Business of Human Smuggling. http://www.spiegel.de/international/europe/refugee-smuggling-a-big-business-in-the-balkans-a-1051461.html; (accessed on 18 February, 2016, and also based on the data found on the website of the Deutsche Bahn).
[30] UNODC: Transnational Organised Crime Threat Assessment, Chapter 3, Smuggling of Migrants. p. 76. In: UNODC: Issue Paper: Smuggling of Migrants by Sea, p. 12. http://www.unodc.org/documents/human-trafficking/Migrant-Smuggling/Issue-Papers/Issue_Paper_-_Smuggling_of_Migrants_by_Sea.pdf; (accessed on 18 February, 2016)
[31] UNHCR: UNHCR 2015 budgets for Europe (USD). http://www.unhcr.org/pages/4a02d9346.html; (accessed on 18 February, 2016)

the migrants. They made daily announcements on their website, searching for offerings needed by migrants, such as season tickets, clothes, shoes, ingredients for their daily sandwiches and fruits. Naturally, a lot of different aid organizations have collected donations to improve the situation, such as the Migrant Offshore Aid Station and the International Red Cross and the Red Crescent Movement. These initiatives were complemented by private offerings and the work of local aid organizations. In most places, medical treatment, washing opportunities and refugee camps were ensured for the migrants.

Risks of the migration wave

Social differences and terror threat

The migrants arrive from many areas in the target countries, where they find significant differences compared to their system of customs, laws and their daily life as well. Christians, Hindus and Muslims all had to adapt to the local conditions in a short time, which poses a great challenge to them. It can be assessed as a positive consequence of migration that the demographic composition of the target country will be "refreshed", since the birth rate is low and the death rate is high in all 28 member states of the EU, thus the migrants can offer a solution to the economic and social problems stemming from the aging society (such as the lacking workforce and the old age pension).

According to surveys, most of the people arriving in Europe are Muslims. The estimations of the Pew Center research centre prove that – compared to the predictions –, by 2050, the ratio of Muslims will increase by 1.8% in Europe, and will amount to 10.2%.[32] Germany has been attempting to integrate the Muslims who live in closed communities, and the currently inflowing mass will further hinder the efforts aimed at balancing the society. The religious and social differences obviously generate tension, owing to which the members of Muslim societies can easily fall victim to discrimination and exclusion. In the long term, this can make it easier for extremist organizations to recruit terrorists.

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[32] Pew Research Center: The future of World religions, Europe. http://www.pewforum.org/2015/04/02/europe/; (accessed on 17 February, 2016)

As proven by the example of France[33], the Muslim communities are usually concentrated in certain districts of a city, and – according to the sharia law – they almost establish their own administration, as a state within a state. Similar communities can be found in Belgium and Germany as well. This phenomenon is extremely dangerous, since extremist messages can be spread more easily within closed communities.[34] As I have mentioned it before, some people believe that terrorist tendencies are more characteristic of the second generation of immigrants. However, the terrorist attacks in Paris in November 2015 proved it that the current migration wave poses great risks, too. The perpetrators arrived in Paris with the migration wave. They needed serious and structured organizational background to obtain the equipment needed for the detonations. In his speech, French President François Hollande outlined the possible chain of events leading up to the attacks: the offensives were ordered by the Islamic State, while its details were elaborated in Belgium (in a Muslim-populated district), and the attack was launched in France.[35] The Islamic State took responsibility for the attacks,[36] thus it unambiguously offering evidence for its propaganda, which proclaims that the terrorist organization threatens the European region with trained terrorists and suicide assailants.

Following the migration wave, the National Security Council of the Hungarian Parliament held a session on 9 February 2016 to discuss whether the immigrants pose an actual threat to the country's security. In the course of the session, Zsolt Molnár, the President of the Council stated that "There is no information relating to the fact that terror threat has actually, significantly increased in Hungary".[37] However, his statement is not supported by the declarations of other European states, which draw attention to

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[33] There are currently 751 „no-go" zones in France. There are presumably 5 million Muslim citizens in these areas, over whom the French state has lost control. Dzsihádfigyelő: Egyre szaporodó európai „no-go"zónák.
http://www.dzsihadfigyelo.com/2011/09/26/egyre-szaporodo-europai%E2%80%9Eno-go%E2%80%9Dzonak/; (accessed on 18 February, 2016)
[34] EU Parliament: Religious fundamentalism and radicalisation.
http://www.europarl.europa.eu/EPRS/EPRS-briefing-551342-Religious-fundamentalism-and-radicalisation-FINAL.pdf; (accessed on 18 February, 2016)
[35] BBC: Paris attacks: Hollande blames Islamic State for act.
http://www.bbc.com/news/world-europe-34820016; (accessed on 18February, 2016)
[36] New York Times: ISIS Claims Responsibility, Calling Paris Attacks 'First of the Storm'.
http://www.nytimes.com/2015/11/15/world/europe/isis-claims-responsibility-for-paris-attacks-calling-them-miracles.html?_r=0; (accessed on 21February, 2016)
[37] HVG: Nemzetbiztonsági bizottság: szó nincs arról, hogy nőtt volna a terrorfenyegetettség.
http://hvg.hu/itthon/20160209_Nemzetbiztonsagi_bizottsag_terrorfenyegetettseg_bombariado; (accessed on 18 February, 2016)

the fact that national security organizations have warned about the presence of people suspected of being involved in terrorism, or who are proved to have connections with terrorist organizations.[38] In his assessment[39], Col. Dr. János Besenyő names several persons related to extremist groups, who entered Europe during the earlier migration waves, and he also mentions the terrorist actions committed by them. For this reason, it is important for Hungary to decrease the terror threat to a minimum level. This can be furthered by pursuing an increased cooperation between the European intelligence agencies, and ensuring the accessibility of the law enforcement databases of the states of departure and their neighbouring countries.

Health risks

The conditions of the Middle East and Africa; the insufficient washing opportunities and the dangers of infection stemming from the huge mass of people and their exhaustion pose several risks. The migrants' unregistered status further deteriorates the health indicators, as among such many people, only a few infected persons are enough for a disease to spread.

According to the survey of the WHO, the migrants usually receive only urgent treatment, and even when there is an opportunity to provide a more wide-range medical examination, the migrants often do not take advantage of it because of the language barrier.[40]

The most common cases needing medical treatment – just like among the inhabitants – include accidents, hypothermia, burns, digestion problems, heart diseases and pregnancy. The children were more exposed to the risk of infections and – due to the

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[38] For example, Norway has pointed out already in June 2015 that there are people related to the Islamic State and the al-Nusra Front among the migrants. http://www.ibtimes.co.uk/isis-al-nusra-militants-found-quota-un-refugees-bound-norway-1503983; (accessed on 21 February, 2016)

[39] Col. BESENYŐ János: Not the invention of ISIS: terrorists among immigrants. In: Journal of Security and Sustainability Issues, ISSN 2029-7017, Volume 5 Number 1. http://dx.doi.org/10.9770/jssi.2015.5.1(1); (accessed on 17 February, 2016)

[40] WHO: Public health aspects of migrant health: a review of the evidence on health status for undocumented migrants in the European Region, p. 10.
http://www.euro.who.int/__data/assets/pdf_file/0004/289255/WHO-HEN-Report-A5-3-Undocumented_FINAL-rev1.pdf?ua=1; (accessed on 18 February, 2016)

bad conditions – the different kinds of hives.[41] To sum it up, no critical health risks have appeared.[42]

However, despite the reports about the health situation, the quick spread of the Ebola epidemic – which claimed many lives in Africa – and the news about the HIV and other sexually transmitted diseases have raised fear in many people. As a result, many health centres have been constructed alongside the migration routes.

In order to detect the infections early, in autumn 2014, a medical border crossing had been constructed at the local office of the Szeged Border Police, where six doctors and four paramedics worked 24/7. Head physician Lívia Bíró, health subdepartment head of Csongrád County's Police Office has stated that "We are prepared to meet at the borders even the migrants suffering from special diseases, infections and viruses". [43]

According to the declaration of the Ministry of Human Capacities made in October 2015, so far 9,705 screening tests have been ordered for the migrants, altogether 262 of whom detected signs of smaller or bigger infections. In the course of the test, HIV viruses were detected in 11, Hepatitis B viruses in 72, Hepatitis C viruses in 18 and syphilis in 33 cases. Based on these data, 2.7% of migrants were found to be infected, while 97.3% of them were free of these diseases.[44]

Other difficulties

It poses a problem that the reforms introduced in the European region have shifted the economic emphasis from the labour-intensive to the capital-intensive work. As a result, a person with limited education, who does not or just barely speak foreign languages, has difficulties with integrating into the workforce. Their education and vocational training will pay off only years later, and just a few states can bear the expenses of long-term investments. In addition, it is questionable whether – after

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[41] Ibid., pp. 6–7.
[42] WHO: Migration and health: key issues.
http://www.euro.who.int/en/health-topics/health-determinants/migration-and-health/migrant-health-in-the-european-region/migration-and-health-key-issues; (accessed on 18 February, 2016)
[43] Zsaru Magazin: Járványveszléy kiiktatva.
http://www.police.hu/hirek-es-informaciok/legfrissebb-hireink/zsaru-magazin/jarvanyveszely-kiiktatva; (accessed on 18 February, 2016)
[44] Index: Menekültek százezreiből tízezret szűrtek, 11-en HIV-esek.
http://index.hu/belfold/2015/10/03/menekult_migrans_kotelezo_szurovizsgalat_betegseg/; (accessed on 18 February, 2016)

receiving an education – these people will be able to reinvest the price of their studies into the economy. The labour market has limited openings, and in order to open new jobs, political will and firm decisions are necessary.

Following the first EU suggestion about the introduction of a quota system in May 2015, Hungary has protested several times against the number of migrants to be admitted. In September, the decision-makers of the EU agreed to resettle 160,000 refugees, but they still have not decided on the exact method of achieving this.[45] Since Serbia is considered to be a secure third state; based on the effectual laws, the refugees would be resettled there. However, the leading powers of the EU have started to discuss a possible quota system in the spirit of the ideas of solidarity, common settlement and responsibility. In agreement with Austria and the V4 countries, Hungary has announced that it will restrict the number of migrants to be admitted on a national level, and it will defend its borders with stricter measures. The next time when the idea of a compulsory quota system was brought up, the Hungarian government held a referendum to prove that the quota system is not suitable for settling the crisis. The problem of resettlement has made the fault lines within the EU even deeper, since Germany and Sweden – the countries accepting the majority of the refugees – are not able to handle such a mass of people in the long term.

The fence

Erecting a fence to protect a nation, ideology or territory is not an unprecedented event in world history. Focusing only on the decisions relating to the current migration situation, a 132 km long and 3 m high fence was planned to be constructed in Jambol Country, alongside the Bulgarian-Turkish border in 2014. They have managed to build 33 km of this fence by October 2015. It is supposed to stop and divert the mass of people coming from Turkey. The primitive fence – no matter how short the built section is – was effective: according to the information of the website Index, in 2013, as much as 11,000 refugees crossed the Bulgarian-Turkish border, while by 2014, this number decreased to 6,000 persons.[46]

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[45] European Commission: European Commission Statement following the decision at the Extraordinary Justice and Home Affairs Council to relocate 120,000 refugees.
http://europa.eu/rapid/press-release_STATEMENT-15-5697_en.htm; (accessed on 20 February, 2016)
[46] Index: Milyen lenne, ha tényleg vasfüggönyt húznának a menekültek ellen?

Greece has started constructing a fence alongside the Turkish border in 2012. The 3 m high structure is currently 12 km long alongside the border. Spain erected 6 m high fences alongside the coastal borders of Morocco (in the cities of Ceuta and Melilla, which are considered as typical transit stations.)

The Hungarian Temporary Border Barrier defends the border section alongside the Hungarian-Serbian and the Hungarian-Croatian borders. The Hungarian Armed Forces finished the construction work on the Hungarian-Serbian border on 17 September 2015; while the engineering obstacles on the Hungarian-Croatian border were finished on 21 October. The government spent 12 billion forints in total on this special investment project. Aside from the loud anti-propaganda, the government had some supporters as well. Jaap de Hoop Scheffer, a former NATO Chief Secretary said that "when Hungary defended its borders by constructing a fence, it did what Europe was supposed to do."[47] According to the data of the police, after the border barrier has been constructed, the number of detained migrants has decreased drastically (from 4,000-8,000 to a few dozen daily).[48] Following the erection of the fence, the migrants – adapting to the new conditions – reached Austria by crossing Croatia and Slovenia instead. From there, they continued their journey to Germany.

György Bakondi, the prime minister's Chief Advisor for internal affairs said in an interview on 28 October 2015 that thanks to the border barrier on the southern borders of the country, the number of illegal migrants arriving in Hungary decreased, and there is only a minimal amount of border violations.[49]

After the fence has been finished on the Schengen border section in Hungary, Austria has announced that it will also construct a fence alongside the Slovenian-

http://index.hu/kulfold/2015/06/09/europa_menekultek_vasfuggony_fidesz_bevandorlok_bulgaria_gorogorszag_spanyolorszag/; (accessed on 20 February, 2016)

[47] Hungary today: Former NATO head: PM Orbán „did what Europe should have done" in the migrant crisis.
http://hungarytoday.hu/news/former-nato-head-pm-orban-europe-done-migrant-crisis-72562; (accessed on 20 February, 2016)

[48] Police.hu: Elfogott migránsok száma - dátum szerinti lekérdezés.
http://www.police.hu/hirek-es-informaciok/hatarinfo/elfogott-migransok-szama-lekerdezeshonap 255Bvalue255D255Byear255D=2015&honap255Bvalue255D255Bmonth255D=10; (accessed on 20 February, 2016)

[49]Magyarország kormánya: Működik a déli biztonsági határzár.
http://www.kormany.hu/hu/a-kormanyszovivo/hirek/mukodik-a-deli-biztonsagi-hatarzar; (accessed on 20 February, 2016)

Austrian border. Austria's intention is not to drive back the immigrants, but rather to guide them to the official border crossing points.

Thus, the fence was critically important in reducing the number of migrants arriving in Hungary. By constructing the border barrier, the government not only fulfilled an essential national security duty, but also made a step to revive the failed (but in fact, quite necessary) security measures of the Dublin Regulation – such as the lifting of fingerprints.

Conclusion

The instability generated by the Islamic State is not just a local problem anymore – it poses a worldwide threat. The migrant crisis has showed that the European laws and administrative system have too many loopholes and deficits, so – for the sake of the region's security – the regulations must be revised. The European economy is not ready prepared for accommodating and integrating the hundreds of thousands of people flowing into the continent. Establishing the proper pull-factors in the Middle Eastern and African states is the only solution in the medium and long term. The resettlement of migrants must be founded on solving the local problems. In the short term, it can be acknowledged that increasing the severity of border control, creating a migration database and increasing the cooperation between the law enforcement forces are the best methods that guarantee the most effective filtering out of radicalized – or easily radicalized – persons.

The EU, NATO and the national security forces have a joint responsibility to liquidate the ramifying smuggling routes. For this reason, their work must be supported by increased intelligence and reconnaissance cooperation, continuous local presence and taking a firm stand against the organized crime groups. In addition, EU countries ought to pay special attention to the treatment of arriving migrants, the integration of those with a refugee status, providing them with education and opening more jobs to them.

The violent conflicts that force millions of people to emigrate still persist in the Middle East and Africa, so as soon as the weather conditions improve, the migration wave will start again. The smuggler groups' prices will probably adjust to the financial

situation of the migrants. The current influx of people constituted only the first migration wave; the hundreds of thousands of migrants currently staying in Turkey (most of whom are uneducated Syrians from lower social strata) will join the mass of people travelling to Europe if the migration crisis remains unsolved.

Hungary has to continue defending its own and the European borders, and it also has to increase its cooperation and dialogues with the decision-makers of the region. In order to preserve the values of our countries, we must introduce some critically important measures at national and international level as well. In the following months, Europe ought to take steps jointly to defend its borders and territories, and reintroduce control over the arriving masses. It has to fight against the smuggling and organized crime groups, and also against the Middle Eastern and African terrorist organizations in a united way, while taking into consideration the humanitarian aspects as well. Europe has to support also the restoration of statehood in Libya, Syria and Iraq, as well as in the affected African countries (such as Chad, Nigeria, Somalia and Mali) with efficient measures and forces. In such a way, the EU can settle the crises not just locally, in an ad-hoc way, but it can also start a long-term stabilization process.

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ÉVA FÁBIÁN

INDOCHINA AND THE FRENCH FOURTH REPUBLIC – THE FIRST INDOCHINA WAR (1945-1954)

PART II.

THE NAVARRE-PLAN

At the beginning of 1953 Republican president Dwight D. Eisenhower came into office, who was willing to carry on with his predecessors' Indochina policy and send no troops to the area, yet by then the USA aids covered half the expenses of France's war[1]. On 3 July, 1953 France expressed their willingness shortly to ensure independence to the joint states in Indochina. This new French policy – of 'negotiate but from power position' – was maintained by General Henry Navarre, who was appointed the new commander of French forces. However, the US-oriented Bao Dai lobby viewed the new French policy with antipathy and even tried to impede it. General Navarre arrived in Saigon on 8 May, 1953, and immediately contacted the US military mission, with whom they drew up the military operation named after him. His concept was supported by both the French government and the Pentagon.

The Navarre-plan itself was to take the tactical and operational initiative back in the whole of Indochina – more precisely it was going to attempt at obtaining a military turning-point by force in the district of Dien Bien Phu –, in addition, they also planned to liquidate the Vietnamese regular and guerrilla units as well. All this was to be realized in three phases and within 18 months, according to Navarre's plan. The first phase was to be actualized between summer 1953 and spring 1954, during which the French forces were to be concentrated in order to strike powerfully and with considerable capacity to manoeuvre, and Navarre also intended to rely on units hastily transported there from Europe as well as Africa and South-Korea. It would have involved more than half the forces then stationed in the Indochinese territory, who would have carried out a concentrated mopping-up offensive in the Red River Delta,

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[1] As the Korean war ended and an armistice was signed on 27 July 1953, the Americans could manage to increase their aid to the French, which was also due to the 'China-lobby', i.e. their wanting a revenge against China. In 1950-51 15%, in 1952-53 45%, whilst in 1954 up to 80% of French warfare expenses were covered by the USA. Shipments of weaponry were ever growing, with 80,000 tons in 1951, 300,000 tons in 1952 and 600 000 tons in 1953, whilst in 1954 it was already 1 million tons.

and then would have had to launch an attack against the Viet Bac area by blockading and weakening main Vietnamese forces. The second phase was going to be executed in 1954, which would have been a wide-range offensive in Central- and South-Vietnam, in areas under Vietnamese control in order to eliminate guerrilla supplier and training units. Having completed this, forces would have been concentrated in the south and joined by French troops stationed there as well as Bao Dai's soldiers. Eventually, in the course of phase three, the above-mentioned areas were to be pacified, and the forces with equipment would have been concentrated in the north, where – by destroying the Vietnamese troops' main forces and occupying the Viet Bac territory – they would have been won.

According to the plan, the first phase was going to be actualized. Lang Son, situated at the junction of Road 1 and 4, on the border between the DRVN and the Chinese People's Republic, was of most importance as regards Vietnamese re-supplies, since war-materials from socialist countries were mostly delivered from here. The first blows were stricken here: on 17 July 1953 a French parachutist unit together with an infantry battalion from the direction of the coastal Tien Yen attempted at occupying the city and its surroundings, but after a few days' fight they had to retreat. On 6 August 1953 Na Sam was evacuated, which the French considered the second Verdun, since they wanted this settlement so that they could prevent communism from spreading further to the south. In autumn 1953 the French led further unsuccessful attacks in the Ninh Binh and Than Hoa areas, south-west of Hanoi. On 23 September Navarre launched the 'Spear Operation': on the south bank of the Red River the air-force – supported by the artillery and the navy – started the attack from three directions. The attack collapsed within 10 days, and the units were withdrawn – after austere losses as regards casualties, war materials as well as 17 motorized troops. On October 15 the same year the so-called 'Seagull Operation' was launched, which meant an overall offensive against the northern mountainous area. The attacks were led against Ninh Binh and Than Hoa provinces, but within no more than five days 14 French squads were diminished and the operation again collapsed on 6 November.

The public feeling regarding the war in Indochina was by then becoming even fierer, more and more people were calling the ending of the *sale guerre*[2] both in the political and social sphere.

In order to carry out the second phase of the Navarre Plan – which was agreed to both by the French government and US President Richard Nixon arriving in Saigon on 31 October – the General chose Dien Bien Phu, situated 300 km north-west of Hanoi. According to his plans, after occupying it, the attack would have advanced towards Son La and Thuan Giao. Their plan was to re-occupy Na Sam as well as to join forces with troops attacking the province called Lai Chau, located in the north of the DRVN, and then to close the border between Laos and the DRVN, and by doing so they would have made it more difficult for Laos and the DRVN to cooperate and could have forcefully dispersed Vietnamese forces between the Red River Delta and liberated territories in Viet Bac. Eventually they would have prepared the crucial attack. According to these concepts, the attack within the framework of the "Operation Castor" on 20 November 1953 – more precisely at 4:30 a.m. – was launched from Hanoi Airport under the leadership of General Marcel Maurice Bigeard. By the end of the day Dien Bien Phu was occupied by 1,500 French parachutists, i.e. two battalions, - and also the pick of the French Expeditionary Corps –, who were dropped by 65 Douglas C-47 freighter Skytrains, and were also completed by medical, technical and other groups (app. 700 people); they started to turn Dien Bien Phu into a powerful and resisting military base. There were 11 casualties as well as 52 injured on the French side, whilst 115 Vietnamese were killed and 4 injured during the operation. By taking Dien Bien Phu over, the French managed to broke off the so-called Ho Si Minh Trail leading the way through Laos, which functioned as the Vietnamese troops' most important connection between the country's northern and southern regions. Because of the French power and their abundance of equipment – as opposed the Vietnamese –, the DRVN worked out a new method: they expanded the offensive operations in areas where the French proved to be weaker as well as started to mobilize civilians for transporting supplies in order to prevent the French from concentrating forces in North-Vietnam. At the beginning of December 1953 Giap began to re-route his troops to the north-west region with the aim of closing in on the French, and on 10 December he launched his winter-spring

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[2] the dirty war

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offensive applying his general, regular units in most of Laos and Vietnam. On 12 December they seized Lai Chau, causing the remaining French forces to retreat to Dien Bien Phu. By 22 December the whole territory of Lai Chau was occupied by the Vietnamese troops, and by the end of the month they approached and surrounded the reinforced Dien Bien Phu. In response, the French concentrated new forces by air. In the middle of December 1953 the Vietnamese-Lao troops led successful attacks along the border and also managed to attack the French from the deep rear, and were soon fast nearing Tha Khek in Central-Laos. The French lost three infantry battalions as well as great amount of their weaponry here, and thus abandoned the town: their troops retreated south to Seno, located along the River Mekong. On 27 December 1953 Vietnamese and Pathet Lao[3] units marched in Tha Khek, hence the French transferred stand-by units from the Red River Delta and South-Vietnam to Seno, which was accordingly built into a strong base of resistance. French forces, however, had become divided to a great extent, offering grand opportunities for the Vietnamese to lead manoeuvres and even partly to diminish certain French units. In consequence, some units of the Vietnamese-Lao forces started attacks southwards and by the end of December managed to occupy Attopeu, located on the border of Laos, Cambodia and Vietnam. The French had resisting castellated standpoints in Laos and Paksé.

Despite the defeats General Navarre still was on the opinion that the castellated site at Dien Bien Phu was impossible to capture. His plan was to make the Vietnamese withdraw their troops from the north-western territory as fast as possible, therefore he launched the Operation Atlante on 20 January 1954 in South-Vietnam in the area of Phu Yen and Tuy Hoa, and also concentrated 10,000 soldiers for that. General de Beaufort was appointed commander of the operation, and was entrusted with re-occupying as well pacifying central and southern regions of Vietnam. In response, the Vietnamese left troops behind in these districts to cover the retreat, yet their main forces were still concentrated in the west – according to the original concept –, so that they could be flung in attacks in the north-western areas of the Central Plateau, which attacks were started on 26 January 1954. Consequently, French outposts in North-Kontum were destroyed, Dak To was seized, and by 17 February the whole territory of Kontum was theirs. Then the Vietnamese troops turned to the direction of Plei Ku, yet the French

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[3] Lao Nation Country: Lao communist political movement and organization

managed to transfer reinforcements here and to other garrisons in the Central Plateau – from Central-Laos, and by interrupting the Operation Atlante – and repulsed the attack.

Meanwhile the Vietnamese-Lao units led attacks against garrisons in north-east Laos, occupied Muong Khoua on 26 January 1954 and forced the French out of the basin of the River Nam Hou. After that they seized Phong Saly in North-Laos. To counter-act, French units were transferred from the Red River Delta into north-west Laos, yet also causing the French army troops stationed in Vietnam to be weakened and be further divided.

At the peak of four foreign ministers in Berlin, 25 January 1954, the leader of the French delegation Georges Bidault '… received from his cabinet as his primary task to combine the German-question on the agenda with insuring *diplomatic balancing* needed to resolve the military crisis in Indochina.'[4] At the meetings Molotov urged discussions – with China's participation – concerning the conflicts in Korea and Indochina, apart from the German question. It was by no means difficult to respond to J. F. Dulles, Anthony Eden and Bidault's accusations of China being responsible for the situation in Vietnam, as striving efforts for independence in the area had begun well before the People's Republic of China came into being.[5]

Meanwhile the Vietnamese troops further intensified their guerrilla activities in the Red River Delta as well as coastal provinces of Central-Vietnam[6]. The guerrillas took strategic roads and also destroyed battle positions, causing enormous losses in manpower along with military equipment. 'A graphic example of the success of guerrilla warfare could be: the airports called Cat Bi (near Hanoi) and Gia Lam (next to Hanoi) were both stricken by Vietnamese artillery commandoes on 7 and 8 March, and 78 planes of the enemy's fleet were demolished. In the meantime, the number of

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[4] SALGÓ, 1977, p. 216.

[5] 'Representatives of a respectable wing in Paris – well before the opening of the Berlin conference – claimed that it was not Beijing but Moscow that could manage to persuade their Vietnamese allies to agree to a ceasefire. Thus Paris could promise the Soviet Union a great deal more than to the People's Republic of China.' (SALGÓ, 1977, p. 217.) In consequence, in France several political opinions were stated as regards whether to combine the questions of the European Defence Community and Geneva or – by abstaining from signing the EDC agreement – to gain the Soviets' sympathy and support. This was, however, disapproved of not only by de Gaulle and his supporters – who preferred to carry on with the war in Indochina, and was of the opinion that France should by no means give their leadership of the military operations away – but also by the representatives of the communist wing as well as the government. The US lobbied and made efforts to persuade the French to ratify the EDC document prior the conference about the Indochina affair.

[6] in Quang Binh, Quang Tri and Thua Thieu

partisan bases in occupied areas was increased, and they also succeeded in their propaganda-activities both among the French and Vietnamese troops.'[7]

By the beginning of March 1954 the state of war showed that the Navarre plan failed. French forces were dispersed in Vietnam, most notably in the Central-Plateau, in the Red River Delta as well as in the district of Dien Bien Phu, and also in the districts of Luang Prabang and Seno in Laos. Nevertheless, both the French and the Americans regarded the situation as worth launching strategic moves, since the Vietnamese offensives were over on North-Vietnam. On 12 March 1954 General Navarre commanded the renewal of the Operation Atlante, in the course of which they were going to disembark in the port of Qui Nhon in South-Vietnam. However, the operation had to be called off as the Vietnamese troops started an offensive against Dien Bien Phu. 'The just renewed Operation Atlante was the last offensive kind of strategic event led by the French army forces in Indochinese territory.'[8]

DIEN BIEN PHU

Image 4:

Geographical location of Dien Bien Phu: http://www.crc-resurrection.org/724-iii-dien-bien-phu-le-verdun-indochinois.html, downloaded: 17 November 2013.

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[7] SIENKIEWICZ, 1982, p. 31.
[8] op.cit. p. 32.

The north-western Vietnamese village called Dien Bien Phu is situated in an 18-km long- valley bordering Laos, which lies in an intersection of important routes. During WW2 it also functioned as a Japanese military base. The French wanted to defeat Vietnamese forces besides it. Since the idea was to force the guerrillas to fight in an ordinary manner, they built a system of fortresses in a length of 16-km, deep down in a cone-shaped river-valley. The area had actually been occupied by French parachutist units on 23 November 1953 and fortified it then: its effective force was increased from 10 parachutist battalions to 17 battalions as well as 10 parachutist squadrons. The majority of these units belonged to the elite troops of the French Expedition Corps. The personnel were also reinforced by a unit consisting of three artillery squads, one tank division and 12 aeroplanes. It all amounted up to 16,200 people by March 1954 – 70% of whom being from the foreign legion, North-Africa and Vietnamese soldiers – and was under the leadership of General Christian de Castries.

The fortification consisted of three interconnected defence-sectors, within which there were 49 battle stands, all with their own forces. Some of the latter ones also functioned as resistance districts. Around these there were also carefully designed nets of trenches as well as technical lock-systems and supporting firing equipment. The middle sector was of most importance, constructed in the centre of Muong Thanh and consisted of several interconnected resistance districts: here they concentrated two-thirds of French forces and war-material, with the military base of the French headquarters in the middle. The northern sector had three resistance districts: Him Lam, Doc Lap and Ben Cao. The weakest of them was Hang Cum, the southern one, which was to uphold attacking Vietnamese troops coming from the south and to protect roads connecting Dien Bien Phu with North-East Laos. They possessed two airports: the main one in Muong Thanh, the reserve one in Hang Cum. Besides all these, they also designed air-bridges in order to supply troops with arms, ammunition, foodstuffs and fuel and also with the aim of transferring forces in case they are surrounded: the Cat Bi airports – not far from Gia Lam and Haiphong in the suburbs of Hanoi –, where French spy-planes bombers were stationed, connected the two airports of Dien Bien Phu. In addition, US aircraft-carriers were at anchor in the Tonkini Bay, whose deck planes were prepared to carry out supportive tasks.

According to all this, both Navarre's and the US General O'Daniel's[9] claims were rather optimistic in connection with Dien Bien Phu, i.e. it was impossible to occupy, thus General Navarre – with the approval of both Minister of War René Pleven and French Commander-in-Chief Paul Ély – decided to continue the war in Indochina.

Image 5

General Vo Nguyen Giap (far right) presents to President Ho Si Minh (second from left) as well as to the Communist Party of Vietnam and to the management the operation strategy against Dien Bien Phu. http://guidefrancophoneauvietnam.com/2013/10/15/le-general-vo-nguyen-giap-eminent-stratege-et-farouche-humaniste/, downloaded: 29 January 2014.

In December 1953 the Vietnamese troops' command decided to attack Dien Bien Phu, and it lasted till March 1954 to prepare the attack. During this time the garrison was totally blockaded, and as a result its supply on land was cut off. The Vietnamese had road-sections and passages built in order to move forward field artillery and had also a several-km-long trench, entrenchment, firing position as well as bases of ammunition, foodstuffs and other storages built and constructed a supply-road of several hundred kilometres long. They made it possible to move materials through jungles and hard-to-pass mountain passages. In order to realize this, the locals were mobilized. The inhabitants alongside with Vietnamese troops soldiers '... by carrying out a marvellous act of logistic bravura – dragged dozens of cannons up hillsides that

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[9] He was in charge of the fortification works at Dien Bien Phu.

the French previously declared impassable to climb.'[10] Not to mention that on 1 December 1954 the national assembly of the DRVN passed Ho Si Minh's bill of agrarian reform. In a country – like Vietnam – that heavily relies on their agriculture, the watchword "that who cultivates it owns the land" coming true after 1 January 1954 could mobilize enormous crowds.[11] The Vietnamese troops started the attack against Dien Bien Phu on 13 March 1954, which lasted 55 days and nights. The operation was carried out in three phases: between 13 and 17 March the northern sector of the fortification was seized, whilst in the course of the phase 2 – from 18 March to 30 April – they took control of the middle sector as well as the eastern mountain-range, and during phase 3, 1-8 May, they succeeded in occupying the whole of Dien Bien and completely wiped out the French forces.
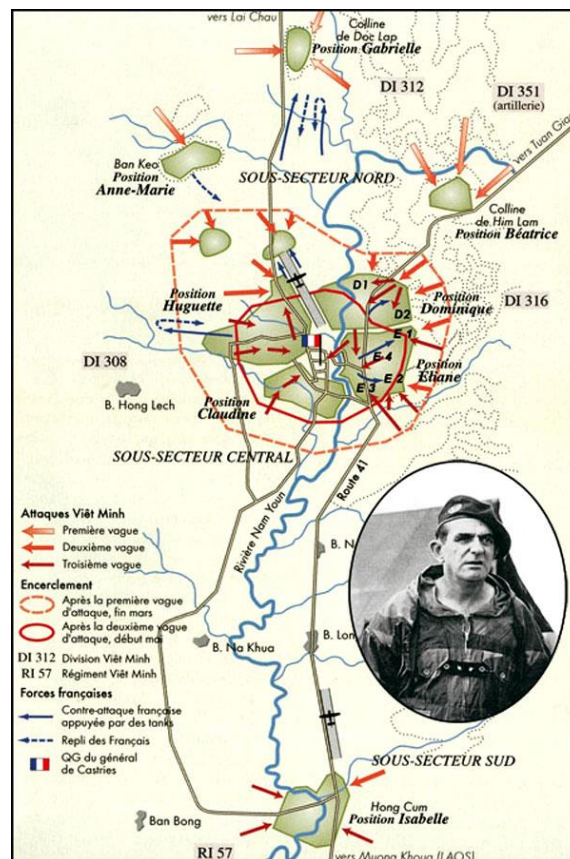
Image 6
The Battle of Dien Bien Phu.[12]

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[10] DAUGHERTY, 2003, p. 12.

[11] In 1949-1950 the land-issue gained importance for Ho Si Minh and his people, and in 1952-1953 the whole of his party decided on an agrarian reform in order to be able to mobilize the population to a greater extent not only in North- but also in South-Vietnam. GIAP, 1961, p. 51.

[12] *http://www.crc-resurrection.org/images/restauration_nationale/carte_dien-bien-phu.jpg, downloaded:*

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Owing to Giap's army's first attack, launched on 13 March 1954, the Him Lam battle-stand was occupied.[13] This proved to be a decisive victory for the forth-coming Vietnamese combats, during which they seized Doc Lap[14]-, despite the fact that the French were even supported by troops arriving from Muon Than to their aid. The Vietnamese troops managed to take Ben Cao battle-stand[15] on 17 March, where mostly Thai infantry troops were put into action, however, the attack against Hang Cum[16] was not victorious, and therefore the commanders concentrated most of the pressure into the middle-sector.

The second phase of the Vietnamese operation was started on 30 March 1954, with the aim of seizing French trenches located on five hills to the east of Dien Bien Phu. The fiercest combats were fought against General de Castries's battle-stands. On 9 April fresh French reinforcements arrived: a parachutist troop was transferred to prop up French soldiers fighting in Dien Bien Phu.[17] The Vietnamese troops then began an overall attack from the east, the north and the west and by 24 April they reached as forward as the edge of the airport, thus paralyzing its operation, to re-seize which the French launched a counter-attack, yet in vain.

'The airport that served as the main resource of French supplies and reserves was occupied by the Vietnamese. This forced the French to drop their supplies from planes, most of which were captures by the Vietnamese. The food-supplies and reserves of the French garrison were becoming more and more critical to maintain day by day.'[18] The Vietnamese army was reducing the area under French control to an ever growing extent, which their commander General Giap labelled as "full-scale tactics with cautious bites". By the end of the second operational phase the French garrison was made to retreat to a two square-kilometre area, having to live under monstrous conditions. French and US air-forces of bombers stared to intensify their activities: they used napalms, delayed

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17 November 2013.

[13] Beatrice-post; The duty of the sites of resistance was to destroy the attackers with artillery, which attacks were one and all named after women – most probably after General de Castries' concubines.

[14] Gabrielle-post

[15] Anne-Marie-post

[16] Isabelle-post

[17] On 4 April the Laniel-cabinet asked Washington to deploy the air-force in order to succour Dien Bien Phu. The US political leaders were seriously considering the possibility of a British-American intervention to prevent communism from spreading in south-east Asia, yet President Eisenhower dismissed this plan, since the USA allies – mainly the British – disapproved of it.

[18] SIENKIEWICZ, 1982, p. 38.

destroyer- and firebombs against Vietnamese forces, supply-routes, centralized barracks as well as ammunition- and food-storages.

In phase three, 1-6 May 1954, the Vietnamese led four attacks in succession, and thus managed to capture further points of resistance in the middle sector. French defence was pushed back within 1 square-kilometre. The attacking forces' fire-power increased, in the afternoon of 7 May Muong Thank sector was seized by Vietnamese forces within a couple of hours and at 17:30 General de Castries was taken prisoner of war[19]. After that all forces capitulated in this sector. On the night of 8 May Giap's army took Dien Bien Phu's last standing point of resistance, Hang Cum, which also meant the final victory over the French corps.

Besides losing their strongest base, the French suffered the following losses: manpower of app. 16,200 were injured and killed, 62 bombers destroyed, and they also had by the Vietnamese huge amounts of ammunition, weaponry and other war-equipment looted. General Paul Ely was appointed the new French commander-in-chief and Commissioner in Indochina on 2 June 1954. The Vietnamese party had lost 23,000 of their besieging army of 50,000, 8,000 of them killed.

'Dien Bien Phu (...) shattered all French illusions left, and had as well neutralized the US threat...'[20], yet the French government and its Indochinese commandership were willing to carry on fighting: '... Foreign Minister Bidault in Geneva just like Dulles in Washington was to start diplomatic trench-war. Giap's army could not just sit there doing nothing seeing France's combined diplomatic and military manoeuvres.'[21] All along the Tonkini Bay and in the Red River Delta the French were made to evacuate the area, and in addition, in the course of the Pathet Lao Operation 40,000 km2 were occupied.

THE 1954 GENEVA AGREEMENTS AND WHAT FOLLOWED

As for the balance of the French-Indochinese war, the total loss of manpower of the French Expedition Corps and the Bao Dai's army amounted up to app. 545,000 casualties and injured, and they had at least 600 aeroplanes as well as 7,000 of their

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[19] The last radioed report to General Cogny in Hanoi was sent then, from where it was forwarded to the government in Paris.
[20] SALGÓ, 1983, p. 112.
[21] op.cit. p. 122.

cars, tanks, armoured and other vehicles destroyed, and also lost more than 2,000 cannons of various calibres. Meanwhile the Vietnamese looted over 100 tanks, 900 cannons and mortars, app. 100,000 automata guns and rifles, 90,000 parachutes and plentiful war-equipment – France spent a total of 18.6 US billion dollars on the war.

'At the battle of Dien Bien Phu a seven-year-long war and an exactly 100-year-long French colonial empire came to an end. The descendants of the French who – to carry out the order of Napoleon III – had marched in Vietnam in great numbers, were - at Dien Bien Phu – starved to death, out at the elbows and in long queues advancing towards the prisoners' camps... The diplomats had only one thing left to do: to return to Switzerland with new orders.'[22] Due to the catastrophic warfare situation – which, however, by no means meant a military defeat –, the French command was willing to negotiate. The French Fourth Republic's Parliament – tired of a seven-year-long warfare – made Laniel's cabinet alongside with Foreign Minister Bidault resign on 10 June. The new French leadership, i.e. the cabinet of Pierre Mendès France[23] regarded it their primary task to settle the Indochinese situation. It was also necessary owing to the country's wide-spreading anti-war feelings of the general public. Genuine negotiations concerning the three countries' future began on 12 May 1954 in the Swiss Geneva[24] with discussions introduced by France and the DRVN[25]. The Foreign Minister of the latter one's introduced an initiative in 8 points as regards withdrawal of foreign troops as well as general and free elections to be held in 1956 and to set up a national government. The conference was attended by the DRVN, Cambodia, Laos, France, as well as the People's Republic of China, Vietnam State, Great-Britain[26], the Soviet Union and the USA. On 21 July 1954 they eventually signed an agreement: altogether there were 10 documents that contained declarations and treaties regarding the restitution of the Indochinese peace. On the basis of all this, the parties committed themselves to hold free and democratic elections in July 1956 under international control, according to which the country's unification should be realized. They all recognized the right of the Vietnamese nation for independence, territorial integrity and

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[22]SALGÓ, 1977, p. 223.
[23] who was then both Prime Minister and Foreign Minister
[24] Geneva Conference was summoned in order to settle both the Indochinese and the Korean question between 26 April and 21 July 1954.
[25] its Foreign Minister was Pham Van Dong
[26] under the leadership of Foreign Minister Sir Anthony Eden

non-interference with their home affairs. In addition, the opposing parties agreed to withdraw their forces to the provisional demarcation–line designated along the 17th line of latitude. Paragraph 6 of the Final Clause made it clear that the demarcation line was to be considered neither political nor territorial border. North of the 17th line of latitude it was the DRVN, whilst to the south it was the French as well as Vietnamese troops who occupied the land. The agreements forbid to create new foreign bases as well as to station military reinforcements or assisting military staff in the area, or to remilitarize Vietnam. In order to reinforce and execute the agreement the The International Control Commission (ICC)[27] – formally called the International Commission for Supervision and Control in Vietnam (ICSC) – was established, led by India, jointly with other member-states such as Poland and Canada. It was first headquartered in Hanoi and after 1959 in Saigon. In the agreements the objective they set was to create a united, independent and democratic Vietnam, yet without stating which force or organization was to be regarded as Vietnam's legitimate representative. In the case of Laos and Cambodia their obligatory neutrality was reassured.

At the Geneva Conference representatives of Laos and Cambodia alongside with that of the DRVN[28] committed themselves to respect sovereignty, territorial integrity and unity as well as non-interference with each other's domestic affairs. On 22 July 1954 Ho Si Minh addressed the Vietnamese nation, in which he declared his willingness to realize the agreement's military as well as political aspects. All in all, the conference brought with it hopes to settle the conflict in a peaceful way, which was also reassured by

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[27]Among their many tasks, they were to reinforce the agreement concerning ceasing of military operations, supervising and controlling transfers and mobilizations of troops in both sides of the provisional demarcation line and in the demilitarized zone as well as overseeing release of prisoners of war and political convicts, controlling Vietnamese ports, airports and state-borders. With the latter one they especially cared for the enforcement of the clause that referred to the transportation of military units, weaponry and war-material to Vietnam. It was also their task to monitor general elections scheduled for July 1956. All this had to be arranged by closely cooperating with the Military Joint Committee, consisting of representatives of the Vietnamese troops as well as the French Expeditionary Corps. They had to organize mobile and local supervisory groups to carry out tasks. Local supervisor-bodies operated in northern areas – in cities called Lao Cai, Lang Son, Tien Yen, Haiphong, Muong Sen, Vinh and Dong Hoi –, and also in southern areas – in cities such as Da Nang, Qui Nhon, Nha Trang, Ban Goi, Saigon, Vung Tau and Tan Chau. In January 1973 the ICC was dissolved, which was unanimously decided by all its delegates.

[28] The DRVN agreed to concessions both politically and militarily. According to the correspondent of the New York Times in Geneva the delegation of the Vietnamese could – in the opinion of both Molotov and Chou En Lay – achieve more in Geneva. (Quoted in: SALGÓ, 1977, p. 34., from: New York Times, issue of 25 July 1954.)

official statements of Foreign Ministers of various countries such as Great Britain and the Soviet Union.

The agreements were not signed by either the Vietnamese State led by Ngo Dinh Diem[29] – transported home on 16 June 1954 due to American contribution from a Belgian monastery – nor by the Deputy State Secretary Walter Bedell Smith[30] leading the US delegation, moreover, Diem stated that he was by no means made compellable to respect the agreements. The US, however, declared in a separate statement that they would abstain from violence and menace, but the UN called for supervision for the elections to be held in July 1956. The US establishment was dissatisfied concerning the agreements and regarded them disastrous. That is why they actually suggested forming a south-east-Asian defence-organization.

The French-Vietnamese war was thought to be over – nevertheless, Vietnam's future was by no means clarified, as the south of the country was led by the Ngo Dinh Diem[31]'s cabinet, which had the US' support: "... the French – totally defeated – were replaced by the Americans'[32]. On 8 September 1954 France joined the US-formed

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[29] Who was according to a witty comment published in the 28-January-1964 of the American magazine called Look: 'appointed by Foreign Minister John Foster Dulles, Senator Mansfield approved of, Cardinal Francis Spellman blessed, and President Richard Nixon liked – and was "okayed" by President Eisenhower.' (Quoted in: KENDE, 1970, p. 235.)

[30] The then US Foreign Minister Dulles, following the first phase of the Geneva Talks, which were primarily to settle the case – hastily left Geneva and the negotiations to settle the war in Indochina was left to his deputy.

[31] Diem, born in 1901 in a distinguished family, already as a young man was on friendly terms with the Vietnamese Emperor. In 1933 Bao Dai appointed him Home Secretary, but the French disapproved of his reforms, and thus resigned the same year from his office, title and orders and retired to Hué for 12 years. In 1945 he was captured by Ho Shi Minh's troops, and was invited to the cabinet of North-Vietnam, hoping to win the Catholics' support this way (Diem's ancestors were the first to convert Catholicism already in the 17th century). Diem, however, turned the invitation down and chose foreign self-exile for almost a decade only to return in 1954, accepting – for Bao Dai's invitation – the appointment of the position of Prime Minister in US-supported South-Vietnamese state. In the referendum of October 1955 he was victorious over Bao Dai himself and declared himself the President of the newly-established Republic of Vietnam. He refused the Geneva Agreements, including the obligation to announce the 1956 elections. During his despotic reign he appointed his own family-members to various high positions. He was never really accepted by the Buddhist community – Buddhist monks burnt themselves in protestation against his regime –, objecting not only his Catholicism but also for his benefitting Roman Catholics especially, although Buddhists accounted for the majority of the south-Vietnamese population. Communism became more and more popular during his presidency within the population, among the Catholics as well, who fled here in ever growing numbers from northern areas, and his government gradually lost their popularity and became isolated, which situation was made even worse owing to his authoritarianism. Because of the imprisonment and execution of hundreds of Buddhists falsely accused of communism, his regime was no longer supported by the USA. On 2 November 1963 a group of his own generals, led by Duong Van 'Big' Minh carried out a successful coup d'état against him, during which Diem himself was murdered.

[32] GAZDAG, 2011, p. 77.

SEATO[33] and Paul Ely started talks with the Americans and Ngo Dinh Diem to recruit a new south-Vietnamese army. A month after the agreements were put into function, the Saigon Regime fiercely responded to demonstrations that called for a united Vietnam. Diem then launched a propaganda-campaign against the DRVN.[34] Mass-vengeance as well as – persecution and – massacre started against those who participated in the war of 1945-1954. On 20 January 1955 in Saigon the parties mutually agreed that experts of the French commander, the Americans and their puppet-figure Diem would make joint efforts to recruit and train a new south-Vietnamese army of some 14,000 soldiers. The Americans took over the lead in re-organizing and training the Army of the Republic of Vietnam[35] – the Military Assistance and Advisory Group was headed by General O'Daniel.[36] American war-equipment started to be transported to the area in increasing quantities, which apparently meant the violation of Paragraphs 16 and 17 of the Geneva Agreements – with reference to the ceasing of military activities –, as well as Paragraph 5 of the Closing Clause. With this regard, the DRVN government contacted by mail the ICC. Diem managed to get rid of Bao Dai in the referendum of 1955 and under his leadership the Republic of Vietnam was established, thus the elections that had previously been pre-scheduled for July 1956 became impossible to carry out. France meanwhile announced to withdraw their expeditionary troops from the country by 28 April 1956.[37] In accordance with breaking

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[33] South-East Asian Treaty Organization; the Manila Pact was signed on 8 September 1954 by the USA, Great-Britain, Australia, Pakistan, Thailand, New-Zealand and the Republic of the Philippines in the Philippines, which established the south-East Asian Treaty Organization. The military pact declared their intention to prevent communism from spreading and was primarily meant against the DRVN, yet its provisions also referred to Laos and Cambodia, and the US announced that any attacks launched by these states or the People's Republic of China against any SEATO member-states would automatically mean attack against SEATO itself. Within the framework of the Manila Pact, the US did not only support the regime in South-Vietnam, but any anti-communist regime in South-East Asia. American publicist Walter Lippmann was of the following opinion that '... it is the first formal instrument in modern times which is designed to license international intervention in internal affairs.' (Quoted in: KENDE, 1970, p. 249.)

[34] American President Eisenhower in a letter of 23 October 1954, written to President Diem claimed that his country is willing to offer military and economic aid and supports their military and social-political reform-programme called "Marching North". Between 23 December 1950 and 1 January 1955 American aid reached the Saigon regime via France.

[35] ARV

[36] Between the autumn 1954 and 20 January 1955 – violating the Geneva Agreements – the French government handed over the actual military control to the US ambassador in Saigon, General Lawton Collins. Nevertheless, this by no means meant France's giving up their good old colonialist concept: 'France wanted to gain some time in Indochina, too – now alongside with the Americans, due to pressure – so that when times were ripe they could start counterattacks, by invalidating the Geneva compromises. Instead, owing to the logic of their conservative colonial policy – almost unnoticeably – they again and unavoidably got into a seven-year-long warfare, this time in Algeria.' (SALGÓ, 1995, p. 142.)

[37] Following the withdrawal of French troops, Diem published a communiqué, in which – as he had once already had declared, on 16 July 1955 – claimed that he refused to reinforce the Geneva Agreements.

with the Geneva Agreements, Diem also tried to remove the ICC from the region of South-Vietnam. Though he finally agreed to their staying, he managed to put substantial restrictions on their activities. Altogether, the new situation was by all means confusing. The Vietkong[38], Ho Si Minh and his people's guerrilla movement, launched a partisan-war against the regime in Saigon, which also meant the second Indochinese war or better known as the Vietnam War where it was now the US to fight against the Vietnamese.

CONCLUSION

In Indochina, with its territory of a 2.3 million km² area, all military operations took place within 748, 145 km² as well as in Laos, Cambodia and in Vietnam, in the latter one on 329,556 km². The three countries form the shape of the letter S from north to south: it all means 1,700 km from north to south, 600 km in east-west relation, whilst in the south it amounts up to 800 km an in its middle less than 200 km in length, which made it for both parties – but especially for the Vietnamese liberation corps, which were lacking airplanes and helicopters – hard to manoeuvre with troops and also with war-equipment. Besides, there are rather specific features of the terrain, mostly consisting of plateaus and mountains. The Annamese Mountains[39] constitute natural borders between Vietnam, Laos and partly Cambodia. Its southern region reaches up to 1,770 metres above sea-level, which – with its thick flora of evergreens and tropical rainforests – enabled the Vietnamese to create a practically hidden system for their war-material base and it was also quite difficult for their enemies to detect movements. Moreover, the Central Highlands with its 2,400-metre high mountains, thick tropical plantation and widespread forests provided superb surroundings for guerrilla activities, and controlling it basically meant control over the whole of Vietnam.

Rivers, streams and canals flowing through Vietnam – like the Mekong in the north and the Red River in the south – were all used by the Vietnamese for transfers and supplies.

Thus the DRVN addressed a note to the government of the Republic of Vietnam as well as the ICC, in which they called attention to the apparent violation of the Geneva Agreements. The French government did not respond to it in effect, and claimed that France could not be made responsible as regards reinforcement of the agreement, after 28 April 1956. French navy and air-force training units retreated from South-Vietnam in June 1957.

[38] National Liberation Front of South-Vietnam or also known as National Front for the Liberation of South-Vietnam (NLF)

[39] in other words the Vietnamese Mountains

As for jungles, there are two main types. One type consists of trees taller than 75 metres, thus is rather dark and wet, yet passable, whilst the other one has thicker under-wood and is more difficult to get through. In the case of the latter one forming squads became solid and columns expanded. The jungle created excellent field for guerrilla activities, and not only Vietnamese military bases but also storages, hospital units and other institutions were set up in the jungle, mostly under the ground. The climate – i.e. plentiful of rain, humid air and changeable weather – did by no means favour the enemy, and was especially not beneficial for their military equipment. The underdeveloped railway and road-system – with Road 5 as the main supply-route for the French –, in addition, rendered it more difficult to manoeuvre and transport military shipments. The Vietnamese army relied on the land and field, and had no need for main road in order to transport their supplies, war-equipment and food-supply: 'The secret of the jungles, the hidden forest-paths invisible form the air (…) are only known to the locals. Nobody can ever discover unnoticeable bridges over imperceptible rivers. Only the inhabitants are familiar with whereabouts of fords in the rivers, or where stones and rocks – positioned with engineers' expertise to provide cross-ways for squads and supplier-units – are best covered by shallow water. Only locals can choose the right points of crossovers, where parts of pontoon-bridges assembled at night disappear under lofts of riverside palm-trees and liana in the day.'[40] 'Later even within the Vietnamese military staff there were only few to tell how many predecessors the "Ho Si Minh Trail" had had during fights against the French, which for ever remained a hard nut to crack for the Americans and resisted any military technique.'[41] Besides all this, the French as well as later the Americans tried to take advantage of the ethnic, religious, linguistic and other diversities of the over ten nationalities living in the three countries and even to generate quarrel between them and turn them against the DRVN.

There were several economic and other factors that made France's leading elite feel attracted towards their colonies trying to liberate themselves. 'Banks and those interested in big-business undertook everything, whilst governmental institutions permitted all police and military devices.'[42] Among Indochinese economic factors, the interests of the Banque de l'Indochine and the company Michelin came first, including

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[40] SALGÓ, 1983, p. 57.
[41] ibid p. 58.
[42] SALGÓ, 1977, p. 208.

the latter one's rubber plantations, and also the coal- and the openwork stone-coal fields located in the coastal Cham province, with cheap labour-force.

'Governments in Paris beforehand only called for military resolution. By and by, they were forced to seek a way out politically speaking and also in terms of diplomacy.'[43] In this war – and also later against the US –, economically underdeveloped small states with a long colonial past fought great powers, which possessed military- and economic potential as well as manpower. 'To set against the enemy's enormous advantage in technology (…) they had the appropriate and successful methods of guerrilla warfare. Its basic concept is best manifest in the following principle: 'When the enemy is approaching – you should retreat, when he is standing on the defensive – you should attack, and when he is retreating – pursue him.' This tactic put the enemy in such a position that he felt secure nowhere, and that the whole of Indochina became for him a battlefield that is dangerous and inscrutable.'[44] From strategic point of view, it both caused great losses and difficulties for the French. The Vietnamese, who constantly adjusted their tactic to the state of affairs, had the following offensive tactics: ambush-technique, hit-and-run raids, subversive-saboteur method, flexible tactics, which resulted in the enemy's inability to raid and/or destroy their larger squads. In the beginning especially, most of the Vietnamese guerrillas' war-equipment was looted from the French Expeditionary Corps. Nonetheless, owing to Giap's continuous improvement of the arsenal – not to mention China's support – they managed to set up their own regular army. The major rule of constituting the Vietnamese army was the following: 'training and learning via fighting'. 'The People's Army included the regular divisions and regiments, and also the local regiments, battalions or companies. Besides the regular and local armies, there were broad guerrilla forces which developed everywhere throughout the country. The regular forces had the task of waging mobile warfare[45] on a large battlefront aimed at annihilating the enemy forces. The local army had the task of fighting locally and combining its action with the regular army or with

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[43] ibid p. 209.

[44] SIENKIEWICZ, 1982, p. 298-299.

[45] 'To annihilate big enemy manpower and liberate land, guerrilla warfare has to move gradually to mobile warfare.' – wrote Giap in his work cited above. (GIAP, 1961, p. 53.) All this gained more and more ground in North-Vietnam after 1950. Giap thought that apart from the mobile warfare carried out by regular units there was also need for guerrilla warfare, these methods needed to be harmonized suitably. He mentions two noteworthy examples, when they managed successfully to harmonize them, namely the operation Hoa Binh in North-Vietnam and the one against Dien Bien Phu and the one prior to that, the winter-spring offensive in 1953-1954 examples.

the guerrilla units. The latter had the task of defending the villages, participating in production, and combining with the local and the regular army in the preparation of the battlefront as well as in the attack.'[46] On the whole, this whole war meant a conflict for the western world in which the enemy's power-centres were unreachable and no technological advantages available were worth a thing. 'Nations in Indochina paid an extremely high price for the victory.'[47] Apart from the enormous numbers of casualties and the injured, huge damage was caused to their economy as well as monuments, cultural and other goods. They also suffered losses in their industry, agriculture, cities and hospitals, public facilities and ports, public roads, sewage systems and churches. However, as the war was escalating and prolonged, the French were also substantially weakened both politically and militarily speaking.[48] The victory of the Vietnamese army was soundly due to the support they received from the masses of the local people. Compared to the losses of the French, the Vietnamese suffered thrice as many lives lost. The estimated number of civilian casualties amounts to somewhere between 800 000 and 2 million. The war itself and the losses deeply shocked the French public as well, and left behind lasting remnants both in the French staff of officers and as regards other colonial wars subsequent to the one in Indochina.

After 1954 French-Vietnamese relations intermitted, the two countries did not at all renew contact until 1973.[49] Bilateral connections next gained impulse on the occasion of President François Mitterrand's visit in Vietnam in 1993.[50] Nowadays the two countries' relations are problem-free, and France considers itself as Vietnam's primary representative in the EU. As for the nature of the relations, most of them are economic, yet there are cultural, educational, medical, scientific and technological connections as well, since 1986 – the launch of the policy of renewal, the "Doi Moi" – the Gaul state's goal has been to become Vietnam's primary partner. France was for long the leading Western investor in Vietnam, and just now he comes second place – within Europe – and number 15 on a world scale. Internationally Vietnam is the 3rd largest beneficiary of

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[46] GIAP, 1961, p. 70-71.
[47] SIENKIEWICZ, 1982, p. 297.
[48] Apart from losing the permanent presence of the French (présence française), they also lost India-rubber plantations that belonged to the Michelin tyre-factory as well commercial and banking interests of the Banque de l'Indochine. Besides, some thousand soldiers and their officers' colonial careers ended, too.
[49] the Socialist Republic of Vietnam
[50] Since then there are regularly and mutual high level visits between the two countries.

French investments, which can be characterized by projects of such a volume as the 3rd underground line in Hanoi. There are also benign political connections between France and Laos. France supervises the development of this south-east Asian country through several – governmental, educational, rural-developmental, health-care and heritage-protection – projects. The EU maintains continuous dialogues with the country in terms of human rights and governance, in which France plays a substantial part. In terms of commerce, France ranks as the number one investor from the West in the service sector as well in the industry and the agriculture. France is Laos's 6th trading partner. 95% of Lao export in Europe has been transported to France for about ten years now, which process was triggered by the project "All but guns". Cooperation between the two countries excels in health care, agriculture, urban development, culture and education. All in all, Laos has become substantially more open towards the west since the turn of the millennium, during which period they also settled relations with Thailand. Despite the inflow of investments from the west, Laos still is one of the most poverty-stricken states in the region, and also one of the few still-existing communist ones. On 10 May 1994 in Paris Cambodia and France signed a framework convention on mutual cooperation in terms of culture as well as science and technology. In the course of this the two countries identified the following priorities for the period 2014-2018: economic growth, promoting human resources, maintaining rule of law, realizing peace and general development and increasing Cambodia's regional and international revenues. The Gaul state agreed to provide aid to the south-east Asian country as regards outbreaks of diseases and epidemics via financing multi-national funds and international organizations as well as through their own research-activities.[51] France – alongside with their European partners – promotes Cambodia's joining the ASEAN as well as the international Francophone region.

'The end of the war in Indochina was an enormous fiasco for France: their army's weakness was unveiled and their prestige also suffered. This serious defeat was among those factors that could explain what led soon to another armed rebellion on another one of France's many colonies, namely in Algeria.'[52] Yet North-Africa, more precisely Algeria was of greater importance to the French, than Indochina, for instance, since there were more people concerned about not losing it: '… *the priority of the economic*

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[51] Institution Pasteur
[52] KENDE, 1970, p. 235.

aspect in keeping Algeria – the first colony of the post-1830 period – at any price became apparent, and then again in the retreat for the oil's sake, sacrificing everything.'[53] The cabinet of Pierre Mendès-France declared war on Algeria in the autumn of 1954. 'The colonial policy has by no means changed after Geneva, then. Or better to say, instead of politics, in Algeria the army remained the *ultima ratio*'[54]. Nevertheless, it all burst the frame of the French Union and '…the new "filthy war" caused ever greater excitement in international politics.'[55]

'After failing colonial wars both in Indochina and Algeria (…) General de Gaulle could not make the hope for a restored *grandeur* come true. (…) The mother-country all alone now *could not have possibly managed* to make it. However, mainly owing to their position in the colonies that they managed to retain, transfer and adjust to the new conditions, Paris possessed *suffce* instruments to (…) create a new role for themselves in the altered world.'[56] – wrote László Salgó in his book published in 1977. In order to demonstrate whether France in years to come managed to succeed in it would take the course of another essay.

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[53] ibid., 264. o.
[54] SALGÓ, 1977, p. 232.
[55] ibid.
[56] ibid., p. 8. in the introduction of *To the reader*

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INFORMATION AND COMMUNICATION SECURITY

TAMÁSNÉ MÓGOR – ZOLTAN RAJNAI

CRIMES AGAINST COMPUTER SYSTEMS AND THEIR PUNISHMENT IN HUNGARY

Abstract

The arrival of the computer has brought significant changes into our social and economic lives. Computers and computer networks are the most widely used technological tools in nearly every area of life. Just think of the fields of industry, services, administration and justice.

The gaining ground of computer science has been taking place at a rapid pace – within just a few decades – and this dynamic advancement is expected to continue in the forthcoming decades as well. While it is currently impossible to predict how these information technology tools will be used in the future, we can be certain that besides the many advantages of this new technical achievement, there are also several drawbacks. Firstly, it has led to the emergence of a new type of crime, known as cybercrime; and secondly, it has resulted in the spread of new methods of committing traditional crimes.

Keywords: acts and laws against cybercrimes, the role of the United Nations and the EU organizations, forms of attacks against computer systems, regular and aggravated attacks, Hungarian governmental computer systems.

Breach of the computer system or data

Since the 1980s, penal codes have included crimes associated with the processing of data. However it soon became clear that with the appearance of the internet, a new chapter was opened in the history of cybercrime. In 1989, the European Council issued a recommendation to member states, regarding those acts that should be punished. Through this measure, the council sought to offer a guideline for the national lawmakers, by compiling a minimum list of computer- related crimes. The increasing

spread of computer-related crimes demanded further quick action. Since the beginning of 1990s, the United Nations has vigorously emphasized the importance of international cooperation in the fight against cybercrime. As a result, the Council of the European Economic Community issued a directive on the legal protection of computer programs.[1] In Hungary, on 15 May 1994, the article 22 of Act IX of 1994 brought into force the clause on the crime of cyber fraud, previously found in article 300/C of the penal code.[2] The European Council's convention on cybercrime was approved on 23 November 2001, but in Hungary – though its acceptance should have already happened at that time – the punishment of the act of unauthorized data access only became law by the Act LXXIX of 2004.

The improvement in the security of computer network and the creation of a safer information society has become important objectives. As a result, the framework decisions 2005/222/ JHA on attacks against computer systems and 2001/413/JHA were passed. Another noteworthy document is the directive 2002/58/EC **of the European Parliament and the European Council of 12 July 2002, concerning the processing of personal data and the protection of privacy in the electronic communications sector, which also contains provisions with regard to unsolicited emails and spyware.** Directive 460/2004/EC led to the establishment of the European Network- the European Union Agency for Network and Information Security.

On 22 May 2007, the European Commission published another communiqué on the general policy, with respect to cybercrime. As regards the crime related to electronic networks, attacks using computer systems, or attacks against organizations and persons have become increasingly common. The Committee deems it necessary to strengthen cooperation in fighting against this type of crime and pursuing training against cybercrime. In recent years, the European Parliament and the Council passed the

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[1] Council Directive 91/250/EEC of 14 May 1991 on the legal protection of computer programs
[2] Article 22 The penal code shall now include the following article 300/c
300/C (1) „any person who for financial gain, or causing damage to the computer processing of data through the modification, deletion of data in the program or insertion of incorrect data or the condution of any other unauthorized act influences the results, commits a crime and is punishable by imprisonment for up to three years.
(2)The punishment shall
a) be five years imprisonment if the cyber fraud causes significant damage
b)from two to eight years imprisonment if the cyber fraud causes especially significant damage."

directive of 23 April 2009, on the legal protection of computer programs. This directive is binding for all member states, as well as for the lawmakers and law enforcement organizations of the member states.

Act C. of 2012 came into effect in Hungary a few years ago, and article 423 defines the crimes against computer systems and the punishment for such crimes.

The forms of attack against computer systems

With respect to attacks against computer systems, the law differentiates between regular and aggravated instances.

The main forms of regular attacks against computer systems are the following:

- unauthorized entry into the computer network;
- exceeding the extent of authorization in terms of scope or time, or remaining in the network in an unauthorized way;
- after login; the stored, processed or forwarded data in the computer system are changed or deleted;
- an act breaching the inviolability of the data contained in the computer system;
- rendering data inaccessible (the system continues to store it but the data is out of reach);
- obstruction of the lawful operation of the system.

It is important to emphasize that the crime of data abuse may be committed by both authorized and unauthorized persons alike. Of course, data breach may also be committed by an individual who is authorized to carry out an operation with the data, but he does so in violation of the regulations.

A good example of such a case is when the administrator at the office of records feeds false data into the Road Traffic Register, regarding the driving examinations in exchange for corruption money. As a result, an individual who has not passed the driving exam is given a driver's permit. Another example is when a bank employee commits embezzlement by taking the clients' money placed in fixed deposit, and then unlawfully modifies the bank data.

By obstruction of the lawful operation of the system, we mean that the system does not work, or is not able to properly carry out the tasks for which it was designed. These may include the system for public administrative records (properties register, traffic register, etc.) or other records for official data. Just think of ETR and NEPTUN systems, which record the obligations and the performance in tertiary institutions, and the potential damage which may be caused by the breaches mentioned above.

It is important to note, furthermore, that with the modification of the data in any way, the crime has been accomplished. It is therefore not necessary for the act to influence the outcome of the data processing, or to lead to any further negative consequence. Not only the person who actually committed the crime is responsible, but also any other individual who took part in the crime as an accomplice. In the case of the abovementioned ETR or NEPTUN system, an accomplice (accessory)[3] would be a person who provides false data to the system manager in order to replace the data on the unsuccessful examination with such data which states that the exam was successful.

Aggravated cases

When examining crimes committed against computer systems, special emphasis must be placed on such cases where the crime targets a significant number of computer systems. In such cases, this may result in the obstruction of several hundred computer systems as well as the altering, deletion of the data, and may also render the data inaccessible. In the eyes of the law, these acts are aggravated instances, and are thus punished more harshly. The courts apply even harsher sanctions in cases where public utility networks are the target of such crime.

These may be attacks against public utilities, public transportation, electronic broadcasting networks, or factories manufacturing military material or military technical equipment. Unfortunately, the events of the recent past confirm that we are facing a scary and dangerous phenomenon. During the attacks on the Hungarian governmental computer systems, 62,000 attacks took place on the government computer systems in less than one day.

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[3] Article 14(2) of Act C of 2012

Experts no longer only speak of crimes against computer systems, but of the dangerous and catastrophic form of terrorism, that is cyber terrorism.[4] This is why it is an extremely important task for every country to ensure adequate protection against cyber-attacks. Although we are aware that there is no such thing as perfect protection, it is very important to keep the risks at such a low level as possible.

While we cannot fully protect computer systems against crime, however, by elaborating and imposing proper and assertive punishment, we can certainly decrease and mitigate the number and effects of such risks.

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JUDIT FEHÉR

INCIDENT MANAGEMENT OF CENTRAL AND LOCAL GOVERNMENT AGENCIES

Abstract

Information security incidents are such unique or serial unwanted or unexpected IT security events that most likely jeopardize the business activity and threaten the information security. These incidents can result from accidental events or intentional attacks. Very serious intentions can lie behind the given incidents (e.g. intentional hacker attack, or such harmful events that may even cross organisational or national boundaries); therefore it is important for us to avoid arbitrary handling or revealing the incident, instead we must always proceed according to the methodology developed at the relevant organisation.

Keywords: IT security, information security, security event, incident, incident management, central and local government agencies

Introduction

According to the Act L of 2013 on the Electronic Information Security of Central and Local Government Agencies (hereinafter: Information Security Act) „in the interest of the nation, the security of national electronical data assets, as well as the security of information systems used to manage them, and also the security of other critical information systems and their components is particularly important because of the threats of today's information society. It is a general demand of the society that confidentiality, integrity and availability of data managed in the electronic information systems that are vital for the state and its citizens, are kept safe, and that the integrity and availability of the components of these systems are provided protection in a closed, complete, continuous and proportionate to the risks manner, so that the protection of the cyberspace be assured." [1]

The Act applies to the central government bodies as well as the offices of the local municipals and the national minority councils. The central state agencies and the local governments are also data processing authorities of the state registers considered as parts of the national data assets according to the law. Among the basic information security requirements, all central and local government agencies that are subject to the Information Security Act need to define logical, physical and administrative protection measures as

prescribed by the law, within the scope of adequate protection of electronic information systems, that can also support the management of security incidents. The assessment of threats constitutes a part of the management of the given security incident.

„The threat is such an operation or event, or the lack of these, that may harm the protection or the security of the given information system." [1] Consequently „the risk is the extent of the threat that comes from any threat factors. The extent of the risk equals the size of the damage multiplied by the probability (frequency) of occurrence."[1] To determine the extent of the risk, risk analysis must be conducted. „Risk assessment is an analytical and evaluative expert study that determines the potential extent of damages and the frequency of their occurrence by assessing the data and applications managed in the information system, and analysing their weaknesses and threats." [2]

If we already have the results of the risk analysis and the threat assessment, then we can move on to the management of the security incident. A security incident is „an unwanted or unexpected specific event or series of events that causes adverse change or a previously unknown situation within the electronic information system, and which results in the loss or damage of the confidentiality, integrity, authenticity, functionality or availability of the information kept within the electronic information system." [1]

The *management of a security incident* is „the documentation of the security incident occurred in the electronic information system, the elimination of its consequences, determining the causes and those responsible for the occurrence, and the planned activity to prevent the future occurrence of similar security incidents."[1] The detection is „the recognition of the occurrence of the security event."[1]

One part of the security events are incidents. An incident means an unforeseen disruption.

The Governmental Computer Emergency Response Team

The operation of the Governmental Computer Emergency Response Team is regulated by the Act L of 2013 on the Electronic Information Security of Central and Local Government Agencies (Information Security Act). According to 19. § (1) of the Information Security Act; „the Government operates a governmental incident management centre, under the Minister responsible for defence against disasters, in order to handle security incidents defined in

present Act. The bodies defined in 2. § (1) belong to the governmental incident management centre." This latter includes particularly the central and local government agencies as well.

The Governmental Computer Emergency Response Team (GovCERT-Hungary) is the Hungarian network security incident management centre. Its task is to support the network security of the IT systems of the whole Hungarian public sector. GovCERT-Hungary plays a key role in protecting the information systems that are crucial for the functioning of the state. The GovCERT-Hungary is not an authority, it does not have investigative power, but in specific cases it cooperates with the investigating authorities.

CERT is an acronym for the English "Computer Emergency Response Team", meaning such a team or organisation that has adequate technical background to react to and manage any events on time that threaten network security or the critical information infrastructure. In brief CERT is a computer emergency reaction unit dedicated to the management of incidents.

GovCERT-Hungary is responsible for the tasks related to the management of attacks coming from the cyberspace against the whole central and local public sector, and the coordination of other related tasks.

GovCERT-Hungary has designed its services to be able to act the most effectively possible against these incidents, and to provide such information to the operators that can help reduce the risk of the occurrence of such incidents.

GovCERT-Hungary seeks to use a confidential, regulated and authentic form of information sharing between the organisations and communities when managing network security incidents, because such information may often contain sensitive data. "The recommendation of the Principles of Sharing Sensitive Documents (ÉDMA) is a voluntary set of rules for managing information, which offers a solution to this problem."[3]

The services of the GovCERT-Hungary incident management centre are the following:

Preventive service

Preparing and reporting assessments and analyses of the network security situation on a daily basis and immediate alerts on critical network security incidents.

Incident management and coordination

Continuous availability: GovCERT-Hungary operates a 7/24 hour service for coordination of prevention and the coordination of the national and international management of network security incidents and attacks against the customers.

Vulnerability management service

Continuous assessment, analysis, translation (to Hungarian) and risk classification of the vulnerability information obtained from trusted sources (international CERT community, software vendors, security organizations, etc.), and reporting to the central and local government agencies.

The managing body of GovCERT-Hungary is the National Cyber Security Centre (hereinafter: NCSC). It is NCSC's task defined by law to develop educational materials and organise trainings or awareness-raising campaigns in order to foster security awareness of the central and local government agencies. Given the fact that data protection is a fundamental interest of all users, apart from the support, the maintenance and the enhanced operation of state cyber security protection, NCSC intends to put more emphasis on awareness-raising of individual users as well. The NCSC aims to provide the most useful information in an easily comprehensible way with the help of materials and informative publications available to the visitors on its website sorted by topics.

Managing information security incidents

Among the many useful information and services available online, the Internet also represents a home to many threats. This fact seems evident for most users, however experience shows that many of them are not prepared well enough for an external attack against their computer system, thus the number of Internet security incidents is growing daily.

The main targets of network security incidents are the governmental information systems (e.g. e-government portals). Therefore, the number of affected local governments is significantly higher compared to the number of other central government agencies.

The procedure of managing information security incidents at the GovCERT-Hungary is the following [4]:

1. Analysing and identifying the cause of the incident;
2. Containment;
3. Design and implementation of corrective action to prevent reoccurrence, if necessary;
4. Disclosure of information to those affected by or involved in the incident recovery;
5. Reporting of the activity to the competent body

As a first step it is necessary *to identify and publish the information security incidents and weaknesses (vulnerable spots)*, so that corrective actions can be taken on time. It is also necessary that official incident reporting and extension procedures be available. The

education of information security awareness to the employees, as well as to contractors and third parties is also necessary, as one of its points prescribes the reporting obligation of such information security incidents, and appoints the manager to be notified about the occurrence of such events. The reports on any information security incident shall be published as quickly as possible. The reporting mechanism has to be the easiest and the best accessible and available one. It is required to inform the employees, contracting partners or third parties concerned that they must not attempt to verify the suspected vulnerable points under any circumstances.

The *reporting procedures* must include the following:

- appropriate feedback processes to ensure that those who provide reports on information security incidents are notified of the results after the issue has been dealt with and closed;
- forms for reporting information security incidents, to facilitate the reporting process and help the person responsible for reporting to remember all necessary actions in case of an information security incident;
- the right behaviour that must be kept in case of an information security event, namely:
    - to note immediately all relevant details (e.g. non-compliance or violation type, the malfunction occurring, messages on the screen, special behaviour);
    - do not perform any autonomous activities, but immediately report to the contact point;
- reference to an elaborated formal disciplinary procedure that applies to such employees, contracted partner and third party users that commit security violations. [6]

Malfunction or other abnormal system behaviour can be the sign of a security assault or an actual security violation; therefore all of these have to be reported as information security incidents.

In high-risk environments, a *forced emergency* alarm can be used, so a person is forced to report such problems (e.g. intrusion into a Bank). The response procedures in case of a forced emergency must reflect the high-risk situation, which such signs of emergency can imply.

The next is to *proceed to the incident management steps*, so it is also necessary to have established formal rules of procedure for this. An official reporting procedure has to be

established for information security incidents, along with an incident response and extension procedure, identifying the actions to be taken, upon receipt of an information security incident report. A *contact point* must be established and assigned for information security reporting. It must be ensured that everywhere in the organisation everyone be aware of this contact point, and it must be always available and capable to give appropriate response in due time.

It is necessary to *designate those responsible*. Responsibilities and procedures must be in place to effectively manage information security incidents and weaknesses, when they have already been reported.

Continuous development process has to be implemented in response to the information security incidents, their monitoring and extensive treatment. If necessary, evidences have to be collected in order to ensure the compliance with the legal requirements. Management responsibilities and procedures must be established to provide quick, effective and legal response to information security incidents. [7]

It is necessary to carry out *continuous monitoring*. To reveal information security incidents, apart from reporting the information security events and weaknesses, the monitoring of systems (alerts, vulnerabilities) is also used.

Learn lessons. Have ready mechanisms in place that allow quantifying and monitoring the types, the number and the costs of information security incidents; and use the obtained information to identify recurring or high-impact incidents. The evaluation of information security incidents may indicate the need for enhanced or additional audits to limit the future occurrences, and the damage and its costs arising from them, but can also indicate whether they have to be considered in a revision process of the security policy. In accordance with the privacy considerations, the information security incidents can be used as examples in user awareness education, to show what can happen and how to react to such incidents, or how to avoid them in the future. It may be necessary for them to be able to properly handle information security events or incidents, and to collect evidence after the occurrence as soon as possible. [4]

The incidents

The Government's incident management centre GovCERT-Hungary prepared a summary report by the end of 2015 on the assessment of security events and incidents of central and local government agencies. Below there are some important events highlighted from the report [5]:

Politically motivated website vandalism

During the first months, GovCERT discovered more damaged websites than usual. In these cases, the attackers usually placed unauthorized content on the attacked websites promoting themselves and/or their political goals. In most cases, such attacks are carried out with massively exploiting of known vulnerabilities (bugs). In respect of information security, website vandalism is considered as a low-risk, because the original content can be easily and quickly restored from a backup of the website, and by updating the content management system similar attacks can be prevented.

From the website vandalism incidents in the first quarter of the year, one case stands out, in which an unknown perpetrator hacked the externally operated webserver of a regional state institution. Instead of the original content, an extremist Islamic organisation's logo has been placed on the main page. The operating company terminated the webpage service within 15 minutes after noticing the event. The GovCERT's analysis revealed that for the unauthorized access, the attackers used a vulnerability known since September 2014, then they used a toolkit published in 2013 to damage all main pages served by the webserver. In this case, GovCERT helped the operators with providing a detailed technical description and a report. When analysing the log files, further non-governmental stakeholders were identified who were also informed via our partners.

Other, similar website vandalism incidents – examined by GovCERT, in which extreme Islamist content has been placed on a website – indicated that the organisation and technical skills of the attackers were of low-level, and their activities were not threatening – apart from the loss of prestige. International partners of GovCERT-Hungary neither consider these attacks as high risk on cyber defence.

GovCERT continuously detects website vandalism, investigates damages to websites of governmental concern, and professionally advises those involved, so that similar attacks can be prevented later on. Through the service providers or their partners, GovCERT also notifies the operators of non-governmental websites touched by vandalism. In the reporting period of 2015 this meant the management of dozens of governmental website vandalism incidents and a few thousand of non-governmental website vandalism cases.

Attacks launched from Hungary against foreign institution

Based on notifications received from foreign CERTs, GovCERT-Hungary investigated an interactive – thus non-automated – attack (using presumably compromised Hungarian infrastructure), whose target has been a foreign institution.

During the investigation the service provider concerned made available technical details that made possible further study. The data were subjected to a preliminary analysis (forensics) by GovCERT. This analysis identified the means of perpetration, some foreign targets, and a known series of attacks, of which this specific attack has been allegedly part of. The results of the rapid analysis provided sufficient grounds for the data to be shared with the attacked party via a secure electronic channel, according to Directive 95/46/EC on the protection of individuals with regard to the processing of personal data and on the free movement of such data. The foreign institution concerned filed a complaint against an unknown perpetrator, based on the data provided by GovCERT-Hungary.

The foreign CERTs concerned in the case commended the efficiency of GovCERT-Hungary (collection of data within two working days, preliminary analysis on the same day) which made it possible to file the complaint within one week from the notification of the incident. This would not have been possible even within a longer time without the efforts of the Hungarian service provider concerned, which cooperated in addition to its legal obligations in force.

DDoS attack against a Hungarian hosting service provider

GovCERT-Hungary conducted incident management in a case of a distributed denial-of-service (DDoS) attack against a domestic hosting provider. The attack was against the service provider's servers for webhosting and e-mail server functions. DDoS attacks aim to overload the online resources of the victim, preventing proper operation of its system. The DDoS-protection used did not prove to be effective enough, thus the services were operated on a limited level for several days.

The hosting provider was able to alleviate the increased traffic only with banning all non-Hungarian IP-range. This measure did not solve the problem, because among the attackers there were domestic ends too, and the ban of non-domestic IP addresses was not permissible,

due to foreign clients. The service provider notified the Council of Hungarian Internet Providers' HunCERT about the DDoS attacks against its systems.

Three days after the start of the attacks, HunCERT invited GovCERT to cooperate in the management of the incident at the service provider. Following the request GovCERT immediately contacted the service provider, which was also justified by the fact that among the clients of the service provider, several Hungarian local governments were concerned. The service provider informed about the status of the incident, stating that the attack was still active. The examination of the technical data of the incident concluded that the attackers flooded the service provider with http requests, bypassing the existing security solutions from more than one hundred – presumably infected – geographically dispersed private ends, from which about a dozen were responsible for 90 percent of the traffic. The Internet service providers of the most active attackers were notified by GovCERT, and GovCERT also developed a manual for the service providers on how to conduct a targeted screening against the attacks. In line with the proposed settings, the service provider has managed to stabilize the operation of its system and eliminate the attacks in such a way that the foreign visitors' access to the websites has been also provided. The attack finally stopped after seven days. In parallel with this specific case, GovCERT was informed from several foreign sources that DDoS attacks are being used in blackmailing campaigns aimed solely at financial gains.

Errors of applications managing digitally signed files (e-akta)

In Hungary since 2001 it was possible, or in some proceedings (like e.g. starting up a company, corporate credit administration, order for payment procedure), it was even mandatory to use electronic administration and e-signatures. In 2014, GovCERT was informed by the experts of SEARCH-LAB Ltd. that they have found vulnerabilities in the electronic signature management apps and services 'e-Szignó' provided by Microsec and 'MOKKA' provided by NetLock, that made possible the modification of already electronically signed documents (electronic file, e-akta, *.es3 files), without the loss of validity of the electronic signatures.

Only the applications and services managing the 'e-akta' files were affected by the vulnerabilities, neither the 'e-akta' file format itself, nor the related digital authentication procedures (PKI) were affected. The exploitations of the vulnerabilities did not require a high-level IT knowledge; therefore the disclosure of bugs had to be avoided before fixing them. On the first hand, the developer companies fixed the vulnerabilities in the user application, and

then within a longer delivery time, also in their own server solutions. The developers also operate electronic record repositories with tens of millions of 'e-akta' files. The examination of these files also took place during the period under review, but no falsified documents were identified – thus even if there has been any abuse with the bug, it did not happen to the customers using these services. As the vulnerability affected several institutions of the governmental sector, GovCERT mediated between the parties concerned and urged the developers to fix the bugs and disseminate the fixed client and server-side applications as soon as possible. In December 2014, an alert was issued for the customers (coordinated disclosure).

New ransom ware variants

Ransom ware caused many incidents also in the first quarter of 2015, and this trend continued as new and different forms of ransom ware appeared. In the past period, several types of ransom ware appeared. TeslaCrypt was one of these, which does not only try to encrypt document files, but also encrypts components or even the applications themselves of popular computer game software, rendering them unusable. In the title of the dialogue box of the ransom ware „Cryptolocker-v3" appears as a hoax, but the real cause is the substantially different TeslaCrypt. In case of some variants, the decryption method is known. The attack is realized with Angler Exploit Kit through known vulnerabilities of certain applications (e.g. Adobe Flash). The programme uses different encryption keys for each file and saves the list of encrypted files into a separate file. The encrypted files are given „.ecc" extension.

Shortly after TeslaCrypt, a very similar Cryptolocker clone appeared under the name AlphaCrypt. After the virus enters the system, it looks for user files based on their extensions (e.g. doc, pptx), then encrypts them and changes their extension to „.ezz". The inaccessible encrypted files can be restored from the backups, but there is also a removal and decryption application available, however its efficiency differs for each system. GovCERT published a detailed guide about proposed prevention and removal measures.

Phishing by disguising as a domestic bank

At the end of 2015, GovCERT received several notifications from a Hungarian bank that unknown offenders misused the official name of the bank and conducted targeted phishing activity. With a tricky e-mail, the scammers have redirected the users to a website managed by them, where among others, the users of internet banking services were asked to change their passwords.

When opening these malicious links, a clone of the bank's login page of its internet banking services appears to the user. The attackers have attempted several times to gather user data with a similar method, using different malicious links.

GovCERT has provided support using its international relations, and notified all the malicious links to several independent organizations, so in a short time – within a few hours – the most commonly used browsers (e.g. Chrome, Firefox) already informed the visitors about the danger in the form of a warning page.

Based on the transmitted data and indicators, with the help of the governmental IT service provider NISZ National Info communications Service Provider Ltd., GovCERT has identified several governmental institutions from where the phishing links were opened, thus the governmental institutions' own accounts may have been compromised. In each case, GovCERT requested the institutions to identify the workstations involved, to investigate the compromise and warn the users.

Such or similar abuses can be prevented with the awareness-raising of the users, paying more attention and using multi-factor authentication and proper protection of the computer. If anyone faces phishing, he is recommended to report it immediately to GovCERT and the financial institution concerned, in order to prevent any possible damage.

Trojan 'Dridex'

In 2015, the domestic and international statistics have shown that infection caused by the Dridex banking Trojan showed a steady growing trend. In October 2015, large-scale actions have been taken in international cooperation to eliminate the botnet, the main goal being the elimination of the central servers. The implemented attack to finally eliminate the robot network was however not successful, because of the hybrid network model. Although significant decline has been shown in the period under review, but due to the distributed system architecture, the network could continue its activities.

The Dridex malicious code is a member of the family called Game Over Zeus, which is primarily used to steal banking data with the building of robot networks. Dridex is able to manipulate the displayed pages on the infected computer with an injection technique, thus the users can be easily made to enter their data. The infection is spread through spam e-mails with Microsoft Word or Excel attachments. The attachments contain a malicious macro. In order to achieve its goal, the user has to enable the use of macros. The attackers make the users to

open the attachment with using the names of real institutions to build trust. When opening the document the malware Dridex will be downloaded to the system.

The malware is continuously developed by its creators, and new techniques are being used to acquire the banking data. Such technique is the Domain Name System cache poisoning, aimed at the redirection of users to counterfeit websites that appear to be the official site of the financial institutions.

Service disruptions due to denial-of-service attacks

In 2015, in line with their legal obligation, several government institutions reported denial-of-service attacks (DoS). Many of these institutions could appear as a target of the threats of the hacker group Anonymous due to the scope of their tasks. On 23 December 2015, some content appeared on one of the major video-sharing portals, in which presumably the Anonymous group threatened the Hungarian Government and the Prime Minister with possible cyber-attacks.

For this reason, GovCERT examined all the available log files in cooperation with all these institutions, and it was found that probably none of these cases implied a cyber-attack; the log files could not support this suspicion.

According to the experience gained in managing incidents, it is not clear at all to determine and prove a denial-of-service attack, so the detailed analysis of the available log files is necessary in every case.

Sometimes, configuration problems were behind the overload and not the significant increase in the number of visitors, and these configuration errors could have led even to denial of service. In some cases, the log files provided too little details for finding the incidents, while in other cases it was the excessive logging that has led to the exhaustion of resources. Such case has been encountered as well, when the testing queries of one of the partners of the institution led to the shutdown. Officials of the involved institutions reviewed the findings and recommendations on protection in case of all these incidents.

To prevent similar problems, GovCERT recommended the review of the web servers' configuration and the continuous monitoring of the log files.

Disruption at Budapest Airport in November 2015

In November 2015, several information systems of Budapest Airport did not function during three hours in the morning, and as a result, 15 aircraft with about 2 thousand passengers could not leave the airport. The information system of the airport showed only

black screens in most places, while somewhere only a Windows desktop was visible. According to the news, the error affected the baggage handling system as well, thus it blocked the checking in of baggage.

On the day of the shutdown, GovCERT contacted the competent official of the airport, and offered technical assistance in the management of the incident. During the investigation of the incident, however the cause was not a cyber-attack.

As part of the incident management, GovCERT constantly informed its international partners via its extensive international relations about the incident and its investigation as well.

Thanks to the competencies developed at GovCERT, the detection rate is showing an increasing trend month by month. Inversely correlated to this, partly due to the patching of vulnerabilities, the rate of website vandalism cases known by GovCERT has been decreasing. In line with the trend experienced in the public sector, the number of website vandalism in the non-state sector has also shown a decrease.

Ransom ware wave – CTB-Locker

The so-called ransom ware malware – which after infecting the computer, encrypts the user files (e.g. documents and photos) and demands a ransom to unlock them – is becoming increasingly common. This kind of malware leaves the system files intact so that the computer remains functional. GovCERT has conducted extensive incident management based on several notifications and analyses done on the National Backbone Network in context of the CTB-Locker1 ransom ware, which blackmailed dozens of state institutions The national campaign was launched on 19 January 2015, and the following results have been found based on the examinations conducted. In case of most attacks, GovCERT notified the organizations concerned about the necessary steps, and the rate of independent incident notifications was only 24 percent. The encrypted files could be restored in most cases from the regularly performed backups. The detection and the following incident management done by GovCERT were successful in all cases. The support for detecting and troubleshooting as well as the awareness-raising campaign proved to be effective, according to the feedbacks.

Phishing websites imitating the website of Hungarian financial institutions

In the period of 2015 another major attack materialized in a multitude of phishing webpages. The counterfeit phishing websites are not uncommon: only in January 2015, as many as 182 notifications have been received by GovCERT about phishing activities

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conducted on servers registered in Hungary. Six cases out of these 182 notifications, affected Hungarian banks, all of these incidents were terminated successfully with the removal of content.

A highlighted phishing incident of the first quarter of 2015 involved a state financial institution. According to the notification, unknown scammers sent e-mails on behalf of the bank, in which they have redirected the users to a fake website, similar to the original internet banking webpage of the financial institution, in order to acquire their data and passwords. From the notified fake websites only one was operated from Hungary.

GovCERT called up the domestic service provider to eliminate the fake website, and through the international CERT community, the foreign providers have been also notified to do so. At the same time, GovCERT issued an international announcement of public interest towards international IT security communities about these phishing webpages. As a result, in a short time, the most popular browsers informed the visitors about the danger in the form of a warning page instead of the phishing content.

Reaction

As summarized above, in the management of incidents one of the most important steps after the detection is the *reaction*, meaning the „measure taken in order to prevent or delay the further spreading of the security incident, and to reduce further damage." [1]

The subsection 6 of Act L of 2013 clearly defines the obligations of organizations for the protection of their electronic information systems. According to 11. § (1), „The head of the organization must ensure the protection of electronic information systems as follows: in case a security incident occurs, he ensures a quick and effective reaction to the security incident and subsequent management of the security incidents, using all available and appropriate resources."

Summary

The Act L of 2013 on the Electronic Information Security of Central and Local Government Agencies determines the security requirements of the electronic information systems of central and local government agencies and the necessary security measures to be taken to provide compliance with the requirements. The law designates the Governmental Computer Emergency Response Team (GovCERT-Hungary) to manage security incidents, which closely cooperates with the organizations subject to the Act. Present study gave a little

insight into their work done during incident management procedures of central and local government agencies.

Present study aims at drawing attention to the fact that incidents can be reported by anyone. GovCERT-Hungary manages with priority the incidents reported, according to their volume and importance. The attacks or attack attempts against the information systems that are crucial for the functionality of the state have higher priority. Reporting of incidents can be done according to the steps written under the 'Reporting incidents' menu on the webpage of GovCERT-Hungary. Reporting of incidents is possible 24 hours a day as GovCERT operates a 7/24 hotline in order to be able to react immediately.

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- [6] MSZ ISO/IEC 17799:2006
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RICHÁRD PETŐ

SOME SAFETY AND SECURITY ISSUES OF UAVS – I.

Abstract

UAV or drone technology has become easily available, and the drone has grown into an affordable and effective device for some commercial and business sectors. These sectors quickly realised that drones are cost- and time-effective, therefore they quickly adopted them. Unfortunately, drones are favoured by criminals too. In the following, the article discusses the construction and operation of UAVs, in connection with safety and security requirements. The article focuses on the main processes only, without providing any details of the previous documents or any information on the processes of obtaining such documents.

Keywords: UAV, drone, RC, safety and security, terrorism, explosive devices

SAFETY AND SECURITY REGULATIONS OF UAVs

The supreme law of Hungary is the Fundamental Law, the highest level of legal regulation in Hungary. It contains the most important regulation related to the structure and functioning of the State. It determines social, political, and economic segments, and also it comprises the rights and obligations of people. It sets forth in Articles XVII and XX that:

1. *"Every employee shall have the right to working conditions which respect his or her health, safety and dignity."* [1]
2. *"Everyone shall have the right to physical and mental health."* [1]
3. *"Hungary shall promote the effective application of the right referred to in Paragraph (1) by an agriculture free of genetically modified organisms, by ensuring access to healthy food and drinking water, by organising safety at work and healthcare provision, by supporting sports and regular physical exercise, as well as by ensuring the protection of the environment."* [1]

Act XCIII of 1993 on Occupational Safety and Health (OSH) makes provisions on the necessary factors of safe, healthy working. It precisely determines the roles of the State, and those of employers and employees – "the three roles" – including their rights and obligations. However, it does not provide a factual solution, although it contains the main objectives, established by the Fundamental Law.

The Act orders that employers need to ensure safe and healthy working conditions. An employer needs to make a risk analysis and dispose of appropriate working regulations. The employee sector needs to follow the working regulations of the employer, and the International Labour Office surveys both employees and employers how they fulfil the requirements.

In Hungary, it is the National Transport Authority (NTA), as the central institution of transportation that manages independently [2]:
- road transport;
- civil, state aviation;
- road transport;
- railways transport;
- shipping;
- and other relevant activities.

The main objective of the Authority is to maintain a high level of transport safety, in accordance with the goals set forth by the European Union in this field.

The Aviation Authority (part of the NTA) provides civil and military aviation management tasks. Presently, it does not have an operative regulation for drones yet, although the Authority made a regulation plan, whose estimated time of entering into force is June 2017.

SAFETY REQUIREMENTS

The state, employee, and employer have their own tasks to realize safe and health working conditions set forth by the OSH.

Conventional risk analysis

First of all, before launching a working process, the employer has to create safety documents and do training for employees. The types of safety documents depend on the activities of the employer. The OSH requires a risk analysis document as well. It is a fundamental safety document that every employer needs to create. Risk analysis is useful in many situations [3]:

- It anticipates and "neutralizes" potential problems;
- It helps in preparing for events, such as equipment or technology failure, staff-environment accident, a broad range of crimes and natural disaster;
- It assists when there is a need for making a decision whether or not to do something. This allows the management to be able to make better strategic decisions;
- It provides good possibility and background assistances to staff training;
- It improves the teamwork by increasing openness, honesty and understanding within the project team;
- It helps to manage cost commitments and profit forecasts, which will be accurately stated for each level of risk.

Risk analysis is divided in two parts [3]:

1. *Risk assessment:*

This part of the document identifies, evaluates, and measures the probability and the severity of risks. The aim of risk description is to display the identified risks in a structured format. The widespread schema is the table form, where the use of a well-designed structure is necessary to ensure a widespread risk identification, description and assessment process. The consequence and probability of each of the risks set out in the table should allow the prioritization of the key risks that need to be analysed in more details. Risk estimation can be quantitative, semi-quantitative or qualitative.

Using risk assessment techniques to obtain (more) realistic estimates will result in a more attainable plan. It fully discloses the sensitivity of the work, the process or the project to its participants in order to ensure that all threats are fully understood. From time to time, new risks can appear, for that reason risk

assessment techniques must be reconsidered.

2. *Risk management [4], [5]*

Standards have been developed by several organizations, such as the International Organization for Standardization (ISO), Institute of Risk Management (IRM), the Association of Insurance and Risk Management (AIRMIC), and the Public Risk Management Association (PRIMA). This part of document helps to decide what to do about risks. It summarizes the possible and chosen solutions in a short form considering cost-effective approaches.

Suggested methods of the OHS are: [6]

– *Elimination and substitution*;

One of the best solutions is to remove a hazard from the workplace, or substitute (replace) hazardous materials or machines with less hazardous ones. Removing the hazard from the workplace, results in the elimination of a threat. Using the same chemical but in different form is the other type of substitution. It is important that one hazard should not be traded for another one.

Example:

Dry, dusty powder may be a significant inhalation hazard, but if this material is available and usable as pellets or crystal, there may be less exposure.

– *Engineering Controls*

It includes designs or modifications to plants, safety equipment, or system (such as ventilation systems, motion detector, etc.) processes that reduce the source of exposure. A preventer system of human and technology errors is also included.

Examples:

▪ Process control

Changing the way a process, or a job activity is done in order to reduce the risk.

(The use of automation results in a lower level of human risk.)

▪ Enclosure and Isolation

These methods aim to physically separate a hazard from humans or

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environment.

(Manipulate hazardous material in glove box, a.k.a. sealed container.)

- **Ventilation**

This method controls air rate, is able to add and remove air in the work environment.

(Smoke-exhauster removes smokes from work environment.)

- *Administrative Controls [7] [8]*

These are controls that define the way the work is done. Administrative controls include the timing of work, the employer's rules and law, the personal responsibilities, and the work practices, such as standards, operating procedures (including training, education, management, equipment maintenance, and personal hygiene practices), the emergency preparedness and the previous experiences.

- **Working time, scheduling**

Job-rotation limits the amount of time a worker is exposed to a substance. Work/rest schedules limit the length of time a worker is exposed to a hazard. When few workers are employed in a working environment, it is suggested to schedule the maintenance and high exposure operation.

- **Work practices, experience**

It is based on previous human and technical errors of working and on lessons learned from "How do not do that/ How do that" experience.

- **Education and training**

Several processes and equipment require specific qualification. Education and training help to minimize risks and they give a possibility to ensure that workers understand hazards, risks and they are able to do a cooperative and safe work.

- **Housekeeping**

The housekeeping training helps understand the risks stemming from disorder set in a workplace. Measures taken decrease risks of being hit by falling down objects, of slipping on greasy surfaces, of cutting or puncturing the skin and body.

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- Personal hygiene

  Personal hygiene training helps to reduce the amount of a hazardous material absorbed, ingested or inhaled.

  (Separate hand washing, working, eating - drinking, and smoking, etc. areas,)

- Emergency preparedness

  It ensures that the employees know what to do when something unplanned and unexpected happens (fire, electrical malfunction, UAV crash, etc.). The employees have to be provided with emergency plan, the necessary equipment and supplies, the contacts with relevant authorities, and they have to practice emergency procedures correctly.

– *Personal Protective Equipment (PPE) [9]*

Equipment worn by persons to reduce the exposure to risks, such as inhalation (breathing in), skin (or eye) contact with, or swallowing (ingestion) of chemicals or exposure to noise. The PPE includes items such as protective clothing, gloves, face shields, eye protection, footwear, respirators, which serve to provide a barrier between the wearer and the dangerous material; as well as chemical or other occurrences as radiation and emission.

It is important that the PPE should never be the only method of eliminating or reducing exposure, because it may fail. Failure can happen when an employee does not wear the PPE, or it is damaged, does not fit the worker, or does not fulfil the requirements of the necessary protection class.
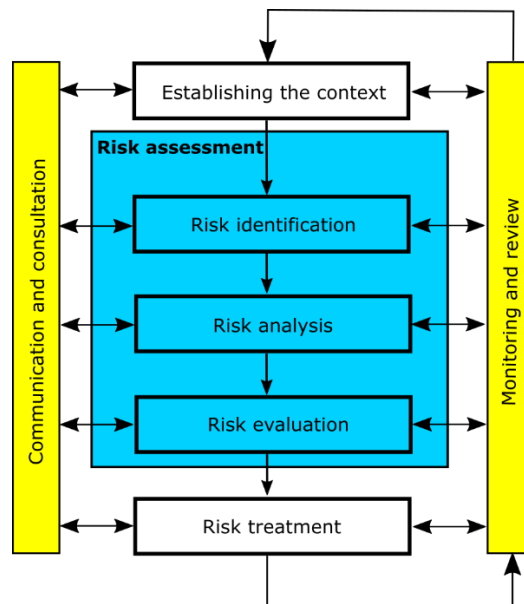
Figure 1: Process of risk analysis[1]

These tasks conceive methods known as hierarchy of control. The first and best is to try to eliminate the hazards and the last is the use of PPE.

ISO 31000 Risk management

The ISO 31000 Risk Management discusses another aspect of risk analysis. It puts emphasis on the risk analyses of organization structure and processes. Therefore the standard offers and extricates solutions from OHS. [10]

– *Risk avoiding;*

It means not getting involved in a business, passing on a project, or skipping a process or a high risk activity. This is the most expedient way to keep off disruptive and costly events.

– *Risk sharing;*

Risk can be optimized if the processes and the tasks are shared with a third party (other people, teams, organizations, etc.).

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[1] Author edited, https://law.resource.org/pub/in/bis/S07/is.iso.31000.2009.pdf; Downloaded: 10th 02 2017.; p. iii

- *Risk control;*

    Risk control includes detection and preventive action.

    - Risk detection means that threats, dangerous processes and actions, critical events are revealed before something could go wrong.
    - Preventative action as EHS training; special-, coordination-, process training aim to prevent high risk situation from happening.

  Each action must be checked before and after an event or situation.

- *Risk accepting,*

It is one kind of response to risk when the cost of avoiding the risks is much higher than the cost of accepting them. This is the last solution to be used only if avoiding, sharing, or controlling the risks are not possible choices.

Such an approach may help improve the identification of threats and opportunities, as well as to effectively allocate and use resources. The use of ISO 31000 facilitates that an organization is able to achieve its objectives more efficiently. [11]

ISO 31000 and conventional risk analysis

a) Creats value

b) Integral part of organization progresses

c) Part of decision making

d) Explicitly adresses uncertainly

e) Systematic, structured and timely

f) Based on the best available information

g) Tailored

h) Takes human and cultural factors into account

i) Transparent and inclusive

j) Dynamic, iterative and responsive to change

k) Facilitates continual improvement and enhacement of the organization

Principles

Mandate and commitment

Design of framework for managing risk

Continual improvement of the framework

Implement risk management

Monitoring and review of the framework

Framework

Communication and consultation

Establishing the context

Risk assessment

Risk identification

Risk analysis

Risk evaluation

Risk treatment

Monitoring and review

Process

Figure 2: Relationship between the risk management principles, framework and process[2]

The more details the framework and the process have at their levels, the easier for each team of that organization to collaborate and coordinate. If the risk assessment and treatment (at process level) are sufficiently detailed (threats, likelihoods, risks) and other important information facilitating fast decision-making is also available, then all this will result in:

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[2] Author edited, https://law.resource.org/pub/in/bis/S07/is.iso.31000.2009.pdf; Downloaded: 10th 02 2017.; p. iii

- decreasing the risk (likelihood, severity);
- decreasing the penalty by authority (likelihood, value of penalty);
- facilitating smooth and successful work process;
- increasing collaborating actions between the team of executors and the management;
- improving the likelihood of finishing the project in time.

If the previous requirements are only partly or not realized, a lower efficiency of work process can occur. If final work is not completed in time, the possible disadvantages are:
- increased overall costs;
- financial loss;
- no new projects can be undertaken (if resources are limited).

HARMONY BETWEEN COMPANY ACTIVITIES AND OCCUPATIONAL SAFETY AND HEALTH REQUIREMENTS

The manufacturing of a UAV is the most complex process if the UAV's hardware and software elements are designed, produced and programmed by only one company. In this case, the company first needs to get an operating licence and create suitable conditions in the workplaces that are fitting for the function.

In the following chapter, the construction and operation of UAVs will be discussed in connection with safety and security requirements. The article discusses only the main processes and does not provide any details of the previous documents or on the processes of obtaining such documents.

Therefore, the activities are divided into two sections:
1. Creating suitable workplaces;
2. Producing UAVs.

The figure below shows the main rooms of a factory, and the main process of evolving requirements at the management's levels.
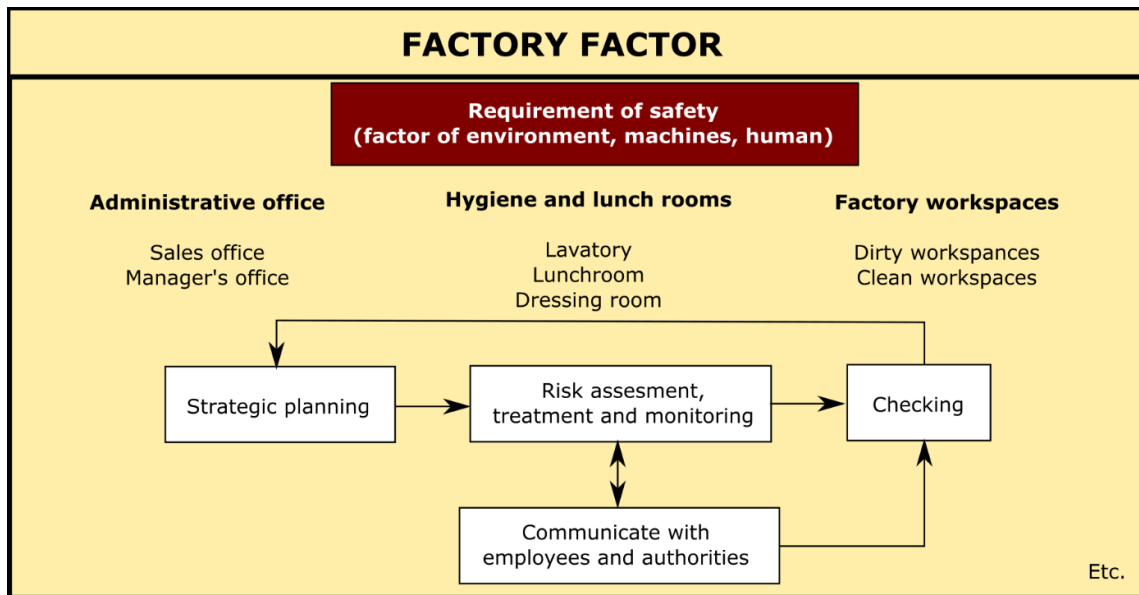
Figure 3: The main process of safety requirements in a factory[3]

The figure above shows the main rooms of a factory:
- – Administrative office:
    - ▪ sales management and administrative tasks;
- – Hygiene and lunch rooms:
    - ▪ lavatory;
    - ▪ lunch room;
    - ▪ dressing room;
- – Factory workspaces:
    - ▪ dirty workspaces (painting, assembly, soldering, etc.)
    - ▪ clean workspaces (programming, minor testing, etc.)

In order to do the eligible development required by law, first, a step-by-step risk analysis has to be carried out. The process must be systematic, because the risks, the aspects and the settings are continuously changing.

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[3] It is not a complete overview.

The next figure shows the tasks of a UAV factor. The UAV factor includes planning, constructing and testing processes of UAVs, as well as the production of other UAV equipment, such as sensors, cameras and telecommunication systems.
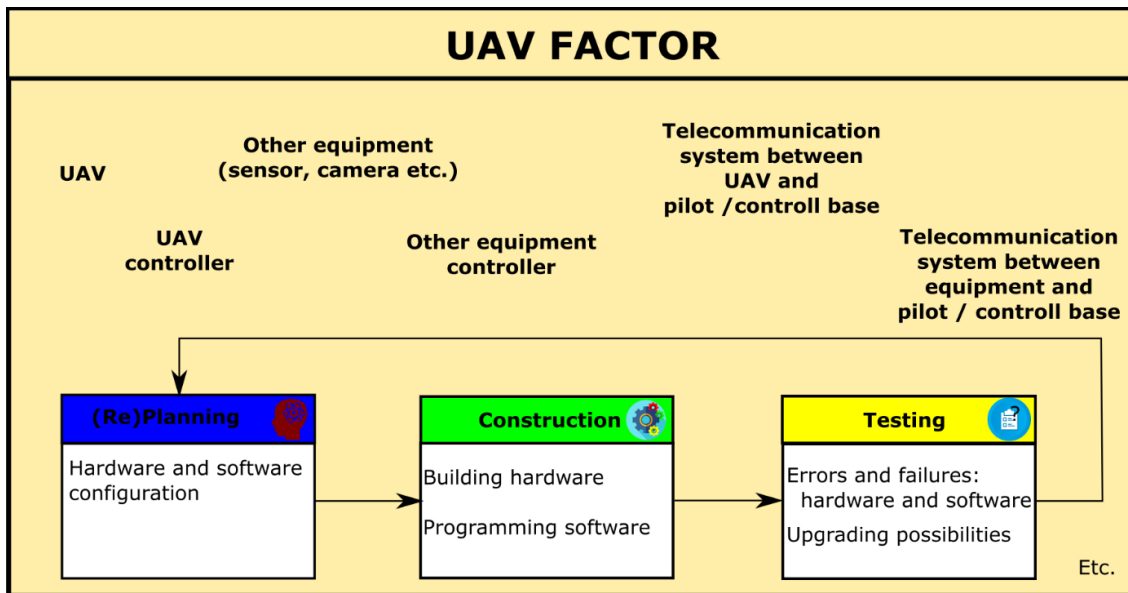
Figure 4: The main process of UAV manufacturing and operation[4]

All equipment (UAV, UAV controller, sensors, telecommunication systems, etc.) needs to go through such procedures as:

1. (Re)Planning;
2. Construction;
3. Testing.

If the equipment must be upgraded, or the result of tests is not eligible, the process stars again with the step one: re-planning.

Some testing and construction methods can be done both inside and outside the factory.

Each factors, processes, and tasks need to be in harmony with the relevant legal regulations.

UAV-RELATED RISKS

The previous chapter of this article describes some OHS, NTA requirements, and risk analyses in connection with UAV's safety. What about UAV-related risks?

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[4] It is not a complete review.

In the last three-four years, the usage of UAVs generated a huge and significant chaos worldwide. Everything started with package delivery, illegal observation of private sphere, and recordings. [12]
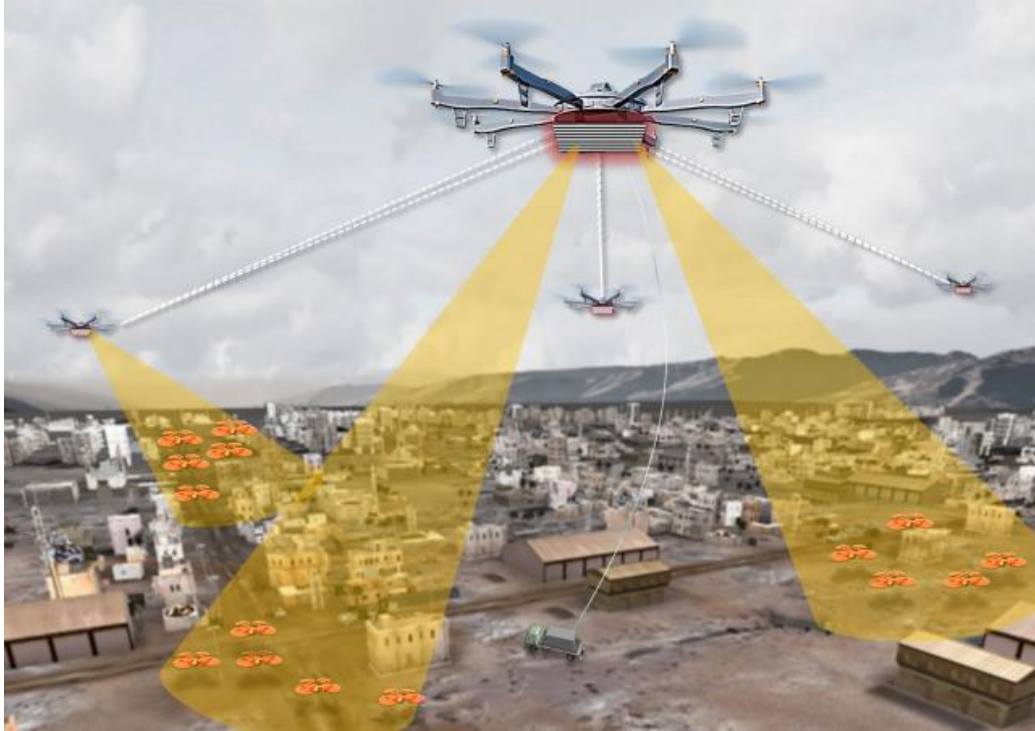
Figure 5: Illegal observation and recording[5]

The observation and the making illegal recordings of private sphere or secured objects (army bases, embassies, etc.) are critical points of UAV use, because a lot more information can be gathered immediately by UAVs, compared to other methods. If an unauthorised person gathers confidential information, this fact increases the risks of that particular facility.

The law provides for data protection and regulates very strictly the use of UAVs, but legal prohibitions do not deter criminals from conducting unlawful activities.

SkyJack is the name of the drone hacking program, which is able to seek out and hack other Parrot drones through their wireless network. A SkyJack pilot has the ability to control and view the camera sources of the affected drone. [13]

Unfortunately, these problems are not commensurate with the risks of UAV usage by

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[5] https://www.offiziere.ch/wp-content/uploads-001/2016/10/Screenshot-2016-10-04-16.20.19-e1479065908334.png; Downloaded: 28th 02 2017.

terrorists. Nowadays, on the radio, the television and the internet more and more news report that terrorist use UAVs to ambush military forces and attack civilians. [14]

Figure 6: A UAV that carried a 40mm rifle grenade[6]

Most of the modified drones carry some kind of weapons, such as a gun or explosive. The latter one is particularly dangerous. [15]

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[6] Iraqi Counter Terrorism Service solider in Mosul examines an ISIS drone modified to carry a 40mm rifle grenade in the attached plastic tube. Grenade is dropped when the drone is over Iraqi forces. (Mitch Utterback); https://017qndpynh-flywheel.netdna-ssl.com/wp-content/uploads/2017/02/Drone-Cup-holders-2-Mitch-Utterback.jpg; Downloaded: 28th 02 2017.
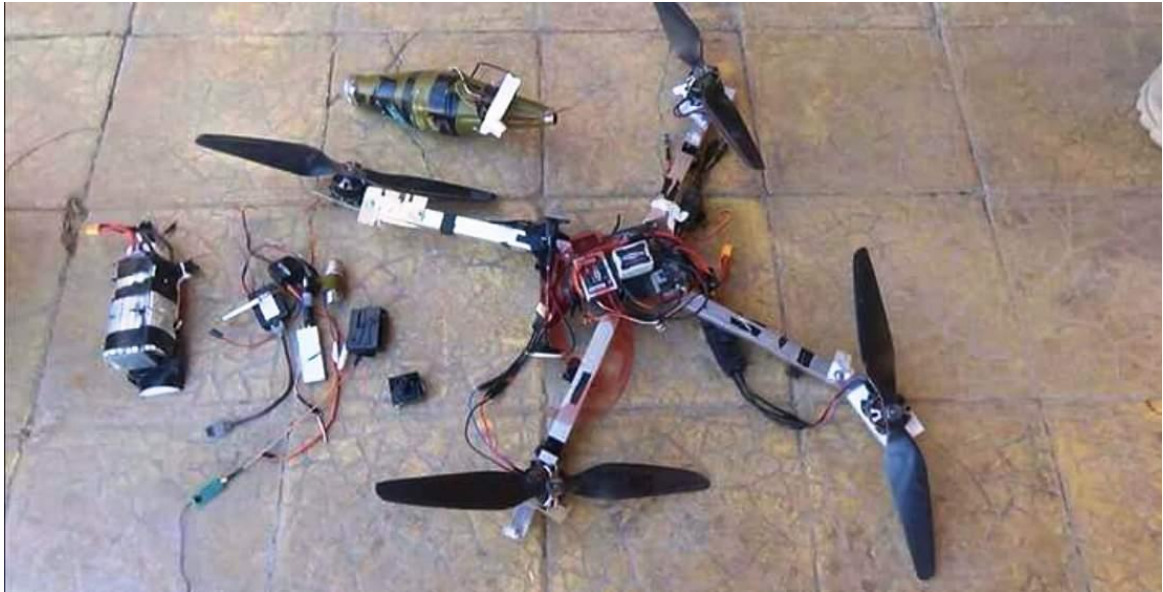
Figure 7: Homemade kamikaze UAV[7]

The explosion and fragments are able to cause serious injuries or even death in a large radius if they hit or reach human body. Public places where large numbers of people gather at a time can be primary targets.

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LEVENTE TÓTH

LIMITATIONS IN THE APPLICATION OF HIGH-RESOLUTION IMAGE SENSORS

Abstract

Due to the constantly increasing signal processing speed and the decreasing unit costs of data storage, proliferation of high-resolution imaging devices is becoming easier. The situation is not different in case of video-surveillance equipment which is used in the security technology sector. More and more manufacturers introduce cameras having over 8 MP resolution or even cameras with UHD resolution in their portfolios. One must ask the question: is there more information in higher resolutions? Are UHD cameras applicable and are they even needed under all circumstances?

INTRODUCTION

We experience technological races in various fields of life. Be it the motor industry or the mobile phone market, we see more and more new technological developments in the given field. Manufacturers bid against one another to gain the largest possible market share, using various marketing tools. A pixel war is ongoing on the mobile front, while in television technology we have hardly been introduced to the 4K resolution when an advanced version of 8K was already displayed in exhibitions.

This trend did not leave the field of video surveillance systems untouched, either. More and more manufacturers include cameras with resolution exceeding Full HD in their portfolio. Many people think that the larger the number of pixels, the better the image quality and thereby the more details visible in the picture.

A declared objective of this article is to highlight that image quality does not only depend on the resolution of the imaging sensor. We have reached a level where we need to take into account such physical limitations that directly work against a more detailed image display.

1. CHANGES IN MARKET TRENDS IN THE LAST FEW YEARS

The statistics of camera sales in Hungary for Bosch, leading manufacturer in surveillance video systems, provides a good description of the technological advancements in this field.
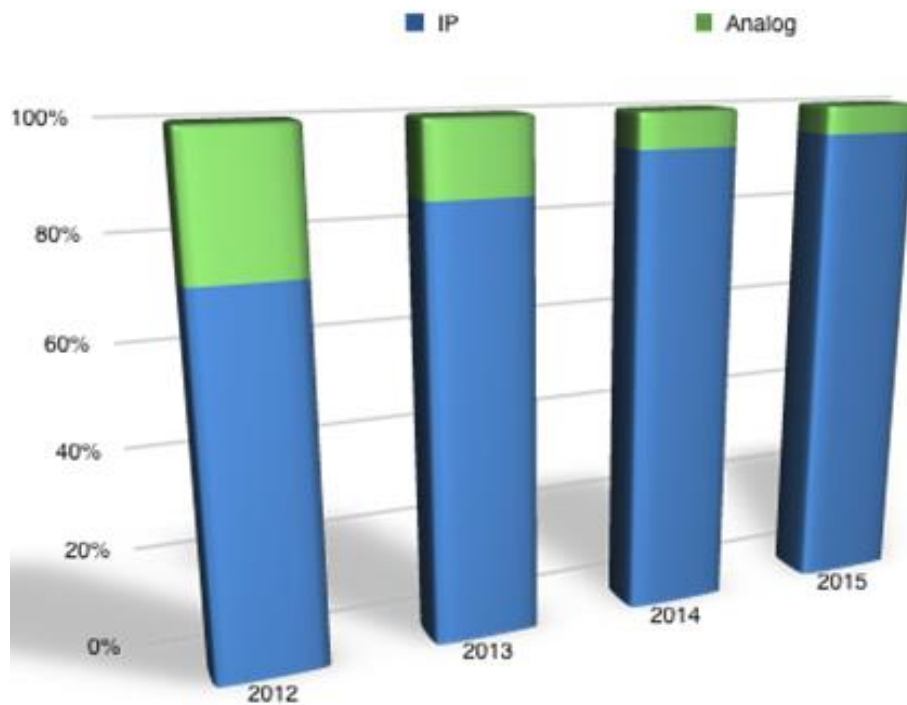

Figure 1: Statistics of Bosch camera sales in Hungary (source: own editing)

Analogue camera sales keep shrinking, while sales of IP cameras are increasing at the same rate.[1] A further breakdown of sales statistics for HD and higher resolution cameras show that sales are more and more relevant for larger resolution equipment [1]. The higher the resolution of the camera we choose, the higher the chance that under some circumstances we will run into resolution limits.

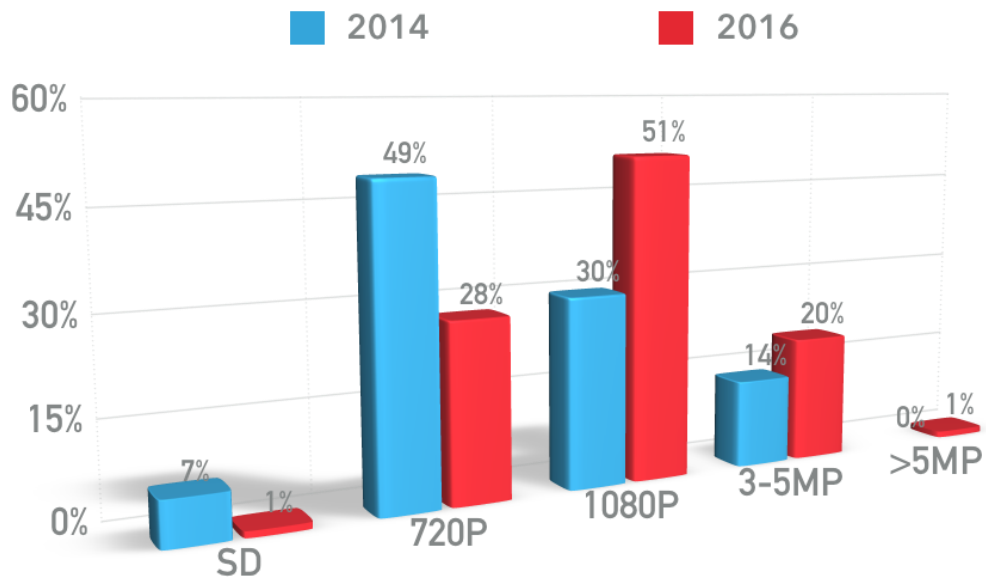[1] According to data by Attila Bárány, Head of Marketing at Bosch

Figure 2: Camera sales according to resolution between 2014 and 2016 (source: own editing)

2. DIFFRACTION LIMIT

Diffraction as physical phenomenon is mostly relevant in wave optics. Projecting parallel light rays, incoming at a perpendicular angle, through a slit the size of which corresponds to the wave length of the light shows that light waves can reach areas of the receiving screen that are optically shaded if we assume a straight line of light propagation.
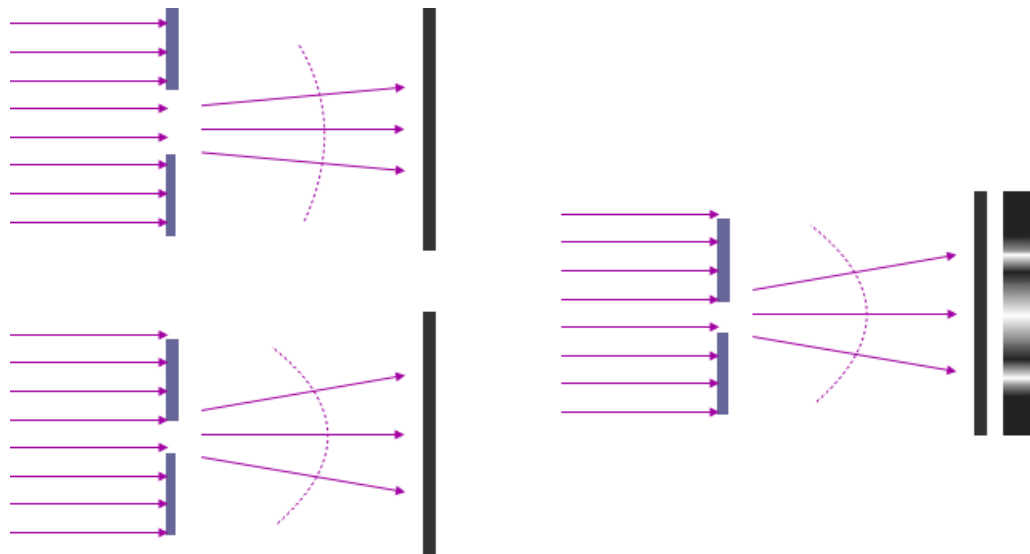

Figure 3: Correlation between diffraction and slit (source: own editing)

According to the Huygens-Fresnel principle, [2, pp. 413-414] elemental waves interfere in various ranges of the wave space, meaning that they either weaken or strengthen each other. This diffraction pattern is clearly visible in the receiving screen.
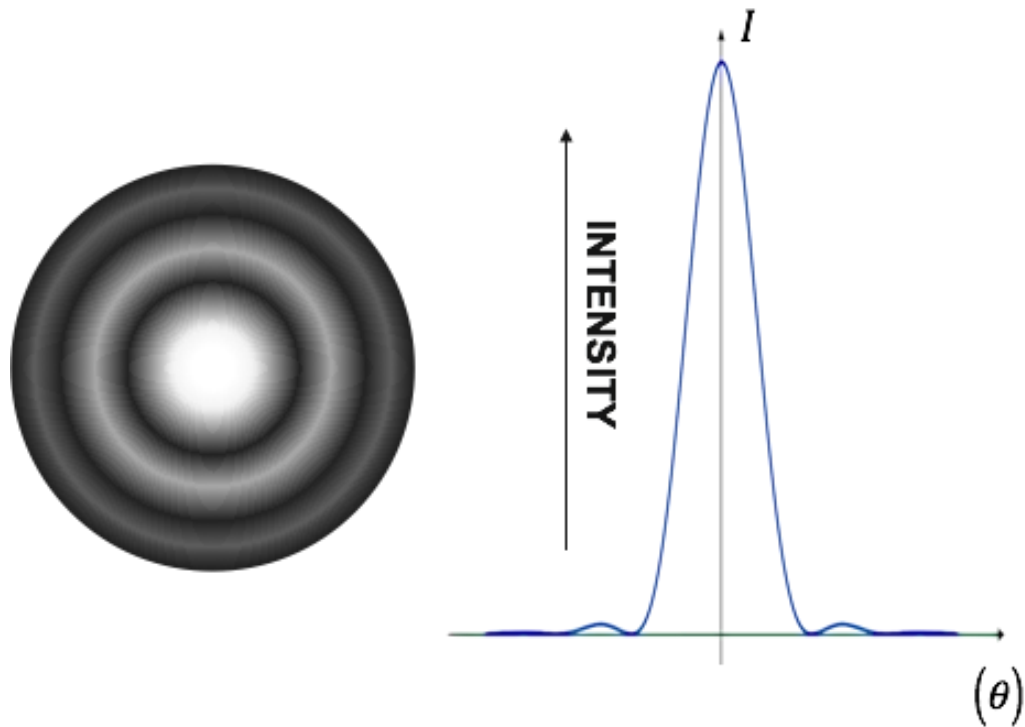

Figure 4: Airy disk and intensity function (source: own editing)

The most intensive line of light is in line with the middle of the slit, and it gradually fades to the right and left up to the point of extinction. In case we consider the slit to be one-dimensional, the most intensive spot of light will be in the intersection of the screen and the line perpendicular to the screen, going through the middle of the slit.

The intensity then decreases in both positive and negative directions until extinction. From here, we again see an increasingly bright lane, which again starts to fade after it reaches its maximum, until the second point of extinction (Figure 3, right side). The value of diffraction is proportional to the wavelength of the light, and inversely proportional to the size of the slit (Figure 3, left side).

Through a round slit, light beams emanating from a single point will display as concentric, gradually fading circles with alternating brighter and darker light rings. The image thus produced is called the Airy[2] disk. (Figure 4). The intensity function beside the disk clearly shows that the second maximum value following the first, main minimum is only a fraction (1.75%) of the main maximum. Subsequent maximum values keep decreasing. The third maximum value is only 0.42% of the main maximum (these circles will only be visible with a very powerful light source).

When testing the resolution limit of an imaging equipment, an important concept id the Rayleigh[3] criterion. Let us examine the images displayed though a small round opening of two incoherent light disks that are far from each other as compared to their diameters. Due to the diffraction, the displayed image of the two pointlike light sources will be an Airy disk. In case the distance between the two pointlike light sources are comparable to the size of the slit, the image will be blurred and we will not be able to tell them apart [3, p. 149]. According to the Rayleigh criterion, the two pointlike spots will be just barely differentiated if on the displayed image the maximum of one Airy disk falls on the first minimum of the other Airy disk (Figure 5).

---

[2] Sir George Biddell Airy (1801 – 1892) mathematician and astronomer
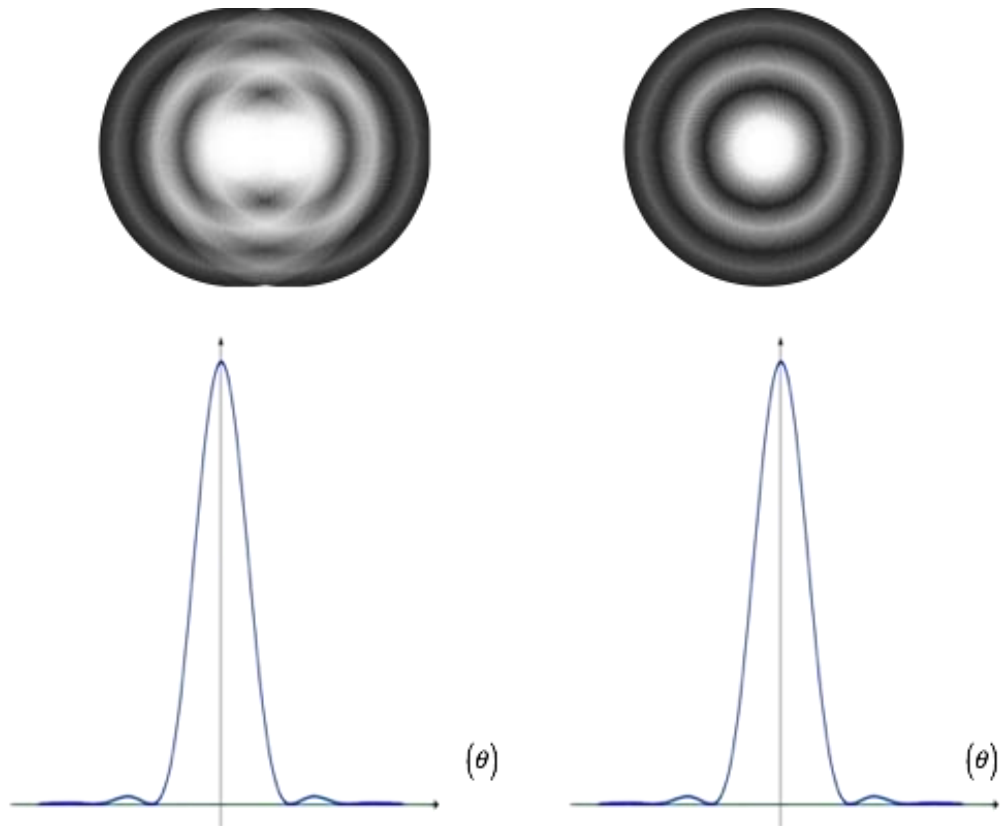[3] Lord Rayleigh (1842-1919) physicist

Figure 5: Rayleigh criterion (source: own editing)

In order to calculate the first minimum of the Airy disk intensity function, we need to be able to compile the function itself. Assessing the resolution limits in an optical system [4, p. 117], and omitting a full mathematical deduction, for the direction corresponding to the first minimum of the function, the following relation can be stated:

$$\theta_0 = \arcsin\left(1{,}22\frac{\lambda}{D}\right) \qquad (2.1)$$

where D is the diameter of the round aperture, and λ is the light's wave length. Consequently, the two points that are in α elongation from each other can be differentiated if:

$$\alpha \geq \theta_0 = 1{,}22\frac{\lambda}{D} \qquad (2.2)$$

Since angles are very small in such close proximity of points, it will not be greatly misleading to state that:

$$\sin\theta_0 = \tan\theta_0 = \frac{r}{f} \qquad (2.3)$$

Where r is the radius of the first minimum circle, while f is the focal distance of the optic system (camera lens). Since the slit of a lens is *(N)*,

$$N = \frac{f}{D} \qquad (2.4)$$

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where D in this case is the slit of the incoming pupil of the camera lens, thereby using this information as well as the equations 2.1 and 2.3, we can determine the radius of the first minimum of the Airy disk corresponding to various apertures:

$$r = 1{,}22 \cdot \lambda \cdot N \qquad (2.5)$$

As per equation 2.5, the size of the Airy disk is proportional to the wavelength and the size of the aperture. At an aperture of F8.0, and taking the wavelength of green light (520 mm), the diameter of the Airy disk is

$$2r = 2{,}44 \cdot 5{,}2 \cdot 10^{-7} \cdot 8 = 10{,}15 \ [\mu m] \qquad (2.6)$$

The maximum aperture can be as high as F64 in some automatic iris lenses, which means an eight times larger Airy disk as compared to the result of equation 2.6.

3. CORRELATION BETWEEN DIFFRACTION BARRIER AND PIXEL SIZE

As technology in manufacturing develops, the elemental pixel size in CCD[4] and CMOS[5] image receivers keep decreasing. In the past twenty years or so, the elemental pixel size has shrunk to less than 1/100, while surface sensitivity per unit (mV/μm^2) has increased in the same ratio. This is due to technological inventions such as OCML, OCCF and the tungsten shield, which has a 20-40% lower reflection than the previously used aluminium layer [5, pp. 27-30]. While the spectacular shrinking of mobile phones poses a certain expectation towards camera and lens manufacturers, this would not be a demand in video surveillance. Still, the size reduction for image receivers and lenses is on-going. Image sensors used today with a resolution of 5 MP or higher mostly have a size of 1/1.8" (7.17 mm x 5.32 mm), or maybe 1/1.7" (7.6 mm · 5.7 mm) in better cases. On the contrary, the format for DSLR cameras keeps getting larger in parallel with resolution. The Canon PowerShot G1 X Mark II type DSLR camera has a nearly 13 megapixel (MP) image receiver with a size of 1.5"-os (18.7 mm x 14 mm) [6]. This is a 6.8 times larger surface than that of the 1/1.8" format.

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[4] Charged Couple Device
[5] Complementary Metal-Oxide Semiconductor

When we compare the CMOS sensors of a Sony IMX185LQJ type Full HD [7] and a IMX226CQJ type 4K [8], we see that the elemental pixel size in the smaller resolution equipment is 3.75 µm x 3.75 µm, while the same value for 4K is 1.85 µm X 1.85 µm. since we are talking of small sizes, the difference does not seem large. Calculating, however, the surface size of the elemental pixel, the result for the former is 14.06(25) $µm^2$, while for the high-resolution latter equipment is barely its quarter at 3.42(25) $µm^2$. Putting aside the Bayer filter used in the colour camera, and the fact that the colour information for these image receivers is compiled from 3 elemental pixels and these are not closely connected to each other, let us examine the effect of the Airy disk, caused by diffraction, on imaging.
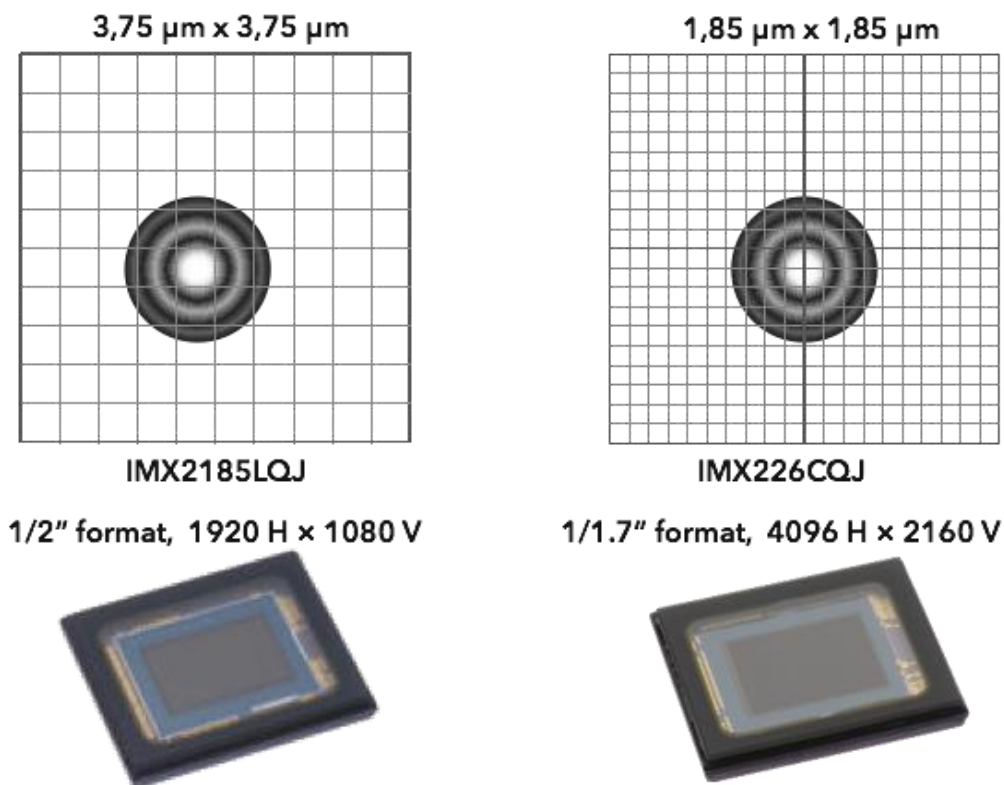

Figure 6: The influence of diffraction under high and low resolution (source: own editing)

Image 6 shows the results at an average lighting environment of 200 lx. At this lighting, the image quality corresponds with the resolution of the cameras. Assuming an identical aperture, the light beam emanating from one point is spread over several pixels in a high-resolution equipment. This means that pixels close to each other will display identical information. In image receiving units with different sizes, the aperture value to

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limit maximum resolution will be different. Generally, we can state that at identical image sensory formats, higher-resolution elements will experience deterioration in resolution at higher aperture values.

4.   CORRELATION OF SENSITIVITY AND PIXEL SIZE

Increasing the resolution of image receivers correlates with yet another issue, which is the decrease in sensitivity. It is easy to see that under identical lighting condition, a smaller elemental pixel size will receive a lower number of photons during a given time unit than a larger one. Consequently, the sensitivity and dynamic range of the equipment is worse. A lower number of received photons, assuming an identical quantum efficiency (QE) will result in less electrons. This decreased charge will in turn be we comparable with the decoder noise and dark current noise produced by the image receiver. These together will also have a negative effect on resolution. [9, pp. 35-36]

The increases signal-noise relationship may result in further problems in image processing, transfer and storage as well. Processing a noisy image by software is more difficult, for example in motion detection the number of false alarms may increase, or contrarily: raising the threshold value may reduce the identification of real motion. Higher noise will also cause worse performance in compression, which in turn leads to a larger bandwidth for transferring and an increase in storage space demand.

5.   TEST RESULTS

All of the above suggest that the physical limitations we have mentioned will considerably reduce image quality.

I have verified the validity of theoretical calculations by measurements. When creating the appropriate test environment, I paid attention to Section 5.3 of the upcoming IEC 62676-5 standard, which provides a detailed prescription for the type of the test image, as well as the relative positioning of the camera, the illumination and the light meter. The test chart used for measurements is ISO 12233, as recommended in the standards.
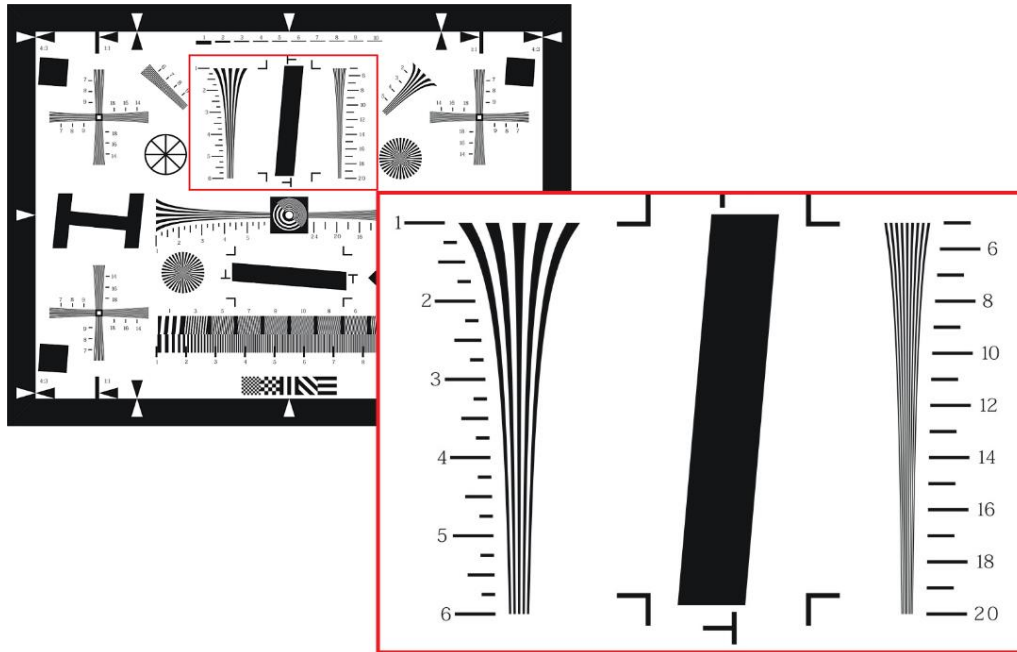
Figure 7: ISO 12233 test chart and enlarged wedge pattern (source: own editing)

The wedge pattern in the middle-top section of the test chart provides guidance for assessing horizontal resolution. The point where the increasingly frequent black and white lines can no longer be told apart (they merge) is called the camera's resolution limit. The corresponding line pair/millimetre (lp/mm) value can be read from the scale. To avoid any imprecisions of the reading, I have determined the resolution by using the Olympus HYRes 3.1 software.

When selecting cameras with differing resolutions, I aimed to choose from more or less the same (premium) category by leading manufacturers. The types I have examined according to resolution are: 2 MP (Full HD), 3 MP, 5 MP (3K) and 8 MP (4K). Manufacturers of the cameras tested are: Axis, Bosch, Hikvision and Samsung[6].

It is important to note that resolution was greatly influenced by the resolution limit of the lenses. Therefore, when selecting test camera lens, I took into consideration the manufacturers' recommendations, and I used the same 3 MP lens for both the 2 MP and 3 MP cameras.

The purpose of the testing was to determine how the richness in detail is influenced by various illumination values in cameras with varying resolutions.

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[6] Since this test does not aim at ranking the cameras, these measurement values intentionally do not include the type and manufacturer; the list is in alphabetical order, and does not in any way correspond to the rank of the test images.
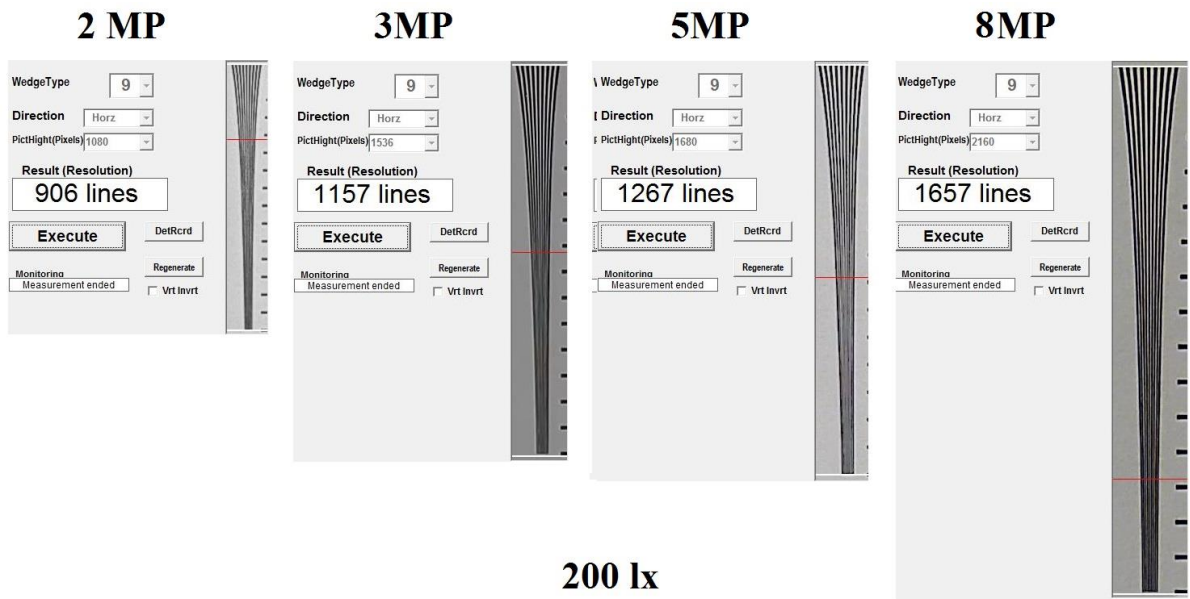
Figure 8: Resolution comparison at 200 lx environmental illumination (source: own editing)

Reducing the environmental illumination to 5 lux resulted in a drastic deterioration of resolution in 8 MP and 5 MP cameras. The reduction is 43% and 41%, respectively. The deterioration in resolution for equipment with a lower number of pixels is only 13% and 20% (figure 7.).
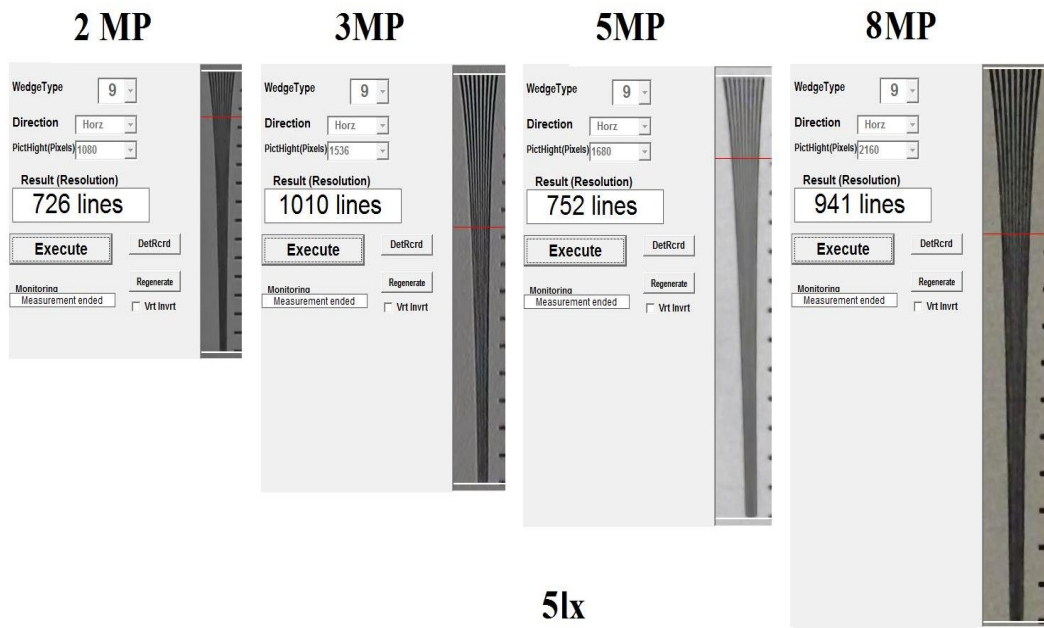

Figure 9: Resolution comparison at 5 lx environmental illumination (source: own editing)

Further reducing illumination resulted in further deterioration in resolution. 5 MP and 8 MP cameras both suffered a 54% reduction in resolution. The same value for the 3 MP equipment was only 18%. The resolution of the 5 MP camera at this level of lighting nearly equalled that of the Full HD equipment, while the 4K camera with the highest resolution produced a result lower than the 3 MP camera.
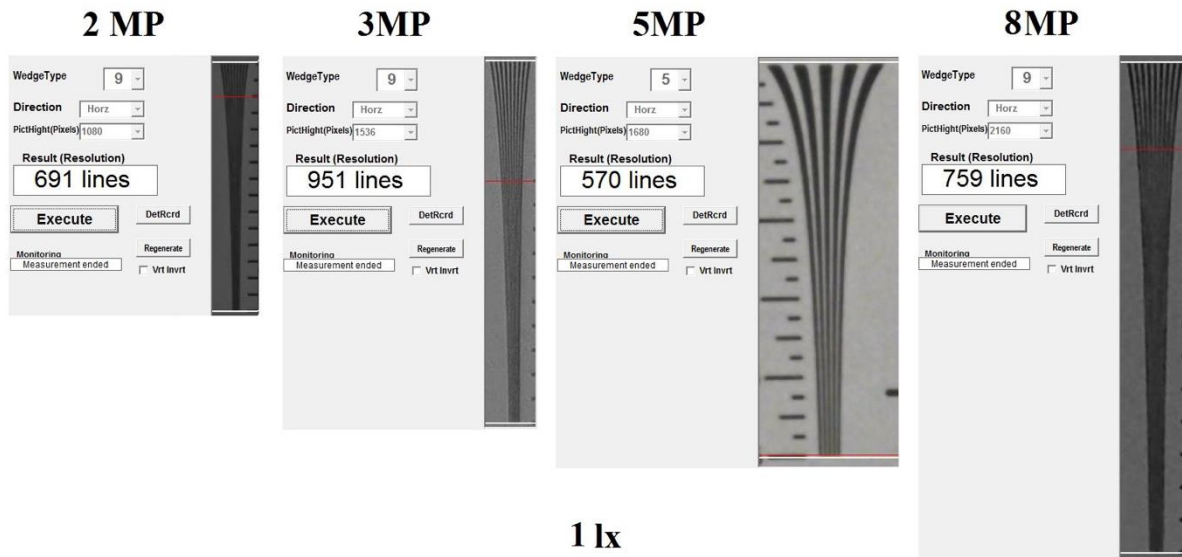

Figure 10: Resolution comparison at 1 lx environmental illumination (source: own editing)

The above measurements were conducted indoors with an artificial (2,700 K colour temperature) light source. However, to assess the influence of the diffraction barrier, I needed an environmental illumination of several thousands of lux, therefore further testing took place outdoors on a sunny late spring morning (on 20 May) at 11 a.m. The results in case of the 4K camera have verified my expectations: the equipment's resolution deteriorated by 41%, and the measured value was close to the resolution of a Full HD camera. Diffraction did not cause a decrease in resolution for the 5 MP, 3 MP and 2 MP cameras (Figure 11). For the latter two cameras this is acceptable, but the case of the 5 MP camera requires some explanation. The aperture for the lens used in this machine varied between F1.8 and F8. At an aperture of F8, no considerable diffraction effect can be measured in this 1/1.8" image receiver.

2 MP

WedgeType 9
Direction Horz
PictHight(Pixels) 1080
Result (Resolution)
943 lines
Execute   DetRcrd
Monitoring   Regenerate
Measurement ended   Vrt Invrt

3MP

WedgeType 9
Direction Horz
PictHight(Pixels) 1536
Result (Resolution)
1155 lines
Execute   DetRcrd
Monitoring   Regenerate
Measurement ended   Vrt Invrt

5MP

WedgeType 9
Direction Horz
PictHight(Pixels) 1680
Result (Resolution)
1261 lines
Execute   DetRcrd
Monitoring   Regenerate
Measurement ended   Vrt Invrt

8MP

WedgeType 9
Direction Horz
PictHight(Pixels) 2160
Result (Resolution)
978 lines
Execute   DetRcrd
Monitoring   Regenerate
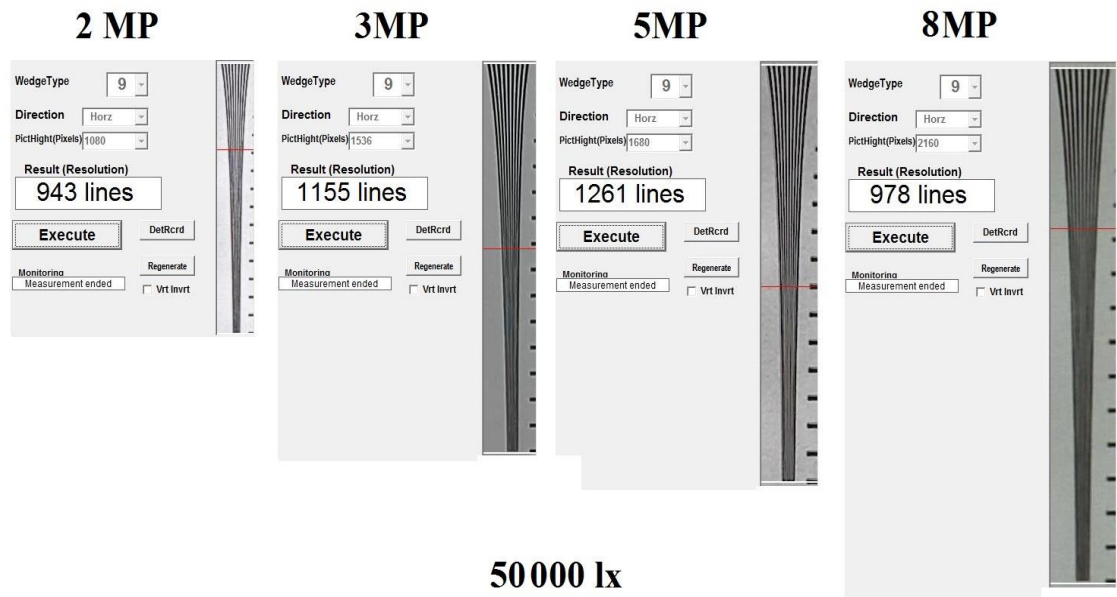Measurement ended   Vrt Invrt

50 000 lx

Figure 11: Resolution comparison at 50.000 lx environmental illumination (source: own editing)

CONCLUSIONS

Due to the development of manufacturing technologies, the size of CCD and CMOS image sensors have been decreasing in video surveillance cameras. Concurrently, there is a race of sorts between the manufacturers the produce cameras with ever-increasing resolution, and as statistic show, sales have moved in this direction as well.

The consequence of the decrease in format and increase in resolution is that pixel element size is shrinking. This results in unwanted outcomes that counteract against producing images that are rich in detail and have a large resolution. The resolution of cameras with 4K or more pixels shrunk to a format of 1/1.7" will have both bottom and top limits regarding lighting environment. In poor illumination the signal-noise ratio deteriorates, and with it the resolution. The efficiency of compression for a noisy image is worse, thereby the image requires a larger bandwidth at transmission and more space for storage. In case of outdoors application, when in summer the illumination can reach up to100.000 lx, the diffraction caused by the contracting compartment of the automatic iris lens will result in poorer resolution. In the two extremes, the deterioration in quality can be so bad that even a good Full HD camera could produce an image that has less noisy and more details.

The above analysis does not mean that 4K cameras with such a small format are useless. At stable and sufficient illumination (ranging from a few hundred to a few

thousand lux), it is recommended to trust the camera's auto shutter function to deal with brightness control, and use a manual aperture lens instead. The aperture should be at its maximum, although this may result in a decrease of depth of field. Under more extreme environmental lighting, the camera's auto shutter function will not be able to handle the huge light range. In this case, we should choose a lens where the aperture will not exceed F8, and use a supplementary light source in dusk. If worse comes to worst, we may also consider using several smaller resolution cameras.

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