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**Academic and Applied
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Rotary-Wing Forces**

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Vákát oldal

Serial Killers on the Other Side of the Bars: “Bestial Humans—Human Beasts”¹

Péter RUZSONYI²

Serial killers are present all over the globe. Their acts shock and—not surprisingly—anger the public. This study will—for the first time in Hungary—focus on serial killers convicted in Hungary by analyzing their crimes and their behavior during incarceration.

This paper has the as-yet unprecedented aim of providing a general picture about serial killers on the “other side” of the prison bars, and within the prisons themselves. Besides dealing with the life and activities of the serial killers before their incarceration on international level, it will also put forward a comprehensive picture about the origin and meaning of the term “serial killer”, all the while discussing the general attributes of those who belong to this category. The study will also provide an overview about the main ideas on making distinctions and conducting classification into different types and examines the issues that are related to female serial killers.

We will also analyze the actions of serial killers incarcerated within Hungarian prisons and evaluate their behaviour within the institution in order to predict their likely conduct using a completely novel risk assessment procedure.

Our study also has a second part in which we will address the peculiarities pertaining to the punishment of life without parole, especially as 67% of the currently incarcerated Hungarian serial killers have received this sanction for their deeds.

Keywords: serial killers, serial murderers, bestial humans

“Serial killers fail to think of other people as human.” [10]

Katherine Ramsland

Introduction

If we browse through the channel list of an average television capable of receiving signals from about 30–50 channels, it is very much likely that the Hungarian broadcasters’ repertoire will include at least ten movies dealing in some way with serial murders. The editors have every right to believe that such shows would have a positive increase on their view count. But what reasons lie behind the popularity of such stories? Would an increase in frequency also result in an increase of quality?

¹ The work was created in commission of the National University of Public Service under the priority project PACSDOP-2.1.2-CCHOP-15-2016-00001 entitled “Public Service Development Establishing Good Governance” in the Ludovika Workshop.

² Ph.D., Correctional Brigadier-General, University Professor, Pro-Dean, Head of Department of Corrections, Faculty of Law Enforcement, National University of Public Service; e-mail: ruzsonyi.peter@uni-nke.hu

People tend to have an affection towards grim and/or terrifying things, but they preferably experience these within the safe and secure premises of their homes, having their remote controller within reach. Should the scenes become unbearably gruesome, they can simply switch to another channel and avoid any unpleasant consequences. In our daily lives, of course, solving such a problem is a far more difficult undertaking. In the last 200 years, 650 serial killers had been focused on by the police in the United States. These criminals “are responsible for a minimum range of 3,500 homicides to a maximum of 5,650 homicides.” [1: 42]

The estimations on the number of serial murderers unleashed at any given time within the United States are varied. Hickey believes that currently 30–40 criminals are active [1] while Holms and Holms believe that this number is closer to 200. [2] According to the Federal Bureau of Investigation (hereinafter: FBI), the numbers are even more staggering: they claim “that at any given time between 200 and 500 serial killers are on the loose and that they kill 3,500 people a year”. [3: 6]

Despite these haunting numbers, basically no American citizen considers him/or herself as a potential victim and the whole notion seems unrealistically distant and terrifying for a regular person.

The attention of the media reaches unrealistic heights when they have a chance to open up a topic on serial murderers, thus they often contribute to the increasing fear among the citizens. “Breaking” news based on gossips and assumptions tend to make the work of the law enforcement authorities more difficult. Even after their capture, perpetrators keep staying on the front page of tabloid magazines until their incarceration when the public quickly loses its interest. The attention of both the media and the experts dissipates rather quickly.

This is the part where the tasks of the prison services begin. What can and what should be done with these criminals? Providing an answer to these questions is a difficult endeavour since when viewed from the perspective of penology, this field is barely more than a blank space. We simply lack the required theoretical and practical knowledge and experience, not only because of the scarcity of relevant and available academic literature, but also because of the fact that the number of serial murderers in Hungary is—luckily—relatively low. In our study we endeavour to expand the knowledge that may facilitate providing satisfying answers to the questions above.

The Meaning and Origin of the Term “Serial Murderer”

Despite the fact that the first homicides bearing some of the definitive marks of “serial murders” have only been classified as such around 1700–1800 (e.g. Jack the Ripper), it is almost absolutely certain that such offences had existed even before this period. The limited form documentation and the rudimentary investigations at that time meant that even if these perpetrators were detained for some reason, their previous crimes remained undiscovered. [4]

The author of the first academic publication on the topic was Dr. Richard von Krafft-Ebing, a German–Austrian physician and forensic medical expert, psychiatrist and sexologist. He analyzed violent and sexual offenders and the crimes they had committed. His discoveries were published in 1886 in his textbook *Psychopathia Sexualis*,³ in which he described several

³ Original title: *Psychopathia Sexualis: eine Klinisch-Forensische Studie*. 1886.

case studies related to sexual homicides, serial murders and other crimes having a sexual nature. [5]

The term “serial murderer” was coined by Hughes [6] in 1950 in his work entitled *The Complete Detective*. This was merely a literary term until 1976, when—during the investigation of the *Son of Sam* case—FBI special agent Robert Ressler suggested the introduction of the term into the professional terminology after a consultation with the Behavioral Science Unit of the FBI.

The most widely accepted definition of “serial murderer” was provided by Douglas et al., [7] who stated that: *those persons are considered serial murderers who commit at least three separate murders in separate locations, with an emotional cooling-off period between them*. This length of the cooling-off period may differ with each individual and can last for days, weeks, months or even years.⁴ [7]

The importance of emphasizing the different locations and separate dates stems from the fact that these are the factors that differentiate serial murderers from mass⁵ and spree murderers.⁶ [7]

Authors Canter and Wenting [8] and Salfati and Bateman [9] added one small, but important detail to the definition provided above. They expanded the list of factors previously given with the condition of “unlawful killing”, thereby excluding the lawful use of firearms and other weapons by law enforcement officers and its consequences.

Ramsland’s argument further clarifies the “classic” definition: he points out that some offenders “bring their victims to the same location at different times” and kill them there. [10: xi]

In our study we accept both amendments as valid conditions.

The General Characteristics of Serial Killers

General Approach

An average persons’s knowledge on serial murderers is shallow. According to Ramsland, “the public wants monsters to be obvious, and many popular culture productions reinforce that naïve hope that they’re largely on the fringes of society. But monsters do live among us—easily and with little detection, because the clever ones know how to adapt and to deflect suspicion.

Many people believe that serial killers are loners and losers, unable to maintain careers or relationships. They’re supposedly undereducated, narcissistic, and searching for short-term gratification.” [10: 177–178]

The dangers emanating from forming incorrect stereotypes are emphasized by Morton and Hilts as well. They argue that “the majority of serial killers are not reclusive, social misfits who live alone. They are not monsters and may not appear strange.” [11: 3]

⁴ Holmes and Holmes determined that the length of these periods is at least a month. We believe that the existence of such a limiting factor is not satisfyingly proven since the personality and as such the reactions and emotions of serial murderers differ in each individual.

⁵ Mass murderers kill more than three victims at the same location and time.

⁶ Spree murderers kill three or more people consecutively at three or more different locations.

Morton and Hilts believe that since determining every single factor that may exert an influence on the human behaviour is impossible, attempting to collect all the determinants that might cause a person to become a serial murderer would be a futile effort as well. Based on their experiences at FBI, the authors tried to collect key characteristics the existence (or lack) of which might tipify serial killers: [11: 11–12]

- Predisposition to serial killing, much like other violent offenses, is biological, social, and psychological in nature and it is not limited to any specific characteristic or trait.
- The development of a serial killer involves a combination of these factors which exist together in a rare confluence in certain individuals. They have the appropriate biological predisposition, molded by their psychological makeup, which is present at a critical time in their social development.
- There are no specific combinations of traits or characteristics shown to differentiate serial killers from other violent offenders.
- There is no generic template for a serial killer.
- Serial killers are driven by their own unique motives or reasons.
- Serial killers are not limited to any specific demographic group, such as their sex, age, race, or religion.
- The majority of serial killers who are sexually motivated erotized violence during development. For them, violence and sexual gratification are inexplicably intertwined in their psyche.
- Both the serial murders and the perpetrators themselves have enjoyed widespread attention in the last 200 years. Since satisfying answers to the questios of the general population were unavailable, they were substituted by myths and preconceptions. Based on the determinants provided by Hickey, we compare these myths with scientifically proven facts.

Table 1. *Myths versus Facts*. [1: 5–6]

Myth	Fact
They are nearly all white.	One in five serial killers is black.
They are all male.	Nearly 17% are female.
They are insane.	Insanity is a legal term. Very few offenders (2%–4%) are legally insane.
They are all lust killers.	Many are, but several cases do not involve sexual assaults, torture, or sexual mutilations.
They kill dozens of victims.	A few have high body counts but most kill under 10 victims.
They kill alone.	About one in four have one or more partners in murder.
Victims are beaten, stabbed, strangled or tortured to death.	Some victims are poisoned or shot.
They are all very intelligent.	Most of them are of average intelligence.

Myth	Fact
They have high mobility in the United States.	Most offenders remain in a local area.
They are driven to kill because they were sexually abused as children.	Many kill as a result of rejection and abandonment in childhood.
Most serial murderers cannot stop killing.	Some serial killers stopped killing for several years before they killed again or until they were caught.
Most serial killers want to be caught.	Like anyone, they learn and gain confidence from experience. Many want-to-be serial killers end up in prison after their first murder. Some become very adept at concealing their identities and may feel as if they will never be caught.

Serial Killers and Psychopathy—Terminological Overlaps and Attempts at Providing Definite Answers

In professional literature, the term “sociopath” is often used as a synonym for the terms “psychopathy” or “antisocial personality disorder”. The term “psychopath” was originally used by psychiatrists and psychologists to define a series of symptoms including impulsivity, recklessness and disregard for other people. During the 1950s, psychiatrists suggested using the term “sociopath” for persons suffering from psychopathological disorders thereby making a difference from the incomparably more severe psychotic disorders. Towards the end of the 1960s, psychiatrists initiated another terminological change by proposing the use of the term “antisocial personality disorder” (APD) instead of the words “sociopath” or “psychopath”. Many experts currently working on the field of psychopathology disagree with this suggestion since they believe that there are significant diagnostical differences among these terms. In our case, however, these differences are not that important since when focusing on the topic of serial killers, the basic characteristics that are relevant to the majority of the offenders are similar in each of the professional terms above. [12] We will use and interpret them as synonyms to each other.

In the year 2005, the FBI hosted a multi-disciplinary symposium with the participation of the field’s 135 most accomplished professionals. Their aim was to determine and collect the similarities that can be found in the personalities of serial murderers. In their written conclusion, the participants emphasized that “understanding psychopathy becomes particularly critical to law enforcement during a serial murder investigation and upon the arrest of a psychopathic serial killer. The crime scene behavior of psychopaths is likely to be distinct from other offenders. This distinct behavior can assist law enforcement in linking serial cases.” [11: 15]

Morton and Hiltz also analyzed the connection between serial murderers and psychopaths. Based on his discoveries he argues that not all psychopaths necessarily become serial murderers, but rather it is the serial killers themselves who possess some or more traits which are usually found within psychopaths. Those psychopaths who perform a series of murders

consider human lives worthless and show severe indifference toward their victims. This tendency is particularly true in the case of those whose intent to kill is derived from sexual motives and who are able to locate, follow, attack, rape and murder new victims without the slightest trace of remorse. Morton and Hilts conclude with an important statement: “psychopathy alone does not explain the motivations of a serial killer.” [11: 14]

The Differences Between Serial and Mass Murderers

Although the main topic of this paper is serial murder, we also intend to provide a brief outlook on mass murderers as this effort will help us point out the difference within these categories.

This chart depicts the significant differences between the two types of offenders.

Table 2. *The significant differences between the two types of offenders.* [1: 27]

	Mass murderer	Serial murderer
Murder is a means of control over life	√	√
Usually arrested or killed at crime scene	√	
Often commits suicide after the crime	√	
Eludes arrest and detection		√
Likely to travel and seek out victims		√
Evokes long-term media/public attention		√
Kills individuals		√
Kills several in short period of time	√	
Murders viewed as single incident	√	
Murderer is usually white male	√	√
Motivated primarily by material gain or revenge	√	
Victims usually female		√
Firearms are the common choice of weapon	√	
Kills in spontaneous rage	√	

It is apparent that with regards to the offense, there are strong differences between the behaviour of mass murderers and serial murderers. The most significant distinction between them is that mass murderers most often commit a single, large-scale offense with victims who are unknown to them. They are indifferent to the consequences of their actions and have no intention to escape from the premises. As a matter of fact, many of them commit suicide on the spot. Contrary to mass murderers, serial killers murder specific, carefully picked individuals after which a psychological “cooldown” phase begins. They spare no effort in avoiding exposure and arrest.

Apparently, the differences between the offences committed by mass murderers and serial killers are significant. On the other hand, by analyzing the motives behind the subjects of the two categories, a certain sort of connection can be discovered. Fox and Levin agree with this

assumption by stating that the “typologies of serial and mass murder often have a troubling but unavoidable degree of overlap among their categories.” [13: 442]

Attempts at Typifying Serial Killers

The typification of serial murderers is based on one of three fundamental systems. (1) Some authors perform it according to a method based on certain factors such as the offenders’ behavior during the time of the offense, the conditions of the perpetration and the general characteristics of the vicinity. Another group (2) creates classes based on the perpetrators’ leading motives while other professionals (3) combine the two principles of systemization.

Sorting Based on the Location and Conditions of the Offense

Branson’s attempt is based on certain factors pertaining to the life and behaviour of the perpetrators, both during and after the committing the offence. Based on his findings, he created the categories of “organized” and “disorganized” offenders.

Table 3. *The categories of “organized” and “disorganized” offenders.* [4: 34]

Disorganized, asocial offenders	Organized, nonsocial offenders
– IQ below average: 80–95 range	– IQ above average: 105–120 ⁷ range
– socially inadequate	– socially adequate
– lives alone, usually does not date	– lives with a partner or dates frequently
– absent or unstable father	– stable father figure
– family emotional abuse, inconsistent	– family physical abuse, harsh
– lives and/or works near the crime scene	– geographically/occupationally mobile
– minimal interest in news media	– follows the news media
– usually a high school dropout	– may be college educated
– poor hygiene/housekeeping skills	– good hygiene/housekeeping skills
– keeps a secret hiding place in the home	– does not usually keep a hiding place
– nocturnal (nighttime) habits	– diurnal (daytime) habits
– drives a clunky car or pickup truck	– drives a flashy car
– needs to return to crime scene for reliving memories	– needs to return to crime scene to see what police have done
– may contact victim’s family to play games	– usually contacts police to play games
– no interest in police work	– a police groupie or wannabee
– experiments with self-help programs	– doesn’t experiment with self-help

⁷ The IQ of the “organized” serial killers may at times be extraordinarily high. Such example was Ted Bundy (IQ of 124) who killed more than 30 young women and Gary Heidnik (IQ of 130–148) who had six female victims. [14]

Disorganized, asocial offenders	Organized, nonsocial offenders
– kills at one site, considers mission over	– kills at one site, disposes at another
– usually leaves body intact	– may dismember body
– attacks in a “blitz” pattern	– attacks using seduction into restraints
– depersonalizes victim to a thing or it	– keeps personal, holds a conversation
– leaves a chaotic crime scene	– leaves a controlled crime scene
– leaves physical evidence	– leaves little physical evidence
– responds best to counseling interview	– responds best to direct interview

Canter et al. warns that humans rarely fit into any pre-determined offender categories: “the concept of Organized and Disorganized offenders is not a genuine psychologically based distinction but, rather, is a commonsensical, day-to-day speculation about differences between people.” [15: 310]

Douglas et al. were not satisfied either with having only two categories, so they introduced a “mixed” one, the members of which may possess traits from each of the categories above. This system—just like the previous ones—does not take the motives of the perpetrators into account. Based on further analyses of the offenders’ personal traits and crime scene characteristics the group of experts implemented another change: a perpetrator can be organized, disorganized, mixed or sadistic. [7]

Typification Based on the Offenders’ Motives

The motive-based classification of serial killers was first performed in 1988 by R. M. Holmes and DeBurger and was later fine-tuned by R. M and S. T. Holmes (this is the version that eventually gained widespread recognition). Based on their findings they classified the perpetrators into four categories:

1. *Visionary Type*: these murderers kill as a result of command hallucinations, delusions, or visions whose sources customarily include the forces of good or evil. These offenders are typically psychotic, leaving the crime scene in utter disarray. The homicides occur quickly with no extensive acts of torture.
2. *Mission-Oriented Type*: the goal for these slayers is to kill certain types of people or to rid society of particular types of individuals. These serial murderers target victims based on their ethnicity, occupation (e.g. prostitutes) and/or age. Additionally, they determine whom to assail based on whether the person is deemed unworthy, undesirable or somehow less than human.
3. *Hedonistic Type*: these offenders murder as a result of sensation seeking or otherwise derive some sort of pleasure from their killings. The authors divided this type of assailant into two subcategories: the lust killer and the thrill killer.

4. The lust killer murders principally for sexual gratification even if this does not entail traditional intercourse. However, sex or multiple sadistically erotic acts with a live victim are common. Orgasm or sexually arousing behavior (i.e. masturbation) is the driving force for this offender, even after the person has killed the victim. Moreover, this attacker may also be sexually excited and/or satisfied from the murder itself. Ritualistic displays of sexual mutilation, facial disfigurement, cannibalism, body dismemberment, vampirism and necrophilia are routinely featured in this type of homicidal act. The thrill killer murders for the visceral excitement the assailant experiences. However, once the victim is dead, the offender loses complete interest. As a result, the process of killing is prolonged as long as possible through extended acts of torture. The use of restraints and the presence of bite marks and burns on the victim’s body are characteristic behaviors for this type of slayer. Sadistic acts whose frequency is prolonged as long as possible prior to death, a concealed corpse, manual or ligature strangulation and an animated victim during multiple sexual acts all characterize the patterns and motives of this type of assailant.

5. *Power/Control Oriented Type*: these offenders harbor deep-seated feelings of inadequacy or attempt to compensate for a perceived lack of social or personal mastery over themselves by thoroughly dominating their victims. The primary motive for these offenders is not sexual in nature. Instead, these assailants desire complete and unfettered control over and subjugation of their powerless victims, including also the postmortem period. A profound sense of omnipotence—having the ultimate power of life or death over one’s victims as they cower and plead for their lives—fuels this type of serial killer. The act of murder is extended in order to increase the felt sense of gratification. [17] [2] [18]

The categories created by Holmes and Holmes have been considered essential ever since, despite the fact that the system had become the subject of constant criticism from those who wished to create a new form of typology. Among these, the study of Canter and Wentink enjoys paramount importance. They analysed the reliability of the Holmes and Holmes system and addressed the following criticism in their conclusion: [8: 7–8]

- reliability and validity of data collection;
- lack of empirical testing of the model;
- definitional issues;
- overlap of criteria between types;
- the question of mixed types.

The authors suggested the use of a new type of classification which—based on the motives behind the murders—enables the classification of perpetrators into one of the following sub-categories:

1. *Visionary*: Suffering from a break with reality, the visionary serial killer murders because he has seen visions or heard voices from demons, angels, the devil or God telling him to kill a particular individual or particular types of people. His quick, act-focused killings are seen as a job to be done.
2. *Mission*: The mission killer is focused on the act of murder itself. He is compelled to murder in order to rid the world of a group of people he has judged to be unworthy or undesirable.

Hedonistic: This type of sexual killer is subdivided into the following two groups:

1. *Lust*: The lust killer kills for sexual gratification; sex is the focal point of the murder, even after he has killed the victim. This type of murderer derives pleasure from the process of the murderous event. Various acts such as cannibalism, necrophilia and dismemberment are prevalent in this type of murder.
2. *Thrill*: The thrill killer murders for the pleasure and excitement of killing. Once the victim is dead, this murderer loses interest. This type of killing often involves a long process involving extended acts of torture.
3. *Power/Control*: This killer derives pleasure and gratification from having control over the victim, and considered to be a “master” at what he does. His motives are driven by the need for power and dominance over another human being. The longer he can extend the process of murder, the greater his gratification. [8]

Douglas et al. also conducted an in-depth study of the motives behind the serial murderers’ offences. They determined four fundamental motives: manipulation, domination, control and sexual lust. [7]

In this decade, professionals have been experimenting with more nuanced types that analyze previous ideas. Criminal psychologist Robert J. Homant and criminologist Daniel B. Kennedy studied multiple professionals’ suggestions at typification. Focusing mostly on the motivations of sadistic, sexually-driven serial murderers established the following three types of offenders: [19]

1. “*Trauma Control Model*”, based on the work of Eric Hickey: an occurrence of a greatly traumatizing experience during childhood or infancy of the perpetrator which induced a vulnerability or psychological disposition to hot-tempered, impetuous, confused and mistrustful reactions. These people usually blame various external factors and consider them the reasons behind their deeds. They react aggressively to outside stimuli as a way of attempting to restore their disoriented inner balance or self esteem.
2. “*Motivational Model*”, based on the work of John Douglas, Ann Burgess, Allen Burgess and Robert Ressler: the serial murderer is “created” as a result of the five following factors: ineffective/incapable social environment, childhood crises, escape into a fantasy world, interpersonal failures and various negative attributes, characteristics and behavioural manifestations that from their point of view validate and rationalize dominance and certain restraints.
3. “*Lust Murder as Paraphilia*”, based on the work of C. E. Purcell and Bruce Arrigo: this behaviour is the result of a disease, the wrongly functioning neural pathways causes the body to mingle sex-related and aggression-related impulses. [16]

The result of the latest (2006) typification created by the FBI is a new motivational system containing the following seven categories for serial murder: [11: 18]

1. *Driven by anger*: feels passionate anger or hate against a given subgroup of society or society as a whole.
2. *Crime as a form of enterprise*: the offender gains some sort of advantage from the murder (be it financial or else). These crimes are most frequently drug-related or have a connection to organized crime and crime gangs.

3. *Financial gain*: the offender obtains money or some sort of monetary compensation as a result from the murders. Typical examples would be the "black widow" type murders, murders committed during robberies or murders that are related to certain (insurance, social security) frauds.
4. *Ideological murder*: the offender commits murders in order to serve a group's (or his/her own) peculiar notions and goals. Typical examples to this category are the terrorists or other people who target a certain racial, ethnic group or a gender.
5. *Domination, arousal*: the perpetrator enjoys his/her leverage over the victims and/or becomes aroused by murder.
6. *Psychosis*: the perpetrators suffer from a severe mental disorder which is the main reason behind the murders. Symptoms may include the hearing of distorted voices and/or visual hallucinations and paranoid, spectacular or bizarre visions.
7. *Sexual nature*: the main motives are the sexual needs/perversions of the murderers.

Typification Taking into Account Conditions and the Offenders' Motivation

The principal aim of typification is to facilitate criminal investigations and thus contribute to the (quick) arrest of serial murderers. This endeavour requires a systemic compilation of the offenders' motives and the characteristics of the offense. As a result of this undertaking, the FBI created a new type of classification which recognizes the following three groups: [20]

1. *Medical Killer*: highly intelligent people working in the field of healthcare or pharmaceuticals and who know how to kill without being noticed for a longer timespan.
2. *Organized Killers*: they are also highly intelligent and plan their actions in detail while taking every precaution in order not to leave any traces behind. They are often psychopaths who follow and observe their victims for days. They can easily establish new acquaintances and often have a charming, good-natured behaviour. They either hide the victim's body or place it in a visible location so that it would be found easily. They usually establish contact with the investigating authorities and try to follow the investigation from as close as possible.
3. *Disorganized Killers*: they usually kill without planning and chose their victims spontaneously. They do not try to hide either the bodies or their tracks. They are usually unintelligent and highly antisocial. They move frequently and have no families, friends, or anyone else they might stay in closer contact with. The main reasons behind the murders are frequently "voices from above", "whispers" and other delusions.
4. The various methods of typifications and the knowledge systematized within them contribute to the expansion of the information at the authorities' disposal and thus earn a more detailed and complex image of serial killers. These structures significantly improve profiling and facilitate the capture of offenders. During his work, Ramsland had analyzed the cases of more than a thousand serial killers. He concluded that "there are many motives that drive these offenders, they come from diverse backgrounds, and for almost every claim that has been made about them there are exceptions that weaken or undermine it." [10: x]

Russell takes a largely similar approach. He notes that in the past decades a vast number of experts had been trying to oversimplify the psychology of these murderers. However,

whenever these authors tried to create a “genuine” system, there was always somebody who found counter-examples which undermined the original efforts. [21]

In our opinion, no typification attempt is futile since they still expand the knowledge of the authorities and also helps them in achieving new points of view.

Female Serial Killers

Experts calculate that female serial killers take up 10–15% of the global population. [22: 179]

Offences where the perpetrator is a woman occur everywhere in the world. Based on regional allocation, Scott provides an analysis of the female serial killers who were active between 1600–2003.

Table 4. *The female serial killers who were active between 1600–2003.* [19: 183]

Country	Offenders
United States	52
Canada and Mexico	4
England	11
Europe (except England)	25
Russia	1
Australia, New Zealand	4
Africa	1
Multiple countries	3
Unknown	1
Total	102

When analyzing the chart we have to keep in mind that there are many countries—for example China, Japan, North Korea, Russia (especially the former Soviet Union)—which refused to allow any investigations conducted by other countries or human rights organizations. It is likely that—due to various political reasons—these countries kept the cases involving serial murder a secret. There are several regions where no data collections have been initiated until the recent period.

A Historical Outlook

Hungarian criminology contains several serial murder cases where the perpetrator was a woman.

1. Erzsébet Báthory, the Bloody Countess

The first “documented” case had taken place during the very beginning of the 17th century and is linked to countess Erzsébet Báthory (1570–1614). Lore has it that during searching for the secret of youth, the vain lady did not refrain from sacrificing young virgins. She flogged,

mutilated and tortured the girls she had had collected and then hanged them upside down in order to obtain their blood. According to the charges brought up against her, she was responsible for the death of more than 600 victims. She was accused with “keeping several young girls and virgins and other women within her quarters before ruthlessly killing or executing them using all sorts of instruments”. Based on this indictment, Erzsébet Báthory had been—without a trial and a verdict—put into solitary confinement in a bricked up room within the castle of Csejte. She died soon after, at the age of 54.

We have to note that we do not consider the documentation of the Báthory case credible. The internal political situation during that era was extremely unstable, therefore it is likely that the trial itself was mostly the consequence of the Habsburgs’ scheming who wanted to get a hold of the Báthory–Nádasdy wealth. Contemporary documents prove that most of the questions during the investigations were aimed at certain isolated events and that most of the answers had been extorted through means of torture. László Nagy argues that the basis for the well-known story originates from a jesuit priest’s note drafted more than a hundred years after Báthory’s death. Taking into account the facts listed above, the credibility of the story above is strongly debatable. [23] Klára Szabó emphasizes that current investigations do not necessarily support the suspected criminality of Báthory. Even if they accept the fact that she used to treat her subordinates cruelly, they do so by acknowledging the fact that back then this manner of treatment was a generally accepted—albeit vicious—form of punishment. [24]

2. *Zsuzsanna Fazekas, née Zsuzsanna Oláh, the murderous midwife*

Despite the fact that from a chronological aspect this case is the second one, it can well be considered the first that has completely been uncovered and proven. The murders were committed during the first third of the 20th century by several women living in the village of Tiszazug. An investigation began in 1929 against multiple midwives who had poisoned their husbands using arsenic retrieved from flypapers. The poison was brewed and circulated by one of the midwives, Zsuzsanna Fazekas, née Zsuzsanna Oláh. [25] [26] A significant number of homicides were discovered during the investigation: only in the cemeteries of Nagyrév and Tiszakürt, the corpses of 162 adults males had been exhumed—all of them likely victims. During the trial, 28 suspects (out of which 26 were women) stood before the judges and proven guilty for 162 cases of voluntary homicide. [27] Mrs Fazekas committed suicide after the verdict, three others were executed, 10 received life in prison while the rest received determinate sentences ranging from 5–10 years. The real scope of the case is unknown to us even today due to the fact that no exhumations were conducted within the region of Tiszazug as the authorities tried to close the case as quickly as possible. Even without exact data, it is likely that the women of Tiszazug are responsible for the deaths of hundreds of men.

3. *Viktória Fődi*

Viktória Fődi (1886–1940) lived in Átokháza, the region between Mórahalom and the plains close to the Serbian border. She had changed her appearance as early as the 1910s, donning male clothes and leaving her old husband. She took on day jobs where her newly found attire

helped her earn more wages, especially during the years of World War I when most of the men had been drafted into the military.

Her renown increased in 1919, after her first murder and she had become known as the enforcer of the plains of whom the men harassing their wives had every right to be afraid. The robustly built woman living as a man killed for money. She was only convicted for two murders, but according to the legends, she was responsible for the deaths of at least 30 men.

The homicides were executed in a similar manner and were masked as suicides: the victims seemingly hanged themselves on the upper supporting wooden bars of the stables. What truly happened was that Viktória Fődi had whipped the horses in order to lure the farmers out and have them check what happened, after which she threw the loop of the rope (which was thrown over the girder) around the neck of the victim, pulled him up and killed him, masking the murder as a suicide.

Local lore has a lot more homicides than the official records and most of these are known as “rightful vengeance”. It is believed that she had given up her muliebrity in order to protect local women. Viktória Fődi had been living as a man until and even after her condemnation. She kept smoking a pipe, wore pants and visited bars—these attributes were indispensable for men back then. Her true gender was discovered later in prison—to the surprise of her fellow inmates. She had been sentenced to death but the verdict was later overruled by Regent Miklós Horthy to life. She died in prison in Budapest in 1940. [28] [29] [30] [31]

4. *Ágnes Pándi*

Ágnes Pándi was born as a Belgian citizen, after her parents had moved from Hungary to Belgium. She had been subjected to multiple atrocities during her childhood: her father raped her while still young and kept forcing himself on her. Nobody assumed that between 1986 and 1989 the Brussels house of the seemingly decent family (with the father being a Hungarian–Belgian dual citizen and pastor) would serve as a location for one of the most terrifying series of homicides in Belgian and Hungarian criminal history.

Under her father’s influence and command, she shot her step-sister, her mother (who was living separately) and then later killed her other step-sister. She was also an accomplice to the murder of two other members of her family. She had been sentenced to 21 years in prison and was released in 2010. She currently lives in a convent. (Her father, András Pándi had been sentenced to life in prison in 2002 for the murder of six family members. Together with his daughter, he killed two ex-wives and four children. He died in prison at the age of 86.)

The Typology of Female Serial Murderers

The Hungarian Prison Service currently does not house any female serial murderers. Despite this fact—in order to obtain a more detailed insight—we consider it necessary to briefly address the motives behind the offences committed by them.

The typification of female serial murderers was first conducted by Michael D. Kelleher and C. L. Kelleher in 1998. They classified single serial murderers into the following five categories: [32]

1. *black widow*: her victims are spouses, partners, relatives;
2. *angel of death*: who kills elderly people under her care (usually in a healthcare facility), mostly because of mercy and/or pity;
3. *sexual predator*: whose motives behind the murder are sexual;
4. *revenge*: kills out of hate or jealousy;
5. *killer for profit*: murders for financial gain and/or as a collateral offence while committing another crime.
6. Silvio et al. performed an in-depth study of the attributes related to female serial killers based on which they classified the offenders into the following categories: (1) black widow; (2) angel of death; (3) vengeful murderer; (4) killers for profit; (5) team killers; (6) sexual predator. [33]

Table 5. *The chief characteristics of the six categories.* [33: 102]

	Black Widow	Angel of Death	Revenge Killer	Profit or Crime	Team Killer	Sexual Predator
Starting Age	> 25	21	Early twenties	25–30	20–25	Mid-thirties
Cycle	> 10 yrs	1–2 yrs	< 2 yrs	10 yrs	1–2 yrs	> 1 yr
Average of Victims	6–8	8	3–4	10	9–15	6–7
Victim Type	Family members	Patients in hospitals	Family members	People with money	Varies	Varies
Preferred Weapon	Poison	Lethal injection	Poison	Poison	Multiple methods	Violent methods
Sexual in Nature	No	No	No	No	Yes or No	Yes

Each of these systems contains a subgroup called “angel of death”. Lubaszka, Shon and Hinch argue that classifying every healthcare worker into the “angel of death” or “doctor death” subgroups is a doubtful practice, since the group itself is extremely complex and thus using a common category would oversimplify it and hide some significant differences. It is likely that we would not be able to discover their method of selection and their practice of “working” without anybody noticing. [34] By analyzing the relevant academic literature, Lubaszka came to the conclusion that serial murderers working in the field of healthcare differ significantly from “regular” serial murderers. They have different methods of choosing their victims, different behaviour on the crime scene and resort to different practices in order to avoid detection. [35]

We have to accept the fact that as far as the state of current scientific inquiries go, a flawless classification system does not exist yet. The critical statement of Ferguson et. al. provides an adequate depiction of the situation: “Unfortunately, no one definition of serial murder will achieve the ability to identify and distinguish serial murderers without error. It is unlikely that all offenders will so easily conform their behavior to match established categories”. [36: 292]

What are our options then? We believe that there is no need to become desperate since imperfections in our knowledge does not mean a complete lack of understanding. Experts are already very well aware of several attributes relevant to serial murderers and their knowledge is continuously expanding, providing them with new aspects and methods through which an even more detailed picture can be obtained. Finding the reasons behind the serial murders, discovering ways to avoid it and capturing the perpetrators as soon as possible is in everyone’s best interests.

We believe that the issue of serial murders is one of the most vivid examples of dynamic systems. Due to newly gained practice and experience, previously unknown connections have been discovered. There are many disciplines that can facilitate the creation of a typification system which is “currently the best” and contribute to the continuous expansion of professional knowledge.

Prison and incarceration affairs is a field that can benefit from the newest knowledge on serial murderers since new and more effective methods can be created and introduced to this subgroup of prisoners. The field can also contribute to this special effort by collecting the experience gained during executing the incarceration of sentenced serial murderers.

Serial Killers in Hungarian Correctional Institutions

Registry Anomalies

At the very beginning of our research, we seemed to be facing a fundamental difficulty: no one was able to determine the number of serial killers who were detained in Hungarian prisons at the given time. Despite the fact that we based our inquiry on an internationally accepted definition, our experience was that hands-on available information on the topic was nowhere to be found. Another issue was that the prison registry system used in Hungary derives its basic principles from the categories provided by Act C of 2012 (hereinafter: Criminal Code), which does not recognize serial killers as legally separate entities. Taking into account all these factors, our sole option was to gradually narrow our list in order to proceed with our inquiry.⁸

The total number of detainees on our chosen day (12 January 2016) was 17,388. Out of recognition to the principles dictated by the concept of the presumption of innocence, we excluded those who were on remand. (On the given date, there was one remand prisoner charged with an offence that agrees with what is provided under the definition of serial murder. This person will not be mentioned in this study by any means and his/her attributes and characteristics will not be included either.) For the rest of our inquiry we focused on the remaining 13,171 convicts, 235 detainees and 162 other inmates subjected to court-ordered psychiatric treatment (hereinafter: psychiatric treatment). The next step was to filter out those who had committed an offence falling under the umbrella term of homicide.⁹ We determined

⁸ Determining the precise number of serial killers and obtaining all the relevant documents for further analysis would have been impossible without the immense help of the following departments of the Hungarian Prison Service Headquarters: the Incarceration Affairs Service, the Central Department of Transfer and Registry and all the governors and staff of the relevant correctional institutions. We are grateful for their devoted and valuable assistance!

⁹ In this paper, the following offences fall under the term of homicide: murder, attempted murder, voluntary manslaughter, murder of a newborn, abortion, aiding and abetting suicide.

that on the said date there were 1,240 prisoners and a further 62 people subjected to psychiatric treatment who had committed such an offence before their incarceration.

From this already narrowed roster, we selected those who caused the death of more than one person (according to the provisions of Chapter XV, Section 160 of the Criminal Code). After we had narrowed the scope of the likely candidates, we managed to lower the number of subjects to 137 convicts housed in 21 different institutions located in Hungary. This was the last part of our research where we could turn to the Central System of Registry for assistance. For the rest of our inquiry, our primary method was to process the appropriate registry documentation of each relevant prison manually in order to obtain the exact number of serial killers determined as such by the definition of serial murder.

After the provided data had been processed, we determined that on 12 January 2016, 16 serial killers were housed in Hungarian prisons, out of which 15 (№1–№15¹⁰) were convicted, and 1 (№16) subjected to psychiatric treatment. As a rule, we were only focusing on the data relevant to the 15 convicted prisoners during our research. Exceptions were made on four separate occasions: (1) we included №16’s attributes during the analysis of the motives behind the serial killers’ offences and the resulting classification; (2) we also included them in the analysis of attempted suicides; (3) during the illustration of the frequency of life sentences made without the possibility of parole (hereinafter: life without parole), and finally (4) we added the relevant data of another prisoner (№17) during calculating the frequency of acts of self-harm. As this person committed suicide in 2015, the relevant data is not included in this study. Despite—and partly because of—this fact, using his data was justified and important for providing adequate answers to three of the questions above.

Characteristics of Hungarian Serial Killers

Classification based on *placement* and *sentence length*. Currently, six Hungarian correctional institutions serve as the serial killers’ place of detention.

Table 6. *Hungarian correctional institutions which serve as the serial killers’ place of detention.*

[Edited by the author.]

Name of prison	Number
Budapest Strict and Medium Regime Prison: №6, №8, №11, №12, №13, №14, №15	7
Márianosztra Strict and Medium Regime Prison: №10	1
Sátoraljaújhely Strict and Medium Regime Prison: №9	1
Szeged Strict and Medium Regime Prison: №1, №3, №4, №5, №7	5
Tiszalök National Prison: №2	1
Forensic Psychiatric and Mental Institution №16	1
Total	16

¹⁰ In this paper the names of the serial killers serving their sentences in Hungarian correctional institutions will not be provided. Instead, we assigned a specific number to each of them, which serves two purposes: (1) we acknowledge the personal rights of each prisoner (2) by using these numbers consistently we ensure that the data provided below will be easily linked to a “virtual person”, thereby providing adequate source material for possible future inquiries.

Table 7. *Composition of prisoners based on sentence length.*
[Edited by the author.]

Length of sentence	Number
Life without parole: №4, №5, №7, №8, №9, №11, №12, №13, №14, №15	10
Life with parole:	–
Determinate (years) prison sentence: №1, №2, №3, №6, №10, №16	6
Total	16

The Motive Behind the Offences

Typification was conducted based on relevant registry data and available information and was performed according to a special system of classification widely used by the FBI. [11: 18]

Table 8. *The Motive Behind the Offences.*
[Edited by the author.]

Motive	Number
Anger—Passionate fury or hatred against a subgroup or society as a whole: –	0
Criminality as a form of enterprise: №2	1
Financial gain: №1, №3, №5, №10, №11, №12, №13, №14, №15	9
Murder based on ideology—targets are the members of a specific race, gender or ethnicity: №7, №8, №9	3
Lust for domination and/or arousal: the perpetrator enjoys the leverage gained over the victim and/or becomes aroused by killing: №6	1
Psychosis—the perpetrator suffers from a serious mental disorder which serves as the principal factor and reason behind committing the murders: №16	1
Sexual nature: №4	1
Total	16¹¹

The frequency of main motives leading up to the offence in Hungary differs significantly from the internal proportions provided by international research. While serial murders of sexual nature represent the largest proportion on an international scale, in Hungary they were a driving factor only in the case of one person. In Hungary, the most decisive and frequent motive behind the offences is financial gain (subgroups 2 and 3; total of 10 persons, amounting to 62.5%).

Hereinafter, our detailed analysis will be limited to the scope of convicted prisoners only. We decided so because the offence committed by the person sentenced to psychiatric treatment

¹¹ In this case, the motives of all 16 perpetrators have been categorized meaning that the data of person who had been sentenced to court-ordered psychological treatment to be carried out in the Forensic Psychiatric and Mental Institution will also be taken into account.

ment (to be performed in the Forensic Psychiatric and Mental Institution) does not completely agree with the criteria of serial murder. Although the profile of the offence meets two conditions (four victims, murders committed separately with delays between them), the time between the murders was exceptionally (three consecutive days) low. Despite the claim of Douglas et al. [7] who state that the length of the “cooling off” period can vary greatly with each individual, the daily murders led us to the conclusion that this period had not occurred at all. The person in question suffers from a grave mental disorder—his/her deeds were dictated by visions and inner voices—which in turn led him/her to eradicate his/her entire family after he/she had “merged” with the demon. In our opinion, the most adequate procedure was to include this person’s data during the motive-based classification (since there is a separate category dedicated to perpetrators suffering from some sort of mental disorder), but exclude it from the remaining part of the inquiry.

Characteristics of the Serial Murderers’ Prison Socialization

In our opinion, serial murder is the most radical form of violent offence and serial killers are the most vivid benchmarks of the negative attributes that are usually associated with murderers. Our formal-logical conclusion therefore is the following: if we can achieve any sort—noting even the smallest increment—of improvement in the personality of these convicts, then there will be even more hope for success for the rest of the prisoners.

The serial killers’ successful reintegration into society—with the exception of a very small number of cases—cannot be a viable goal. As most of them will never have the option to return to society as a free person, the principal and exclusive aim will be to ensure their successful adaptation to the prison environment.

Staying in Contact—Link to the External World

According to Ágnes Solt, three-quarters of prisoners had had a relationship that later ceased to exist. The most important reasons for the loss of friends, distant relatives and acquaintances were the physical distance and time. These two attributes slowly erode such relationships as those within them may begin to think that such a limited form of contact is not worth maintaining. On the other hand, in the case of closer relatives and immediate families, it is not these factors that cause these relations to wither but arguments, debates, divorces and deaths take their place. After analyzing the reasons behind the disappearance of contacts, we can conclude that those sentenced to life without parole belong to a strikingly different category. In their case, futility and the feeling of pointlessness are the chief factors that play a role in breaking bonds. The author in her research emphasizes the tendency according to which “the mental state of the prisoners gradually deteriorates due to the conditions experienced by them. Their disillusion, hopelessness and desperation gradually increase as decades pass.” [37: 92] This process is even more apparent in the case of convicts sentenced to longer periods “who, over time become introverted and mistrustful while their self-esteem deteriorates”. Their social activity fades as they drift into the routine-like schedule of each day. Their external relations gradually erode and finally terminate, causing them immense suffering and pain. [37: 98]

Collecting the specific reasons that played a role in the deterioration of the serial killers’ relationships (family and friends) was beyond our powers. However, we are able to provide a brief “snapshot” of the situation experienced on the given date.

Table 9. *The serial killers’ relationships.* [Edited by the author.]

Regular/stable/organized relationships	Irregular/unstable/disorganized relationships
No2; No3; No7; No8; No10; No11; No12	No1; No4; No5; No6; No9; No13; No14; No15

As a rule, we can ascertain that the relationship of seven (four among them sentenced to life without parole) convicts was stable, while the remaining ones (eight persons out of which six having a life without parole sentence) were irregular. Apparently, 75% of those sentenced to life have disorganized relationships, making it even more obvious that in their cases, social relationships tend to loosen up as friends and families slowly give up on these convicts.

Table 10. *Regular and irregular relationships in the context of spent years.*
[Edited by the author.]

Passed years	Regular	Irregular
0–5		No14; No15
6–10	No7; No8; No10; No11; No12	No9
11–15		No1; No4; No5
16 +	No2; No3	No6; No13

The identified correspondences differ in many aspects from the expectations set by academic literature.

1. In the analyzed sample, two convicts had been admitted in the timespan of five years. Despite the relatively short length of the time that passed, their relationships are irregular and unstable, although the principal reason behind this phenomenon may well be the fact that they are foreign citizens having no relatives living in Hungary.
2. 86% of those convicts who had been in prison for 6 to 10 years have regular relations. This is way beyond previous expectations.
3. As far as maintaining contacts is concerned, the “milestone” of relationships for serial killers in Hungary seems to be 10 years of incarceration. The links of those who had spent more than 10 years within became unstable and irregular. This tendency agrees with the expected outcome put forth by academic literature.
4. No2 and No3, who had been in prison for 21 and 18 years respectively, set a completely different pattern by being able to maintain stable and regular relations. There is a great chance that this unprecedented example is because each of them has been convicted for multiple offences, and as such their chances to be released in the future are significant.

Adaptation Difficulties, Rejection of the Situation: Intentional Self-harm, Attempted Suicide, Completed Suicide

The indicators put forward by international research seem to agree regarding suicidality. They boast statistical evidence to prove that the number of suicides committed by convicts sentenced to longer periods increases as time passes. [38] In addition, a number of authors emphasize that those who have been sentenced to life are even more threatened. [39] [40]

While analyzing the changes in suicide attempts admitted by the prisoners, Ágnes Solt has come to a similar conclusion. She claims that “the number of prisoners who attempt suicide increases depending on the time spent incarcerated. While out of those who had spent 8 years in prison only one-tenth claimed to have attempted suicide, in the case of those with decades of incarceration this number is almost 25%.” [37: 93]

As for serial murderers, even though our analysis is solely based on assessing and processing the documented cases but due to the peculiarities in their incarceration and continuous control, chances for latency are practically nonexistent. The survey data is a lot more concrete than the subjective assessment of “admitted suicide attempts”, therefore our results—mostly owing to their objectivity—are more precise and closer to reality.

Out of the currently incarcerated serial killers, the earliest admission was performed in 1995 (№6), and as such the scope of the analysis extends to the last 21 years. During this timeframe, one prisoner (№17) committed suicide in 2015. Statistically, this number is so low and the scope of those concerned is so limited, that in itself it is insufficient for making far-reaching conclusions. If, however, this number is coupled with the number of attempted suicides and the acts of self-harm, then the results can be significant and thus worthy of further statistical examination.

Table 11. *The statistics of the prisoners.* [Edited by the author.]

Prisoner no.	Admission	Attempted suicide		Self-harm	
		occurrence	date	occurrence	date
№12/life without parole	2009	–	–	one occasion	2014
№14/life without parole	2011	one occasion	2015	two occasions	2015
№17/life without parole	2004	completed	2015	three occasions	1985 ¹² 2004 2006

The completed suicide (№17), the attempted suicide (№14) and the six deliberate acts of self-harm (№12 once; №14 twice,¹³ №17 three times) expressly shows the subjects’ rejection of their experienced situation which they find intolerable. They felt like they had to do something in order to permanently “escape” from the unbearable conditions or at least—through the pain

¹² During serving a previous sentence.

¹³ №14 resorted to self-harm on two consecutive days. Grotesquely, on the second occasion he etched the word “life” into his arm.

caused to themselves—alleviate the mental pressure. Among the reasons of these uncalculated and sudden acts we can point out the fact that all three of these persons had been sentenced to life and their designated accommodation was a special section reserved for prisoners sentenced to longer periods. The maximum-security conditions coupled with constant and enhanced control and the incomprehensibly infinite nature of time induced a mental crisis within them. Garami [41] adds that the punishment itself leads to consequences such as depression, which in turn may be accompanied by or lead to social isolation and suicide attempts.

The development of the “negative mood” within the subjects may have been further facilitated by their inconsistent and irregular relationships (from this regard, №12 is in the most favourable situation as he or she is being visited every 2–3 months; №14 has irregular relations, while №17 has never had any such contacts causing the “external world” to permanently close for him.) A characteristic of their monotonous daily life is that none of them has participated in activities such as education, training or vocational courses.

Violent Misconducts/Offences

While analyzing the behaviour of inmates within a prison, it is important to assess their relation with the staff and their peers besides their acts of self-harm. The best indicator that can be used to this end is the number and nature of violent misconducts committed by them.

Table 12. *Statistics of the violent misconducts/offences.* [Edited by the author.]

No.	Admission	Violent misconduct	
		Date	Type
№1	2001	2006	Escape
№2	1994	1999	Violence against staff member
		2002	Threatening other prisoner
		2003	Violence against staff member
№4/Life without parole	2002	2004	Preparation for terrorist attack, preparation for escape, attempted escape
№5/Life without parole	2002	2004	Preparation for terrorist attack, preparation for escape, attempted escape
№6	1995	2002	Violence against other prisoner
№14/Life without parole	2011	2014	Violence against other prisoner
		2015	Violence against other prisoner
№17/Life without parole ¹⁴	2004	2007	Violence against other prisoner

A total seven convicts (44% of the incarcerated serial killers) committed violent misconducts 10 times altogether. Four of the prisoners attacked other prisoners on five occasions (25% of the serial killers), while one convict attacked staff members twice. Not only these

¹⁴ №17 committed suicide in 2015.

misconducts are already way over the number of similar acts perpetrated by the “normal” prisoner populace, but the ones such as “escape” (№1), “preparation for terrorism and escape, attempted escape” (№4 and №5) are the most dangerous. During planning these acts, the perpetrators do not refrain from the idea of harming or even killing members of the staff, or taking them hostage, some of them actually incorporate such a deed into their plans. We are yet to find another group in Hungarian prison history where the number of such dangerous misconducts is so elevated and concentrated. In our opinion, the alarmingly high number of these acts (19% of the serial killers became involved in such an act—while the statistical data of 2015 for misconducts committed by the whole prison population in general was only 0.03%) can be attributed to two reasons: (1) two out of the three perpetrators had been sentenced to life without parole, therefore—according to relevant Hungarian regulations—there is no lawful alternative for them to leave prison and what is more, the severity of their punishment cannot be increased, meaning that they feel like they have nothing to lose. (2) These convicts have already got used to murder, as №1 killed three, №4 killed nine and №5 killed four persons.

The reasons for the fact that none of these attacks resulted in grave, life-threatening injuries or death are manifold:

1. a significant part of the convicts in question is housed in the special “HSR” (long-term special section) part of the prison where the professional experience and training of staff members is above average;
2. due to the smaller number of prisoners within this subgroup, each of the convicts receive more attention from the staff members, who therefore become quickly notified about the onsets of personal and private issues;
3. the inmates spend most of their time alone;
4. their movement outside of their designated cells is carried out with a constant and strict supervision and security measures;
5. the monitoring of the specially designed cells is extensive, frequent and thorough.

Rewards

Rewards are one of the most important pedagogical tools used within the institutions. This tool can be and must be used in all of the subgroups formed by prisoners. Csóti emphasizes that in the case of inmates sentenced to longer periods, “in order to create a foundation for individualized decisions, there is a great need among those working with such prisoners for an efficient exchange of information and genuine teamwork. Ever since the beginning we have been advocating the inclusion of prisoners with long-term sentences to the rewards system, during which we mostly focus on strengthening personal relationships and supplementing the personal needs for such convicts”. [42: 28]

Turning back to serial killers, it is worth analyzing the number of rewards obtained by them from two aspects:

1. The prisoners’ acceptance of the regime and their resulting way of life can be estimated by the number of rewards they have received. This, however, will only provide grounds for the individual analysis of each convict. In order to obtain a more detailed picture and to make comparing the behaviour of the prisoners possible, we calculate the quotient of the number of obtained rewards and the years spent in incarceration.

Table 13. *Statistics of the rewards.* [Edited by the author.]

	№1	№2	№3	№4	№5	№6	№7	№8
Total	20	12	37	26	16	10	1	0
Reward/year	1.3	0.6	2.0	2.0	1.2	0.5	0.1	0

Table 14. *Statistics of rewards.* [Edited by the author.]

	№9	№10	№11	№12	№13	№14	№15
Total	1	13	3	2	13	2	8
Reward/year	0.1	1.9	0.4	0.3	0.8	0.4	1.6

The number of received rewards annually by each prisoner is nearing 1 (0.9). Nevertheless, these items should not be interpreted on their own as the result may easily mislead the reader into thinking that the prisoners are actually very cooperative. The situation is of course a lot more complex. There are serial killers whose behaviour is exemplary—at least it may seem that way. Those two convicts who collected the largest number of rewards (№3 obtained 37 rewards in 18 years; №4 received 26 rewards in 13 years) may easily be considered “model prisoners”, but such an assumption would be a grave mistake considering the fact that №4 is a psychotic person who displays significant talent in simulation. Not even the psychopathic murderers live up to the academic expectations, though: the other psychopath (№6) collected “only” 10 rewards in 21 years.

2. Another factor also worth addressing is the dynamism of prisoner cooperation as it will allow us to get a better picture of each inmate’s willingness to cooperate and its course. In order to proceed, we classified the prisoners into categories using three-year intervals based on their admission related to the latest crime they had committed.

Table 15. *Categories of the prisoners.* [Edited by the author.]

	№1	№2	№3	№4	№5	№6	№7	№8	№9	№10	№11	№12
1.-3 yrs.	3	0	0	0	0	1	1	0	0	3	2	1
2.-3 yrs.	4	0	0	3	5	0	0	0	1	2	0	0
3.-3 yrs.	0	1	0	10	6	3	0	0	0	8	1	1
4.-3 yrs.	9	0	9	10	4	0						
5.-3 yrs.	4	1	15	3	1	4						
6.-3 yrs.		8	13			2						
7.-3 yrs		2				0						
Total	20	12	37	26	16	10	1	0	1	13	3	2

Table 16. *Categories of the prisoners.* [Edited by the author.]

	№13	№14	№15
1.-3 yrs	0	1	8
2.-3 yrs	0	1	0
3.-3 yrs	0		
4.-3 yrs	6		
5.-3 yrs	4		
6.-3 yrs	3		
7.-3 yrs			
Total	13	2	8

Each of the serial killers received close to 11 (10.9) rewards. In addition to discrepancies (№3–37 rewards; №8–zero rewards) among the individuals, we can also point out deviations in time. During the first six years, 11 serial killers received a total of three or fewer rewards. Moreover, what is also apparent is the fact that most of the subjects become more cooperative from the third three-year interval. One of the possible reasons for this phenomenon was pointed out by Solt, who claims that longer periods have the positive effect of improving the prisoners’ control over their conduct thereby contributing to their adaptation and limiting the number of impulsive, hasty and aggressive acts. [37] Boros seems to agree with the conclusion above, claiming that “the rational structure of the prison system, the framework of motivations and the organization of the daily lives of prisoners all incline these people to adapt and thus create and develop this self-control”. [43: 24]

Matovics states that analyzing the behaviour of convicts sentenced to life led him to conclude that these people are characterized by a cooperative, conformist attitude. However, due to the nature of their sentence and the fact that they are housed in the isolated sections of the cell blocks, their feeling of vulnerability is higher than what is found in the members of the standard prison populace. This is what makes it difficult for them to accept the refusal of their petitions and often consider these events as personal insults from the decision-makers. They react sensitively to the behaviour and mood of the staff and their decisions made concerning their daily matters.” [44: 105]

Disciplinary Measures

Besides rewards, punishments (using correctional terms: disciplinary measures) can also be used as a pedagogical tool. The number of disciplinary measures conducted against the populace in question is significantly low when compared to the rewards obtained (average: 3.4 punishments/person, which means 0.37 punishments annually).

Table 17. *Statistics of the disciplinary measure.* [Edited by the author.]

	№1	№2	№3	№4	№5	№6	№7	№8
Total	5	10	0	2	2	7	0	0
Measure/year	0.3	0.5	0	0.2	0.2	0.3	0	0

Table 18. *Statistics of the disciplinary measure.* [Edited by the author.]

	№9	№10	№11	№12	№13	№14	№15
Total	0	0	4	1	4	14	2
Measure/year	0	0	0.6	0.1	0.2	2.8	0.4

The chart indicates that five of the convicts (№3; №7; №8; №9; №10) display their cooperativeness by not performing any misconduct at all. The disobedience of another four prisoners (№4; №5; №12; №13) is not significant. Among all the serial killers there is but one convict who actively constantly rebels against the internal order within the institution.

Determining the Indicator of an Inmate’s Cooperativeness

Determining an inmate’s level of cooperativeness in an objective and systemic way is difficult. Nevertheless, we will still endeavour to create a new system of evaluation. In our opinion, an indicator that helps to determine the cooperativeness of an inmate and the stability of such behaviour can be created using statistical methodology.

Our approach is the following: the number of committed misconducts will be deducted from the number of rewards a prisoner has obtained. (“Regular” misconducts are “rewarded” with a score which will be multiplied by violent misconducts as follows: violent acts against fellow prisoners multiply by this score by three, violent misconducts or their attempt against staff members and the prison system itself will multiply the score by four). Based on the results we have assembled five different groups:

If the difference between the two items:

1. is positive, at least three and the result exceeds the years spent incarcerated, then the prisoner is *exceptionally cooperative* (++);
2. is positive and at least three, but the result falls below the number of years spent incarcerated, then the convict is *cooperative* (+);
3. is around zero (–1; 0; 1), then two general subgroups can be established:
4. (3–1) if the number of rewards and punishments does not exceed three, then the prisoner is *neutral* (+0);
5. (3–2) if the number of rewards and punishments exceeds three, then the prisoner is *irregular and unpredictable* (–0);
6. is negative, but does not exceed 3, then the prisoner is *not cooperative* (–);
7. is negative and exceeds 3, then the prisoner is *openly hostile and dangerous* (–).

Table 19. *Indicator of the inmates’ cooperativeness.* [Edited by the author.]

Number	№1	№2	№3	№4	№5	№6	№7	№8
Reward	20	12	37	26	16	10	1	0
Regular misconduct	4	8	0	1	1	6	0	0
Violent misconduct against staff = 4 points against prisoner = 3 points	1 staff = 4	1 staff + 1 prisoner = 7	0	1 staff = 4	1 staff = 4	(1)=3	0	0
Indicator	$20-8=+12$	$12-15=-3$	$37-0=+37$	$26-5=+21$	$16-5=+11$	$10-9=+1$	$1-0=+1$	$0-0=0$
Years spent	15	21	18	13	13	21	7	7
Evaluation	+	-	++	++	+	-0	+0	+0

Table 20. *Indicator of the inmates’ cooperativeness.* [Edited by the author.]

Number	№9	№10	№11	№12	№13	№14	№15
Reward	1	13	3	2	13	2	8
Regular misconduct	0	0	4	1	4	12	2
Violent misconduct against staff = 4 points against prisoner = 3 points	0	0	0	0	0	2 prisoners = 6	0
Indicator	$1-0=+1$	$13-0=+13$	$3-4=-1$	$2-1=+1$	$13-4=+9$	$2-18=-16$	$8-2=+6$
Years spent	7	7	7	7	17	5	5
Calculated value							
Evaluation	+0	++	-0	+0	+	-	+

The behaviour of the serial killers based on the evaluation system above:

- Three convicts are *exceptionally cooperative* (20%)—two of which have multiple sentences, one has been sentenced to life without parole
- Four prisoners are *cooperative*—one of them having multiple convictions, three have been sentenced to life without parole.
- Four prisoners are *neutral*—all of them having life without parole sentences
- Two prisoners are *irregular and unpredictable* (13%)—one with multiple sentences, one sentenced to life without parole.

- One prisoner (7%) is *not cooperative*—multiple convictions.
- 1 prisoner (7%) is *openly hostile and dangerous*—life without parole.

Based on the analysis we are able to determine that:

1. during prison socialization, seven (47%) convicts not only did accept their situation but are also cooperative with the system and conform to the internal order. Three of these prisoners had been convicted multiple times, while four of them are sentenced to life without parole;
2. four prisoners have a neutral attitude—each of them sentenced to life without parole;
3. four prisoners completely renounce the prison system, their sentences and their current situation while either occasionally or constantly rebelling against the rules. Two of these convicts had been convicted multiple times, while two of them are sentenced to life without parole.

Significant differences between convicts imprisoned for life and convicts who have multiple sentences within these subgroups are not to be found. The sole exceptions to this fact are those whose behaviour is neutral, as all of them have life sentences without parole. An explanation to this could be that out of the four relevant prisoners three persons were only convicted in 2016. It is possible that they opted to “wait out” and alter their behaviour significantly, hoping that it might influence the court and the verdict. Their behaviour will probably change and stabilize later when they perceive the fact that they will remain in prison for the rest of their lives.

Out of the convicted serial killers in Hungary, 67% have a sentence of lifelong imprisonment without parole.

In the next part of our inquiry, (Life sentence without the possibility of parole—“We do not allow them to live, we do not let them die”) we will address the issue and characteristics of this special—and internationally debated—form of punishment, the imprisonment of life without parole.

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The Effect of High Oxygen Level (Kaqun) Water and the Ability to Use It to Maintain Military Combat Tone

Iván SZALKAI¹

In the last decade, the nature and purpose of wars have changed, along with the rules and methods of conducting military activities. The problem of chronic stress has come to be a significant factor in foreign peacekeeping and policing missions. Physical training and psychological methods have been covered so far in the preparation and management of the stock in extreme environments. Our examination of the neurobiological side concerns the process. We assume that the biological state of the 60-year-old healthy population is closest to the situation of younger, distressed people.

We studied the effect of water with high oxygen content (Kaqun water) on cardiovascular and mental functions of elderly people in a randomized, double-blind, control group study. We have examined the plethysmogram, the standard deviation of the pulse in relaxed state and under load with the tools of heart rate variability (HRV) analysis, the speed of vasodilation (flexibility), blood pressure (systolic and diastolic), oxygen saturation, simple reaction time (SRT) and cognitive reaction time (CRT). We experienced significant changes in the reduction of systolic blood pressure, reflex time and cognitive time, stress index.

These are early signs of changes in chronic stress. The use of Kaqun water has normalized the status of test subjects. Based on this—as well as our experience—the use of Kaqun water is also recommended in operational conditions to increase combat ability, regeneration and rehabilitation.

Keywords: *water with high oxygen content, Reactive Oxygen Species (ROS), hypertension, reflex time, cognitive time, vascular stiffness, distress, chronic stress, combat capability*

Introduction

In the last decade, the nature and purpose of wars have changed, along with the rules and methods of conducting military activities. Whereas from the Second World War to the beginning of the Gulf War massive armies fought against each other, in the modern age smaller units fight for specific goals in peacekeeping and policing missions, as well as in the current military activities in Iraq and Syria. In such military activities and battles, the role and the workload of individuals increase, which makes an individual more valuable than before. The usage of modern weapons systems, the required mental and physical performance cause stress, even if it is different in character from that experienced in earlier wars. These factors

¹ M.D., Rtd. Colonel, external instructor, University of Miskolc, Health Faculty; e-mail: szalkai1@outlook.hu

emphasize the importance of the individual soldier, and the importance of enhancing or maintaining his physical and mental capabilities.

In the performance of its international obligations, new environmental pathogenic factors have appeared in the operating environment of our national military, and these factors will become more and more probable in the near future. In our missions conducted in crisis zones, we have already encountered the stress-inducing effects of extreme weather, heavy workload and the need for independent decisions. These factors affect the adaptive and reactive ability of the body (both in a biological and psychological sense). The types of effects on the human body: the performance of the body and the adaptability of the circulatory system also decrease, certain mental processes slow down, and the fluid balance may be upset.

In NATO, it is becoming more and more important to assess human factor by unified principles. Physical eligibility assessment and fatigue management has come up as a new demand. More research shall be done and appropriate measuring instruments and systems should be developed to learn more on the performance of soldiers working in extreme conditions, their physiological reactions, internal processes, the limitations of their mental and physical capacity and the causes of those limitations. These experiments shall focus primarily on the effect of sensory experience on the autonomic nervous system, the circulatory system, its adaptation, and the operation of mental processes. One indicator and consequence of the increased stress is the hypoxic state, so the monitoring and treatment of that should be a top priority. Hypoxia and the changes taking place in the body as a response to that are of primary importance for the functioning of the body.

Presently, the targeted selection of the military staff has already reached a high level.

However, two factors appear to be necessary to improve the process and solve the above problem:

1. Biological stress reaction shall be measured, which can be a starting point in the preparation of the individual.
2. A new methodology shall be introduced, which, applied at the service location, enhances the ability of the individual to adapt to environmental circumstances, and helps to speed up the process of physical as well as mental adaptation.

The ability of a person to work and fight is affected by the vegetative nervous system, in particular, and by the condition of the circulation, stress sensitivity and mental state, especially memory. Measuring these parameters (tremor, HRV analysis, nerve conduction velocity and reflex time, and working memory time-usage time) appropriately traces the individual's work and combat ability. Combat capability can be maintained and improved by enhancing the above parameters:

- The outside world and the individual's biological system are in close relationship.
- The biological system can be taught, trained, and the upset balance of the body can be restored by suitable methods.
- Balance is the result of a process whose precondition is achieving and maintaining homeostasis.

Oxygen as a highly reactive substance is an essential element in the formation of free radicals. ROS and Reactive Nitrogen Species (RNS) play an important role in controlling the functions of the body, such as:

- They stimulate the functioning of the immune system and also form the main antimicrobial substance of the phagocytes.
- The release of the free radical is an aspecific stimulus of the cellular immune system, and antiviral and antitumor immunity is initiated. This process is also verified by our own measurements.
- Reactive nitrogen radicals play a significant role in the formation and disappearance of pulse wave-associated vasodilation. Reactive nitrogen radicals play the role of the primary neurotransmitter in the synaptic transmission of information.

The pathological role of low oxygen levels has been demonstrated in military operations mainly involving diving, airborne and mountain troops. In the latter case, staying 4,500 m for a short time (less than 4 hours) or between 2,500 to 3,500 m for more than 4 hours fall in different categories. [1] [2] High mountain oxygen deficiency can lead to acute high-altitude disease, chronic high-altitude sickness, cerebral edema, and pulmonary edema. [3] Acclimatization takes 5–9 days (controlled by instruments), but according to US military authors, the adaptation process lasts longer. There have been experiments with special respiratory muscle training, but they brought visible results at heights above 4,000 m. [4] Oxygen is a basic element for life, this is well known. We know less about the role of water in the intra and extracellular space. Kaqun water is a specially produced water for consumption and bathing (functional water), whose physical properties, pH, oxygen level are different from the normal drinking water (OTH permit 420-2/2007, OKI expert opinion: 6212/2011). Kaqun water is a fluid, which contains 16 mg oxygen per litre, pH value is between 7.5 and 8.5 (slightly alkaline) and it has a lower osmotic pressure than cytoplasm, whose effect mechanism is:

- The modified absorption and utilization conditions, reducing the size of the water clusters, where the average cluster size is 4–8 water molecules because of the tetrahedron structure. This size can penetrate through the openings of the cell wall along with the dissolved substances in them.
- A high rate of oxygen, which is believed to be the consequence of reduced hydrogenation and so the oxygen molecules are inherently reduced in the electron content.
- A burst-like pro-oxidant (ROS) effect, which acts as a signal for the body, enhances apoptosis, accelerates cell regeneration, enhances the function of natural killer cells, promotes vasodilation and potentiates the body's antioxidant enzyme system.
- The alkaline effect due to the rearrangement of the water molecules, which reduces acid deposition and so tissue edema, as well.

We associate the deceleration of memory, neural and cognitive functions with old age. We assume this is due to the accumulation of pro-oxidant radicals, metabolites accumulating in the body and the decrease of neural and mental activity.

The decline of neural and mental functions is one of the early signs of ageing, which can be objectively determined by measurements.

The aim of the study is:

- To justify or reject the hypothesis that the consumption of Kaqun water influences:
 - basic mental functions;
 - has to have an impact on the operation of the autonomic nervous system;

- influences blood pressure;
- affects vasodilation.
- To examine whether these effects depend on the dosage.
- To examine the rate of development in time and durability of the effects.

Method of Examination

The study was a *placebo-controlled, randomized, double-blind* trial.

The materials: Kaqun water, placebo: tap water in Kaqun bottle.

Basic thesis: reactivity to the outside world of the average population about 61 years old is similar to a young, hardened population, but in a state of chronic stress.

A total of 60 people took part. They formed 4 groups of 15 people each:

1. Consumption of 0.5 l Kaqun water daily;
2. Consumption of 1 l Kaqun water daily;
3. Consumption of 1.5 l Kaqun water daily;
4. Control group; consumption of 1 l water daily.

Table 1. *Group characteristics.* [Edited by the author.]

	Composition			Age
	Male	Female	Total	Average
1.	5	8	13	65.69 years
2.	3	12	15	63.73 years
3.	3	8	11	68.36 years
4.	2	7	9	66.44 years
Total/Average	13	35	48	65.93 years

The dropout during the examination was not due to side effects. One volunteer complained about headache, but the relationship with water consumption could not be proven.

The study included volunteers of both sexes between 50 and 75 years of age, who did not consume Kaqun water nor bathed in Kaqun water for 2 months prior to the study. Health status was appropriate for their age. The sorting of the people was done in order of arrival. The members of the control group were selected in another city so they did not meet with the test group.

When selecting the sample, the following criteria had to be fulfilled by the volunteers: self-sufficient, or still active worker in the given age group, lives an active social life, has average health status. *The examination consisted of the following tests:* Serial reflex time (SRT)—testing the dominant hand 32 times. We analysed the average P200 time, filtering out the 3 highest values we deem as a learning phase. We also examined the wave of the P200 time. The normal value is 200 msec.

1. Cognitive reflex time (CRT)—recognizing different sounds, signalling with the push of a button, making it more difficult with counting backwards, pushing the button and simultaneously saying the number. The length of the test is 32 times. The normal value is 300 msec. In the examination we did not include the 3 highest values and values un-

- der reflex time. We deemed the highest value a learning value, which falsely stretches the results and the values under 200 msec are not the results of a cognitive process.
2. Heart rate variability (HVR) measurement, standard deviation, standard deviation % in normal condition and after 10 squats (30-watt load). We recorded base data and the differences. The standard deviation data represent the stimuli of the sympathetic and parasympathetic nervous system, so they can be used as a stress index. We determine the minimal and average value of vasodilatation, which shows the flexibility of the capillaries.
 3. Measuring oxygen saturation.
 4. Blood pressure and heart rate were recorded. The heart rate was measured in a relaxed state and after load in every 10 second cycle, the fit index, i.e. the time when the heart rate reached the relaxed heart rate after load.

Instruments for Measuring

Oxygen saturation: Innomed joint-stock company Oxycard device, which records the oxygen saturation of the peripheral blood and the average heart rate.

Other tests: Kellényi's tremometer, which records the time between a signal and the response. A software dynamically records the measures valued after statistical analysis.

Statistical analysis: Fast Fourier Transform (FFT) analysis, linear correlation and regression analysis, standard error analysis, normality test, dependent variables (equality of averages test, stochastic homogeneity test), and to assess the significance level of the changes.

Five measurements were performed on the selected subjects, at the beginning, then on the 7th, 14th, 21st and 28th days.

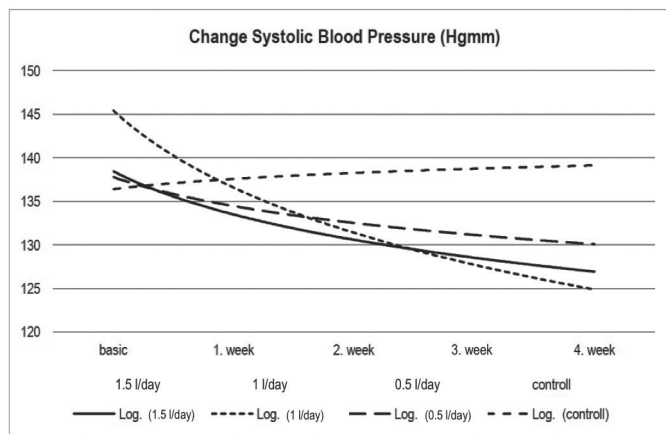


Figure 1. *Evaluation of blood pressure.*
[Edited by the author.]

The blood pressure was measured before everything else, after at least 10 minutes' rest. The results are as follows (comparison of median values). The number in parentheses is the biggest value of reduction.

Kaquun water significantly reduces systolic blood pressure. In the 1.5 l/day $p = 0.0147$, in the 1 l/day group $p = 0.0259$, while in the 0.5 l/day group this is $p = 0.0174$. The data of the control group do not follow the moving of test groups. Rather, it has increased slightly. The result is significant.

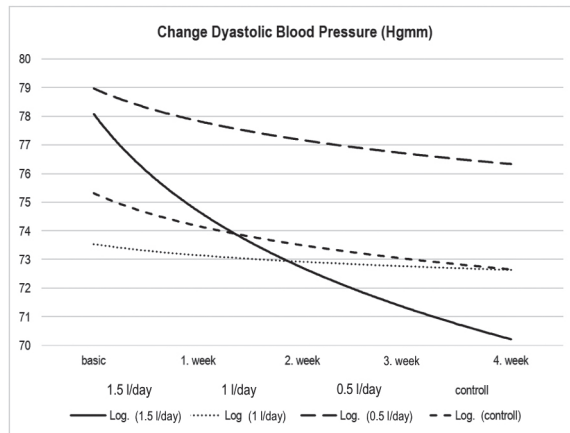


Figure 2. *The change of the diastolic blood pressure. In the control group the pressure increased, in the Kaqun group it depended on the decreased dose.*
[Edited by the author.]

The diastolic blood pressure was in the normal value for each group. There was a significant decrease ($p = 0.0416$) found only 1.5 l/day group, although it was noticeable in the other Kaqun groups, as well. The data of the control group rather increased.

Relaxed Vegetative Index Analysis

The vegetative index is the quotient of the average R-R distance divided by the standard deviation. The heart frequency is controlled by the autonomic nervous system, an immediate reaction can be seen to the body's physical and psychological effects. [5] [6] The hypothesis of the study is that the consumption of Kaqun water improves the body's cope with stress to physical impacts. Heart frequency is an immediate indicator of the body's physical and psychological effects. The rating is monitored between the R-R peaks, and the standard deviation of this. The standard deviation shows the vividness of the autonomic nervous system (change of sympathetic and parasympathic effects). Among customers who have increased sensitivity to stress and use 1.5 l Kaqun Water pro die, the decrease is significant ($p = 0.0135$). In one litre/day group decreasing of stress index was significant ($p = 0.002726$). Where the group used 0.5 l/day water, the result was not significant.

SRT Analysis

The change in reflex time shows the difference in the speed of the nerve impulses. The measurement was done with the classic method, push-button reply to acoustic stimuli. The time between the sounds was random. We kept the lowest values, the three highest values were excluded. We observed among the elderly people the low degree slowdown of the reflex time.

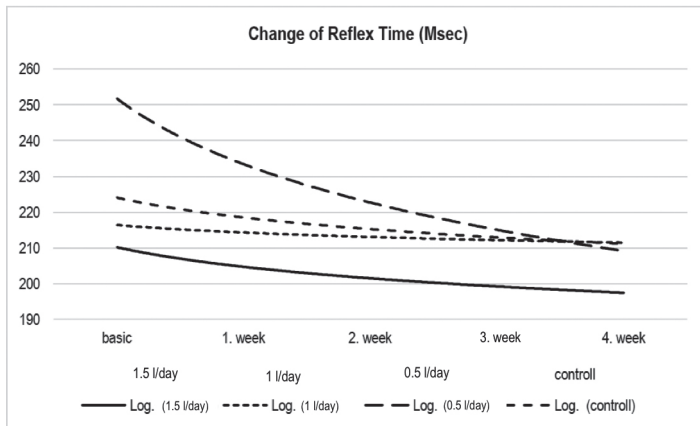


Figure 3. Change of reflex time. The effect depends on the dose, the 1.5 and 1 l/day are similar, the control is not changed.
[Edited by the author.]

It is noteworthy that the reflex time of the studied population differs only slightly from the normal 200 msec value. During the reflex examination we have excluded all disturbing factors, the volunteers only focused on the automatic execution of the task. During the test, the standard deviation shows fatigue, lack of attention and concentration of the test subject. The greatest improvement is seen in the worst-case group. Therefore, the use of water accelerates the reflex time and also improves the concentration.

Cognitive Reaction Time

The study of the time requirement of cognitive processes measures the usage time of the work memory in case of divided attention. It can be seen that compared to the base time, significant acceleration can be seen against the control group. The normal range of cognitive time is 300 msec. Significance levels: 1.5 l/day group starting position is higher than 300 msec – $p = 0.024937$; 1 l/day group $p = 0.00098$; 0.5 l/day group $p = 0.00403$.

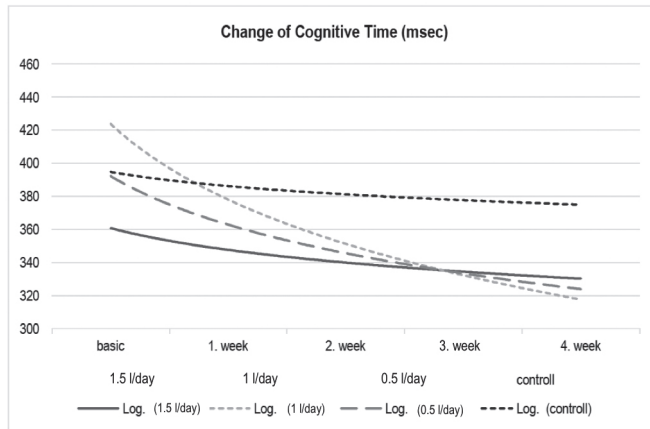


Figure 4. Change of cognitive time. The results of every water group were significant. [Edited by the author.]

The rate of memory usage (consciousness) is determining the organization’s operation and maintenance of survival. This is a prerequisite for adaptation for the load. Cognitive time plays a major role in the rapidity of position recognition, task solving, decision-making, i.e. in the survival of military personnel in combat situations.

Oxygen Saturation Analysis

The consumption of water with high oxygen content should result in the increase of oxygen saturation, the improvement of the body’s oxygen supply. The increase in saturation was 1% in the control group. The reason for the 1% increase is probably the bodies being filled up with water. By comparison, we have experienced saturation increase in the 1.5 l/day Kaqun group. The linear correlation analysis considered the changes in the 1.5 l group significant. The data raise the possibility of the filling of the bodies with water improves oxygen saturation in itself.

Table 2. Oxygen saturation. [Edited by the author.]

	1.5 l/day	1 l/ day	0.5 l/day	Control
Change in %	2	0.73	0.54	1

Dosage, Efficacy and Maximum Time of Effect Appearance

An important question is in what dosage should the water be consumed and when does the maximum impact appear at the given dosage.

Table 3. *Evaluating efficacy*. [Edited by the author.]

	Sist. RR	Diast. RR	Veg. index	SRT	CRT	Saturation	Total points
1.5 l	2	1	3	1	3	1	11
1 l	1	3	1	2	2	2	13
0.5 l	2	2	2	3	1	3	13

We put in this table depending on the scale of changes first, second or third place. From this we can prepare the dosage suggestions. So:

- Consumption of 0.5 l daily is recommended to increase the CRT.
- Consumption of 1 l daily is recommended to decrease systolic blood pressure and reduce stress sensitivity.
- Consumption of 1.5 l daily is recommended for other cases.

The appearance of maximum impact generally falls on the third week in case of both the 1.5 l and 1 l dosage, and then the values decrease. The exception is in the cognitive time but even here the difference between the third and fourth week is minimal. Therefore, basically the three-week consumption followed by a one-week break is the recommended dosage.

Evaluation

The high oxygen content “ionized” waters basically change the cluster structure of water, modify the H-O rate in favour of the oxygen, thus changing the electrical activity of the water molecules, as well. The osmotic pressure of this water (300 mOsm/l) is higher than the osmotic pressure of the cytoplasm (280 mOsm/l). This pressure difference also helps the lower sized clusters of water molecules flow into the cell. The structure of water clusters determines its effect. [7] This influx is also supported by the transport proteins of the cell membrane. [8]

Cellular metabolism contains such redox processes, where even under physiological conditions oxygen with oxidative properties (Reactive Oxygen Species—ROS) and nitrogen (Reactive Nitrogen Species—RNS) compounds are created. They include free radicals with one or more unpaired electrons on their external electron shell, such as hydroxyl radicals, superoxide radicals, nitric oxide radicals or lipid peroxy radicals and highly reactive molecules without radical properties such as hydrogen peroxide or hypochlorous acid. Due to the effect of Kaqun water, the number of free radicals in the body increases, which starts biological processes representing dangerous signals for the body. Although free radicals and reactive compounds created in a specified concentration and location do play an important role as signals for the physiological functioning of the cells. [9] Due to their great reactive properties, they play a regulatory role in the signal transduction pathways, since getting into interaction with signalling molecules and enzyme proteins, they can influence their functions.

Nowadays more and more studies confirm the signalling role of the redox system. The redox signal triggers specific regulatory processes (e.g. apoptosis at cellular level, vasodilation at tissue level. [10] Redox processes have a role and place in the operation of the body, they cannot be considered as clearly negative participants, although they play a role in

many lesions and diseases. Nowadays the regulatory role of free radicals is considered more primary as their pathological role, which is not about free radicals, but about the pathology, exhaust the body's control system. The oxygen molecule is not dangerous, but during transformation with electron uptake free radicals are developed and these have harmful effects, as well.

The life span of free radicals is in vivo 10^{-7} , 10^{-4} sec which enables them to act as signals and exert their effects not only at the place of creation but further away, as well. The physiological location of the creation and control of free radicals is in the cell mitochondrion. Here the continuously created free radicals are neutralized by the superoxide dismutase enzyme. In the presence of iron or copper ions, it is very aggressive. Hydroxyl (OH) radical is created, which stays for 10^{-9} sec. No enzyme is able to neutralize this (Fenton-reaction). As we have seen it, this reaction also has a role in water polymerization. The control of the body takes place in the earlier, peroxide phase.

Should the balance of the pro-oxidant and anti-oxidant system be upset, degenerative diseases begin; this is called oxidative stress.

The living cells continuously create and maintain an extreme, complex, 3-dimensional electric, i.e. redox pattern as electrical systems. The most efficient and quick physiological (and pathological) control is done by reactive oxygen and nitrogen derivatives. In the aerobic cells, the coordinated mitochondrial network consumes 90% of the oxygen used, securing the energy provided by adenosine triphosphate (ATP) for cellular processes. This dynamic mitochondrial energy and the redox system change from moment-to-moment depending on the intra- and extracellular signs. When the oxygen is reduced compared to the current energy demand of the cell (reduced oxygen supply or increased energy demand) the coordinated intracellular mitochondrial network issues a hypoxic redox signal with the increased ROS emission. The increased ROS emission, as a secondary messenger system induces a coordinated complex response with redox-sensitive factors and molecules.

The oxidative processes in the body are bound to two compounds, the ROS and RNS group. The RNS enzyme has three different isoforms. The neuronal nRNS (in central and peripheral neurons) and endothelial eRNS (mainly in endothelial cells) continuously express calcium and calmodulin dependent enzymes. The inducible iRNS are created in immune cells and several other cell types. The transcriptional activation of iRNS can be caused by endogenous mediators (chemokines, cytokines) or exogenous factors (bacterial toxins, viral infections, allergens, ozone, hypoxia, tumours, etc.).

The effects induced by ROS in the signal transduction pathways can be divided into four main groups: [11]

- By increasing the IC concentration of certain ions (e.g.: Ca^{2+}), contraction and cell migration are triggered.
- By activating certain transcription factors (AP-1, NF- κ B, HIF-1), inflammation is induced.
- The matrix can modify the proteins of the extracellular matrix by affecting the metalloproteinases.
- Reversibly inactivates such protein tyrosine phosphatases like mitogen-activated protein kinases (MAPK), which by representing an important IC signal transduction pathway ultimately activate transcription factors (e.g.: c-myc, p38), which control apoptosis, cell growth and differentiation.

ROS and RNS also operate as neurological signals; they play a role in the neural signalling processes, in the formation of neuroplasticity and memory. Nitric oxide (NO) is a free radical molecule capable of freely diffusing through the cell membrane and can act as a neurotransmitter, neuromodulator and signalling molecule. It controls the neurotransmitter emission, and through this way the synaptic activity and can control the excitability of midbrain dopamine neurons. However, neurotransmitters also have antioxidant and free radical catching properties, thus they regulate neurotransmission and the protective effects towards neurons.

The consumption of Kaqun water creates a reactive radical peak (-OH, O₂⁻ and H₂O₂) from the moment of consumption for about 20 seconds, which with the above-mentioned mechanism, on one hand enhances the effect of free radicals and promotes apoptosis, the stimulation of immune system, on the other hand it provokes the body's own antioxidant system. [12].

Several mechanisms may be responsible for the effect of Kaqun water:

1. Creation of free radicals, which has a direct vasodilational activity and plays a signalling role; quickens the neurotransmission speed as a neurotransmitter (decrease of reflex time) and information processing on the nerve cells (improvement of memory time).
2. Improved energy processes due to the higher oxygen consumption of mitochondria.
3. Improved oxygenation due to the indirect effect of the fluid compartments filling up.

Lucas found [13] that training enhances the Hgb level in the brain of elderly people with a parallel improvement of the cognitive functions. This coincides with our own observations. Shpirer et al. have published [14] about the decrease of attention in people with apnea due to hypoxia.

Such pathologies are rooted in the warming climate and the shifting weather zones that influence the general reactivity of the human body. The appearance thereof is expected mostly in the form of cardiovascular diseases, the increased dehydration of the body, such as nephrolithiasis, increasing amount of harmful metabolic products, old-aged dehydration symptoms.

The performance, persistence, and reactivity of the human body are influenced by various factors. These have already been analysed in detail in the Euro-Atlantic literature, but the analyses have not considered the results of Oriental life sciences and their theoretical-logical-empirical world. Oriental medicine describes the world organically, in the context of environment and man. These are the descriptions of currently known scientific results from another logical-empirical approach. This experience is valid even now and gives the opportunity to interpret and utilize the scientific based results of the two areas.

The preservation and maintenance of the capacity to work nowadays means more than the self-fulfilling and serving interest of the self, or the manifestation of the ego. For society, it is now an important economic and future determining interest that the working capacity of the population and the fighting efficiency of the army is guaranteed. The two areas are inseparable; the working ability of the population is a support (sustenance) toolkit and frame of reference, it also defines the "labour task", the fighting efficiency of the army.

The morbidity data of Hungary, and the very fact that they are lagging behind the majority of European and post-socialist countries prove that our solutions applied by us so far are not efficient, thus both the theoretical and practical approaches need to be restructured.

One of the compensation methods for ambient effects is adaptation. The method of adaptation can be social, technical, system organizational, but one should not disregard individual biological adaptation that can be the result of a personalized method. With the help of the test, we would like to define how the techniques established as a result of the screenings tracking biological functions built on personal characteristics can support a given person's adaptation against the changes of ambient circumstances.

The results of the test provide a solution for the following problems:

Increasing the stress-bearing capacity of military forces used in modern warfare is possible by regulating the vegetative nervous system, accelerating brain function, reflex time and cognitive time, and improving physical performance. This effect can be achieved and maintained without any other side-effect by applying Kaqun water. Although it is not discussed in the present study, the cellular immune system intensifying the effect of Kaqun water is widely known, similarly to its wound cleansing and healing effects—primarily if applied as a bath treatment. All these make it ideal to apply it as a mobile (containerised) service in camps.

The results of the research—over and above the narrower focus military application—are also highly beneficial on a social level. The increasing number of the elderly is characteristic of modern societies; this process has already started in Hungary, but practically it is present in every modern state, including India and China. Taking care of the elderly alongside with the present policy principles brings about a significant increase in costs and expenses, not only due to the payment of the pension, but also because of the increasing demand for certain services (social and healthcare).

In connection to the climate change, social adaptation was put into the forefront, regarding elderly care; social reactions have been studied which currently means a restriction on care services due to the economic situation. The improvement of individual stress processing ability and adaptability enhance the working and self-sustaining ability of the individual, thus betters the quality of life, lifetime, and the keeping of self-evaluation. The social effects thereof would save billions of HUF in the sector of the active healthcare only.

Military Use

In asymmetric war operations and peacekeeping procedures, our soldiers are situated and acting not in a moving front line, but rather in camp circumstances. As a result, they use half-stationary water treatment systems placed in containers. These systems can be connected to a mobile Kaqun water system also installed in a container, and as a result, either the 4-tube bathing system or the 10,500 l/day Kaqun drinking water manufacturing system can also be established. Soldiers are supplied with special drinking water from this system. The Kaqun water manufacturing unit can be fed from either tap water or from the water arriving from the water treatment facility. If using water treatment container, the connecting tap should be installed behind the first demineralizing round, and the Kaqun water production system can operate by using this water. In the case of drinking water production, there is no by-product,

whereas in connection with bathing, a thermal load of the used bathing water of 34–36 centigrade needs to be considered.

The application of Kaqun water in military circumstances:

1. Maintaining and intensifying physical performance; for this, the consumption of 1 litre of Kaqun water per day is enough.
2. Improving mental performance.
3. Compensating environmental pathologic effects with the help of Kaqun water consumption and bathing.
4. Stress reduction after deployment by applying one 50-minute bath per day. With the already existing 4-tub system the bathing of 60 persons can be performed per day.
5. Healing superficial wounds, injuries. [15] [16]

The Use of Kaqun Water for Rehabilitation Purposes

In order to use the previously described effects, the Las Vegas Kaqun Bath has concluded a contract with the Veterans Charity Ride to Sturgis program of the White Hearth Foundation. In this program, the rehabilitation of injured soldiers wounded in recent wars is performed.

Injuries, problems of the soldiers:

- fractured or amputated limbs due to explosion and the replacement thereof with prosthetic devices;
- post-traumatic syndrome (sleep disturbance, panic disorder, social inclusion disorder);
- gunshot wounds;
- skull—brain injury;
- locomotion disorders and resulting;
- overweight.

In preliminary studies primarily with veterans with posttraumatic stress disorders (PTSDs), there was a significant improvement in pain, insomnia, tense nervous system, and drug use.

Summary

The raised oxygen (Kaqun) water has special characteristics. Oxygen and free radicals in the tissues stimulate the body's energy system and are thus suitable for the prevention and treatment of chronic stress (battle stress, fatigue, PTSD).

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Operational Capability Enhancement of NATO Rotary-Wing Forces¹

Tamás BALI²

Operational experiences of the recent past have revealed the significance of the helicopters and their combat and combat support capabilities in the asymmetric warfare environment. Recognizing the importance of the helicopters, the commanders of operations required an increasing number of rotary-wing assets onto the battlefield which has been traced back for various reasons by the participating nations. The situation becomes more complicated by the serious capability disparities among the rotary-wing forces already on the battlefield. The gaps in combat support lead consequently to the overall operational capability reduction in NATO forces. In my study, I look for solutions on how to increase the number of helicopters on the operational theatre, and how to enhance the operational capability of NATO rotary-wing forces.

Keywords: *helicopter, operational capability, NATO, smart defence, training, interoperability*

Preface

Operational experiences in Iraq and Afghanistan have revealed the significance of the helicopters and their combat and combat support capabilities in the asymmetric warfare environment. Recognizing the importance of the helicopters, the commanders of operations required an increasing number of rotary-wing assets onto the battlefield which has been traced back by budgetary and political reasons by the participating nations. This consequently led to the situation where helicopter deficiency became common at warzones. This problem was officially laid down even on NATO strategic level in 2009.³ [1]

In many cases, a nation cannot provide their helicopters due to their pilot training insufficiencies or simply there are not enough rotary-wing assets at their hand which can cover all home defence tasks and allied missions abroad. International deregulation also causes problems on required operational pilot qualifications and the way they must be reached. Pilot training procedures differ in each country. Moreover, some of the training elements can hardly be flown⁴ (or it is even impossible) at home bases due to the given countries' geographical possibilities.

¹ The work was created in commission of the National University of Public Service under the priority project PACSDOP-2.1.2-CCHOP-15-2016-00001 entitled "Public Service Development Establishing Good Governance" in the Zoltan Bay Ludovika Workshop.

² Ph.D., Colonel, Deputy Commander of HDF 86. Szolnok Helicopter Base; e-mail: bali.tamas@hm.gov.hu

³ The document entitled *BI-SC Priority Shortfall Areas* names 50 NATO essential operational capability shortages.

⁴ These can be: mountainous flight training, brown-out (desert) training or flight training over broad water surface.

There are significant differences amongst the flying hours of a nation's helicopter pilots. In some countries,⁵ pilots get specific training focusing on special operations since it can answer best to the asymmetric challenges, while in others, there is no trace of a specialization. Here, helicopter pilot training covers the whole spectrum of training elements for each of the participating pilots. Obviously, the flying hours provided for them cannot be adequate for everything. Their pilot proficiency level will never reach the proficiency level of those, who concentrate on only one proficiency segment but on a professional level. Thus, significant proficiency differences can be observed amongst them on the operational theatre. This problem was highlighted by the document entitled *Standardization of Qualification for NATO Helicopter Crews in Support of Land Operations* of the NATO Joint Air Power Competence Centre (hereinafter: JAPCC). [2]

The different rotary winged aircraft (hereinafter: RW) platforms used by NATO nations do not help the situation. For those who use Western built helicopters, it is not a problem to meet the present operational challenges but with the Russian RW assets we can see the other side of the coin. Those military installations lag far behind the Western ones; along with this their upgrade to NATO standards proved to be a very expensive task. It is so expensive that many nations cannot even afford it for themselves. For example, in the case of Eastern helicopters, self-defence capability, secured voice and data communication, night and infra vision poses challenges. It is reasonable enough that during allied operations interoperability is hardly interpretable when the RW assets have different capabilities and the pilots have disparate proficiencies.

So, all in all, how can the operational capabilities of the NATO RW forces be improved? How can the number of the helicopters be increased on the operational theatre? Can it be a solution the utilization of the so called Smart Defence Concept,⁶ [3] which was announced at NATO's Chicago Summit in 2012 to balance the defence expense's decrease?

NATO's Smart Defence Concept

There are few people in Europe who have not been affected by the economic crisis erupted in 2008. During the subsequent period, we had to face economic challenges, financial recession and an austerity policy at state level. This economic policy affected the defence sector as well, moreover, the budget constraints influenced it mostly. This could happen since there has not been any military action since the end of World War II in Europe, consequently it has become low priority to maintain strong military force for the nations. In order to bridge military capability gaps caused by the above-mentioned challenges, NATO's reaction was to utilize Smart Defence.

The program itself was firstly (officially) described in February 2010 by Anders Fogh Rasmussen NATO's former Secretary General, then it received an increasing role at the NATO Summits. This obviously does not mean that the idea had not been arisen beforehand, on the contrary, it received ever growing attention just after the outbreak of the economic crisis.

⁵ Apart from the United States, these are (as an example) Poland and the Czech Republic.

⁶ Due to the declining defence spending, NATO leaders adopted the so called "Smart Defence" concept in May 2012, Chicago, based on which the member states have agreed to share their military assets and operational capabilities.

Smart Defence is based on capability share, since to create and maintain all-embracing military capabilities for each of the individual nation's economy poses a huge burden. That kind of a concept has become evident for the allied nations in which they can share their own capabilities for cost-effectiveness. Upon the notion, each of the allied nation must seek its national strength in its defence sector, then their capability improvement must be concentrated toward these areas to be able to offer them to the Alliance later. The emerging capability gaps—in case of necessity—can be filled on cooperation with other countries. With this, NATO persuades the allied members for the international cooperation in order to help the Alliance itself with the nation's economic, industrial and political potential. [4]

However, some topic-related questions emerge:

1. Are the NATO allied nations willing to give up their weaker home defence capabilities and rely entirely on other nations?
2. What will happen in a case of an interest-conflict between two cooperating allied nations? Will they further provide their full capabilities to each other or serious resistance develops?
3. Is the nationalist way of politics still viable for some of the member states, or do they have to sacrifice a part of their national sovereignty by reducing some of their home defence capabilities?

This undoubtedly affects a NATO-sensitive area, namely the deepness of integration amongst the member nations (or—oppositely—do they incline to maintain their national autonomy?). Will the Alliance's interest overwhelm the member nation's? The answers for these questions defines the realism of the Smart Defence concept.

Even at a communication level the member states support the concept; still, it is worth briefly overviewing what they actually do for its realization. Concentrating on the rotary-wing arm, we can clearly see that the nations do not discard their already build operational and training capabilities.

- From an operational point of view, their home defence interests far outweigh Smart Defence's principles, even if their RW capabilities lag behind NATO interoperability minimum requirement standards. They know, that in the present asymmetric operational environment⁷ quick reaction and mobility has crucial importance.
- They know, that during any hostile activity, they will not have time to wait till international forces arrive. There will be an immediate need to deploy the land force.
- From a training point of view—on a conceptual level—there is no significant difference. The nations know, that an army can be abolished by the cancellation of pilot training. Moreover, the patriotic, motivated soldier (devoted to his or her country's defence), can only be socialized during a national training process.

Undoubtedly, pilot training can be bought from other allied member states, but in this case the flexibility disappears. In a case of urgent need, it can happen, that a given nation does not get proper number of training slots from its contracted counterpart. For these reasons, nations

⁷ Asymmetric operational environment should be considered when the opposing forces have different organizational structures, armament and way of warfighting. During an asymmetric conflict, actions do not need to be taken against a unified-, or not even against a single guerrilla force. While drafting a military counter action, it must be directed against dozens or even hundreds of different active groups. [5]

are more likely to maintain their domestic helicopter pilot training systems, and offer their vacant training slots on flat cost to other countries (to keep it sustainable).

It is a perfect example for the above written thoughts, how the Czech and Croatian parties maintain their own rotary wing and training capabilities operational under the umbrella of the European Defence Agency (hereinafter: EDA) by the Czech led Multinational Helicopter Initiative's (hereinafter: MHI) *HIP Helicopter Task Force* program. [6] Multinational pre-deployment training for nations operating "Mi" helicopters in Afghanistan carried out in two phases and locations, funded by EDA. The Czech Republic provides the emergency procedural and operational training for RW aircrews at HTP Ostrava on their Mi-171 simulators. Croatia (Croatian Defence Forces) provides practical flying training with their own Mi-17sh helicopters. I must underline the fact again, that both countries receive significant financial reimbursement from the EDA. Such sum of money that covers expenses of the simulation centre in Ostrava, and the cost of running the Croatian helicopter fleet. Apart from these, the money covers not only the Hungarian aircrews' training, but the Czech's and Croats' as well.

But, if running the Smart Defence concept raises so many questions and if it works only on a principle level and actually seems unviable in practice, what can the solution be?

Practical Solutions for Operational Capability Enhancement of Rotary-Wing Forces

In the followings, I would like to outline the problems described above from a practical point of view. By writing this chapter, I intend to propose solutions to RW operational capability enhancement. To do that, I completed my research from several directions, on a global scale.

The capability itself obviously does not mean only having an adequate number of RW assets on the operational area. For an efficient task fulfilment, there must be equally trained (and also wisely thinking) aircrews, who are using the same tactics. The human resource is as important as the serviceability of the helicopters.

As for the first solution proposal, the **cooperation improvement of NATO and EU forces, the synchronization of their flying tactics**. At present, 25 out of the 28 NATO member nations are European. The principles of deployment of the European forces are laid down by the EDA, which in many cases are not synchronized with NATO regulations. On the part of NATO, the combat RW aviation arm's deployment principles are in the ATP-49(G) document. [7] The same purpose is served by the EDA HEP handbook of Standing Operating Procedures. [8] Obviously, this is not good, as it is. It cannot be allowed for any given EU associated aircrew to think differently in an operation led by NATO, and again in an operation led by the EU force. Effective deployment on a situation-based mindset change is unthinkable. But, which should be the preferred direction? Should it be the EU's or NATO's deployment principles to be put into the forefront? Is it possible to force a NATO dominant United States to accept EU developed flying tactics? As for my opinion, it is impossible, since the US military itself is stronger than the whole EU armed forces together.

On the other hand, the EU forces themselves presumably could not be able to counteract any of the Russian armed advance. In our present security-policy situation, for example the Baltic States would not be unconditionally happy with a pure EU force provided airspace defence over their region, since it could lead to a detriment of a well-functioning, security guarantee NATO cooperation. It is unacceptable for them (and even for the Polish as well) to

face the Russians without the power of the US military. These nations do not inadvertently emphasize, that NATO is the strongest safeguard of the European defence.

So, since there is no formal cooperation between NATO and EDA, it must be (as a first step) established. Following this, using a constructive communication method, these two organizations must jointly develop and standardize their deployment principles.

To carry out common trainings and exercises. Considering the contemporary operational tempo, a nation concentrates on reaching the aircrews' combat ready training level⁸ as soon as possible. Internationalism can rarely be incorporated into this tight-paced training, so, there is a low possibility for any multinational joint training. However, as a result of some necessities, there are some training areas in which nations must rely on each other. These can be due to a geographical characteristic of a given country or because of the lack of local expertise or training asset. It is the same with our country, where pilots must complete their mountainous training in Slovenia and a Mi-17 emergency procedural training in the Czech Republic. Table 1 below shows the abroad training locations on a nation level.

Table 1. *Cross-training locations of NATO member states.* [9]

	Mountainous training	Desert training	Extreme cold training
The Netherlands	Italy	Spain	Norway
Germany	Switzerland	Sardinia	
Belgium	France		
Denmark	Norway		Norway
France		Djibouti	
Poland	Germany		
Slovenia		Spain	
The Czech Republic	France	Spain, Portugal	

Ideally, trainings must be followed by such exercises in which pilots can improve their flying skills into routines.

There are serious difficulties in respect with the international exercises' execution. Each nation has its own flying procedures laid down in their regulations which are barely synchronized with each other.

Planning an international exercise takes a long time, [10] since the planners must consider all constraints, limitations and different regulations of the participating nations. Such

⁸ The helicopter pilot must be considered "Combat Ready", if he or she can carry out all of those flying and tactical manoeuvres which are on the one hand allowed by the given RW asset's design, and on the other hand are dictated by his or her unit's regulations.

limitations may apply to weapon use, flight manoeuvres and procedures, flyable weather conditions, pilot rest time, maximum flying hours per day and night under different visual and instrument conditions. Since the elaboration of a Standing Operating Procedure (hereinafter: SOP) based on broad-ranging national rules, the fulfilment of the NATO-wide multinational exercises become questionable. As a tendency, after the initial “flare-up”, already in the planning period, member states are quitting the multinational exercises and are performing their own (national) exercises instead. It looks obvious, that until the synchronization of RW deployment principles of NATO and EU forces it is impossible to talk about internationalism. Likewise, there will not be any cooperation if the pilots’ operational proficiencies differ in these two organizations. Moreover, it is not enough to sort out the dissimilarities separately; in the end, the organizations must unify. It is a very important task, since apart from the US military, there is no other country in the Alliance who could cover the entire spectrum of operational tasks with its manpower and weaponry. For NATO/EU nations there is no other choice than to match their segmented capabilities and “burnish” them together during international exercises. If this happens, the helicopter forces’ interoperability-based operational capability will be greatly enhanced.

The question of **RW aircrew’s operational proficiencies’ standardization** is organically related to the previously written subject. More than four years ago NATO’s JAPCC—analysing the capabilities of NATO forces—drawn up in its study entitled *Enhancing NATO’s Operational Helicopter Capabilities* [9] that one of the biggest obstacle to an efficient operational deployment is a disharmony amongst coalition aircrews’ proficiencies. The work started to solve this problem by NATO Standardization Agency’s (hereinafter: NSA) Helicopter Inter Service Working Group (hereinafter: HISWG). The ultimate goal of the work is to develop a standardized, nation-wide accepted Allied Tactical Publication (hereinafter: ATP) document which clearly identifies the minimum qualification requirements of RW aircrews involved in allied operations. HISWG developed a draft study entitled *ATP – 90 – Minimum Core Competence Levels and Proficiency of Skills for Helicopter Crew for NATO Operations* upon the suggestions and guidelines of JAPCC’s *Standardization of Qualification for NATO Helicopter Crews in Support of Land Operations*. [2] Overviewing the content of this study, it can clearly be expressed that adoption and application of the directives for all NATO/EU countries:

1. will improve the interoperability of all aircrews that undertake allied operations, thereby enhancing helicopter operations’ effectiveness;
2. will provide the possibility for competent human resource management for all on-scene commanders.

However, the situation outlined above can be tinged with two things. One is the different content of the pilot qualifications⁹ obtained, and the other is the density of flights required

⁹ *Pilot qualification*: A crewmember receives a qualification after passing an examination or completing an official course during which the individual demonstrates the knowledge, skill and aptitude required to safely and effectively complete the task within their approved national standards. For helicopter pilots, multiple qualifications can often be acquired within one specific course or training session. For example, during a specific mission qualification course, night vision goggles, low level flight, gunnery qualifications could be a part of the syllabus and could be acquired upon graduation of this course.

to maintain pilot proficiencies.¹⁰ Probably the best way to clarify the differences on pilots' qualifications is to use an example for it. So, a pilot's qualification cannot be the same if an individual's mountainous training is performed at 1,000 m or at 4,000 m. It is the same qualification on paper, but indeed, this is not so. There can be quite similar differences at formation-, instrument- or degraded visual environment flight qualifications. Likewise, missing an international standard, nations use their own regulation to maintain pilot proficiencies. Thus, a given proficiency can be maintained in one country with a 30 days-, and in another country with a 6 months' flight repetitions. It is again obvious, that it does not mean the same level of proficiency if the helicopter pilot repeats brown-out flight every 30 days or if he/she makes it every 180 days. Recognizing these anomalies, HISWG started the work on standardizing qualifications and proficiencies. Evidently, the extent of flight hours is limited by the economic opportunities of the individual nation which has a negative impact on the density of required flights to maintain proficiencies, yet a compromise solution must be found in this area as well.

Use of interlinked tactical simulators. Nations have individually created their own simulator capability due to financial aspects in order to facilitate their aircrews' flight technics and tactical training. The training itself can be carried out under the simulated active counter-activity of the enemy forces, under visual and instrumental meteorological conditions. Aircrews in the digital space—amongst others—can perform support tasks for land forces, practice of their on-board weaponry and tactical manoeuvring. Naturally, this cost-effective training method is nowadays quickly spreading across the countries, but they have been created autonomously. Nations are exercising their own tactical procedures on them. Further emphasizing the facts previously written at common trainings and exercises, if these autonomous simulators were linked, it would open the possibility for international level exercises, which could enhance the RW forces' operational capabilities. I must underline to the margin of the exercise on network, the currently unsolved information protection problem which occurs when secured data and voice communication is transmitted via the Internet between the simulation centres.

Improvement of sharing operational lessons learnt and experiences. Today, only those nations can perform their RW tasks efficiently, who can quickly adopt themselves to the rapidly changing operational environment, who are able to evaluate the conflicts outcomes and lessons, who can transform their training to meet the newly arisen challenges and can implement those into their armed actions. It is easy for those nations, who are on the operational theatre and gaining and processing experiences on a daily basis. However, there are some others who are just planning to deploy their helicopter forces to the warzones. If they do not get information on the changes, they will not be capable to prepare for them either.

Not having proper information about the current challenges, these nations must face serious interoperability problems with the experienced ones that can only be eliminated by providing additional training for the aircrews on site. Since it cannot be the goal to train aircrews in a combat situation, competent operational lessons learnt and experiences shared must be created amongst the nations. If that happens, the whole helicopter branch could step ahead on the field of operational interoperability.

¹⁰ *Pilot proficiency:* A helicopter pilot is considered "proficient" when he or she, firstly, is deemed qualified per national guidelines, and secondly, is current and skilled. It is essential for commanders to know which specific mission assigned helicopter pilots are proficient in.

Closely connected to the experience share topic, I have to underline the importance of the **use of pilot exchange programs**. These exchange programs are especially useful for those nations who have inadequate operational knowledge, since information transfer can be facilitated at the base of the host nation for a long-term period, from a representative of a more experienced nation. These programs are equally useful among the more experienced nations also, as they can even learn different tactical procedures and aircraft handling methods. The usefulness of these programs are shown by the widespread involvement of NATO nations. (Table 2)

Table 2. *Pilot exchange programs at NATO member states.* [9]

	GBR	BEL	USA	CAN	FRA	DEN	NDL	POR
NDL								
GBR								
USA								
CAN								
BEL								
DEN								
FRA								
SPA								

We can see from Table 2, that the pilot exchange program works; however, its volume does not reach the level required for a sufficient flow of information and experience. For example, the Central and Easter-European countries¹¹ tend not to participate in it. They are precisely those countries which upon the deficiencies and constrains of their air assets and operational experiences are lagging far behind their Western counterparts. In order to create an equal level of knowledge for an efficient operation, an existing pilot exchange program needs to be extended.

The implementation of a mandatory, standardized pre-deployment evaluation (TACEVAL). Despite the fact that RW forces have a decisive knowledge on the allied standards that apply to them, only a standardized evaluation system can ensure that they really have been implemented, or they are correctly applied. It is a special situation that the helicopters are not uniformly located in the armed forces. While in some countries helicopters serve at the Air Force, others are at the Land forces. The document entitled *ACO Forces Standards Volume I—General* [11] published by the Supreme Headquarters, Allied Powers of Europe (hereinafter: SHAPE) and Allied Command Operations (hereinafter: ACO) applies to all military branches and services, and must be applied at joint forces level.

SHAPE’s *ACO FS Volume III—Air Forces* [12] specifically addresses the Air Force. Here, there is a detailed and exact regulation of the capabilities of the RW forces involved in Allied operations. The problem stems from the fact, that although *ACO FS Volume I* state

¹¹ Hungary, the Czech Republic, Slovakia, Slovenia, Romania, Bulgaria, Poland.

the joint forces level application requirement, it is only the Air Force's helicopter arm who utilizes it at its capability forming, the Army Aviation is not. This consequently leads to capability differences among these arms' RW forces. If the helicopter forces, regardless of their military affiliation, would have an equivalent understanding of *ACO FS Volume III* and they would also apply uniformly *ACO Forces Standard Volume VI—SHAPE Tactical Evaluation Manual* [13] (hereinafter: STEM) at the evaluation of their capabilities, the result would be the same high level of operational capability.

The implementation and interpretation of STEM should not be done individually by the nations, it must be applied to all NATO member states equally. If this happens, all those nations will also comply with the highest level of operational requirements who have not yet implemented the regulation written in NATO Standardization Agreements (hereinafter: STANAGs) and ATPs, as they will be forced to make extensive preparations to comply with the standards and they will be virtually levelled up.

Last, but not least, I have to emphasize the importance of **the improvement of pilot English language proficiencies**. The high English language proficiency is a key factor in the efficient mission completion. Without having communication, there is no interoperability, quick reaction capability slackens and decision-making cycle slows down.

Conclusion

The economic difficulties of the past period had a negative impact on the capabilities of the nations' armed forces. The helicopter branch was also not avoided by the negative effects of the constraints. The number of serviceable helicopters decreased, as well as the extent of the flying hours. In spite of these limitations—in what regards the security necessities—the level of operational ambition did not decrease. In addition to the fact that most NATO nations reduced the size of their armed forces, they refused to abandon their home-defence capability. This decision led to the declining tendency of national contributions to Allied operations. Obviously, this situation is untenable, since it weakens the overall capability of the Alliance which globally results serious security issues. It is unquestionable, that the level of operational capability of the NATO cannot be reduced, solutions need to be found to enhance it. In my present study, I dealt with the exploitation of the Smart Defence concept's opportunities and to outline practical procedures for securing rotary-wing capabilities in a sustainable manner. It is important to do this, as it is essential to ensure Air Force and Army aviation RW operational capabilities, as there is no country with a competent, powerful force, if it is unable to use it, to ensure operational tempo, to protect its forces, and to provide logistical support for it.

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The German Organization for Security and Co-operation in Europe (OSCE) Chairmanship in 2016¹

Éva REMEK²

Germany planned its 2016 Chairmanship of the OSCE to establish the following goals “to renew dialogue and to restore trust among participating states and the security of Europe”.³ [30] Germany supported actual work on the priorities of its Chairmanship, which involved e.g.—inter alia—strengthening OSCE capabilities across the conflict cycle,⁴ handling old and new challenges of the fundamental freedoms in the OSCE region, strengthening good governance, and other new types of challenges. The German Chairmanship continued the work of the earlier chairmanships of previous years. There are state “chairs” (Switzerland and Serbia held the OSCE Chairmanships in 2014 and 2015, they are the OSCE Troika)⁵ and they started a “new model to address new challenges”.⁶ Related to that it should be noted (for this work’s keywords), that Foreign Minister Steinmeier said: “Germany wanted to durably strengthen the OSCE and its tradition of an equal dialogue among all participating States. This was the only way to rebuild lost trust and restore security on the European continent in the long term. This was all the truer against the background of the conflict in Ukraine, in which the OSCE had proved its outstanding importance and indispensability.” [30]

This analysis aims to present the work done throughout 2016. This paper shows and demonstrates that during the German chairmanship of the Organization a meaningful dialogue was lead and co-operation was pursued in various fields of common interest (mainly their role in context of the European security and the Ukrainian crisis) throughout the dimensions of the OSCE. The OSCE approaches security along these three dimensions: the politico-military, the economic and environmental, and the human.

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² Ph.D., Associate Professor, National University of Public Service, Faculty of International and European Studies; e-mail: remek.eva@uni-nke.hu

³ ZIF—Center for International Peace Operations: “Renewing Dialogue, Rebuilding Trust, Restoring Security”. [30]

⁴ “I.e. early warning, conflict prevention, crisis management and post-conflict rehabilitation.” [30]

⁵ The OSCE Troika was invented at the Helsinki Summit in 1992 to bring an element of continuity to the OSCE’s leadership. It is a format of cooperation between the present, previous and succeeding Chairmanships.

⁶ Germany made a declaration at the end of its presidency (Hamburg Declaration see later in the text) and the OSCE Troika invited the all participating States commonly to work “along five lines of action”. I believe its earlier goal has been achieved with this document. *Hamburg Declaration*. Source: <http://osce.org/cio/287946?download=true> (Downloaded: 20.04.2017)

This study is a part of my research work, so in the current text details also can be read with reference to the earlier and subsequent studies, which have already been or will have been written. This seems inevitable because, as I have pointed out above, my previous and next studies have referred/will refer to OSCE, crisis management and Ukrainian events, too.

Keywords: OSCE, German Chairmanship, crisis, security, dialogue, trust

Introduction

Germany took over the Chairmanship of the OSCE on 1 January 2016. This was the second time when Germany had guided the world's largest regional (pan-European) security organization [31] since 1991. Foreign Minister Frank-Walter Steinmeier was the organization's Chairperson-in-Office, while Gernot Erler was the Federal Government's Special Representative for Germany's OSCE Chairmanship in 2016. [30]

Given the title of the analysis, obviously the question is raised: what did the OSCE Chairmanship mean for Germany? "Taking on the OSCE Chairmanship was a major project," said Frank-Walter Steinmeier,⁷ "involving over 300 events in Vienna, Berlin, Potsdam, the entire OSCE area, and last but not least the grand finale in Hamburg, the Ministerial Council in December 2016". [1] From a political point of view, the Minister said, Germany had sent a clear message in the light of the tasks that they "believe in effective multilateral organizations, especially now in these times of turbulence, upheaval in the international order and, all over the world, the resurgence of nationalism..." [1] and they are "willing to actively take on responsibility in such situations". [1]

It is known that the Organization for Security and Cooperation in Europe is the most comprehensive regional security organization, comprising 57 participating states from Europe, Eurasia and the Euro-Atlantic region.⁸

It should be mentioned that in 1975 thirty-five countries established a "cooperation forum". Namely this was the Conference on Security and Cooperation in Europe (CSCE) which was a real forum for dialogue and consultation from Vancouver to Vladivostok. This organization was founded with these goals: "to ensure peace, stability and democracy for more than a billion people". [2: 24] The Conference on Security and Cooperation in Europe was the predecessor institution of the OSCE, which concluded with the signing of the Helsinki Final Act. During the Cold War, the organization served as an important multilateral forum for dialogue and negotiation between East and West. The CSCE was officially renamed OSCE on 1 January 1995.⁹ [4]

Today the situation is similar to the then time, i.e. the OSCE is continuing to provide its participating states with effective, efficient tools and deals with current security issues. Although the OSCE lacks NATO's military capabilities and the European Union's (EU)

⁷ Former OSCE Chairperson-in-Office, Germany, 2016. At the end of Germany's OSCE Chairmanship in 2016, Foreign Minister Steinmeier took a very personal look back over the year and the next quotes came from there.

⁸ The OSCE is the only security-policy organization in which all European countries and Russia, the USA, Canada etc., and Mongolia are represented. Mongolia became the 57th participating State on 20 November, 2012. [32]

⁹ Budapest Summit marked the change from CSCE to OSCE in 1994. Among other things it is important that ministers formally "have adopted" the Code of Conduct on politico-military aspects of security. [3: 3]

economic resources, yet no other security organization has a mandate to act in such a large geographical area. This makes OSCE the key player in conflict prevention and resolution, crisis management and hence its uniqueness among international players. Quoting NATO Secretary General Jens Stoltenberg: "...the efforts of Germany's OSCE Chairmanship to focus on renewing dialogue and strengthening the OSCE's instruments and discussion forums...", [5] the OSCE is a "key player in many areas of particular interest to the Alliance." [5]

The Changing Face of European Security

"In early 2014, nobody even assumed that only a few months later European security would be significantly compromised." [2: 26] It is not possible to formulate the essence better than the CNN's reporter did it. "It began as a dispute over a trade agreement, but it mushroomed into the bloodiest conflict in Europe since the wars over the former Yugoslavia in the early 1990s." [25]

In Ukraine people were dissatisfied with President Yanukovich and no longer supported him. There was a growing and growing disaffection with the government. This situation eventually resulted in a demonstration, after violent and powerful anti-government demonstrations, at the end it became military clash. It was the worst crisis not only for European security but also for global security. Germany took over the OSCE Chairmanship at a difficult moment in European security. The experts said¹⁰ that "illusions of quick fixes to the deep strategic confrontation between Russia and the West should be avoided, but opportunities for practical confidence-building standards need to be kept". [17: 1]

This situation has seriously affected Europe. "The world will never be the same again", said European Council President Herman van Rompuy after, when the Crimea was captured. [26]

It was under these circumstances that the Chairperson-in-Office, Swiss Foreign Minister and President of the Confederation¹¹ launched the "Panel of Eminent Persons on European Security as a Common Project" (hereinafter called Panel) at the Ministerial Council in Basel in 2014. The idea was to make ready for use on the basis for full range security dialogue across the Euro-Atlantic and Eurasian regions, focusing on consideration the Ukraine crisis and especially the importance of security in the OSCE area. [7]

The Panel's main task was to work out how to rebuild trust and reconsolidate European security on the basis of the Helsinki Final Act and the Charter of Paris and on how to support the principles of OSCE. Therefore, the task is examining what kind of threats in the OSCE area and researching common responses to confirm again cooperative security. It is important to emphasize that the Summary of the Panel's task outlines the particular role of the OSCE in Euro-Atlantic and Eurasian security. Its role is unchanged, namely the old-new task is preventing and resolving crises (that is also the case in Ukraine). The importance of this task can be measured in the long term. And fact it will have a strong effect on the German chairmanship work. Why? Because general guidance for the Panel's work was given by the OSCE Troika, composed of the outgoing Swiss (2014), (the then 2015) Serbian and incoming German Chairmanship (2016). The Panel is attempting to find input from the OSCE participating States, the OSCE Secretariat, other Institutions and Parliamentary

¹⁰ Dr. Petri Hakkarainen is a Senior Diplomatic Advisor at the Geneva Center for Security Policy (GCSP) and Dr. Christian Nünlist is a Senior Researcher at the Center for Security Studies (CSS) at ETH Zürich.

¹¹ Didier Burkhalter.

Assembly, multilateral organizations concerned with European security issues, civil society and think tanks, etc.¹² [10: 20] As we see nowadays, this idea was an extremely good one for two reasons. On the one hand none of the existing international organizations, groups or institutional agreements have been able to find a peaceful settlement to the conflict over eastern Ukraine, including the Crimea situation. It means that it focuses on arms control, reduction armaments, or just questions of trust in political relations. On the other hand, I think that it is time, when the OSCE is able to realize its own comparative preferences, values i.e. its inclusive nature and consensus-based decision making. As we know the OSCE has been the most relevant framework to manage the Ukraine crisis (at present there are three missions).¹³ [8: 23–27]

The aims of the organization's management were "to continue to play a useful role, the body must adjust its methods and strengthen its toolbox". [9] What does it mean? This is a new opportunity for OSCE reform. As I have already mentioned above, the Panel's task was preparing proposals to resolve the Ukrainian crisis. In June 2015, this Panel delivered two documents: [10: 2] an Interim report on the Lessons learned from the Ukraine crisis.¹⁴ And the Final report on the broader issues of security in Europe and in the OSCE area was to be presented toward the end of 2015.¹⁵ [11] From these documents we can clearly read that the OSCE has become relevant again. "The reason for this is not because the West and Russia have overcome their differences, but because their relations declined to a point at which both sides needed to turn to the organization's crisis management tools to contain the risks of a dangerous escalation." [9: 13]

In this process the Troika is a significant player (in our case Serbian, German and Austrian chairmanship), through this process the organization will continue to stabilize the situation.

It appears that, the OSCE's role may even increase further. Of course, it depends on many factors (participating States' interest, economic situation, effect of sanctions against Russia, etc.). However, as long as this acute challenge dominates the agenda, there will be little chance for serious efforts on the longer-term reform of the organization. According to the experts' view the Panel's "initial paper on the lessons learned from OSCE crisis management in Ukraine was useful". [9: 14]

Furthermore, it is important to realise that given the current polarization among member states, the Panel is "unlikely to achieve agreed conclusions on the future perspectives of the organization". [9: 14] At best, it will present an interesting variety of options and diverse viewpoints. "Germany's assumption of the OSCE chair in January 2016 was potentially more

¹² It is important to quote the words of Fred Tanner. (He is Ambassador, a Senior Adviser in the Office of the OSCE Secretary General. He is the OSCE Secretariat Project Manager of the Panel of Eminent Persons on European Security as a Common Project): "The Panel and individual members also make use of opportunities to engage with high-level representatives of participating States (for example inside events at multilateral conferences and other international events). The Panel is assisted by a support unit that provides operational and logistical assistance in convening meetings as well as substantive support in drafting the reports. The OSCE Network of Think Tanks and Academic Institutions is contributing research and position papers. The Panel is financed through voluntary contributions." [7]

¹³ All OSCE operations are described by the next aspects: basic decision, tasks, deployment, duration, composition, financial implications.

¹⁴ This document focused mainly on operational issues.

¹⁵ "As soon as the Minsk commitments are in place on the ground, the Panel recommends that the OSCE Chairmanship, supported by the OSCE Troika, and in communication with the Ukraine Contact Group, launch a diplomatic process to rebuild the foundation of European security." [11: 13]

promising. For one, it brought the political level of crisis management on Ukraine, in which Berlin has been a leading actor, closer to the operational dimension handled by the OSCE. This could allow the OSCE to have a stronger political role and at the same time strengthen the effectiveness of the organization's operational action." [9: 14]

Thus, the German Chairmanship in 2016 was very operative, because Germany would be suitable to give a fresh power and dynamism to the work of the organization. As a leading EU member state with "strong relations with Washington and Moscow, Berlin has a better chance than any other capital to break through the existing stalemate and help the OSCE find a new sense of direction and purpose". [9: 14]

We consider this organization as a comprehensive and inclusive forum, as a platform for real dialogue between the two confrontational sides, but its capacity to influence the quality of their relations in the different task is limited. But the really important decisions are made within national framework or highlighted in the organizations (e.g. UN, NATO, the EU, Council of Europe, etc.). I would like to quote Pierre-Emmanuel Thomann about the EU and Russia that "they need also to identify common geopolitical interests in order to engage in a strategic dialogue. They could address three pivotal thematics at global, pan-European and regional levels: the continental axis, the missing link of European security and the common neighbourhood". [12]

We must acknowledge that the geopolitical environment is changing. After Brexit and its consequences, the EU should focus more on the real events. For example, although the European Union targets strategic autonomy, "strategic autonomy must be achieved over time", [13: 16] but strategic autonomy does not mean that one does not need partners, particularly NATO. The specifics of each crisis at hand will make clear the appropriate actor (the EU, the UN, NATO, country, ad hoc coalition, etc.) to take the lead in crisis management. [13: 16–17] This is well and authentically illustrated in the figure below. (Figure 1) This conception is built on the international organizations in which the OSCE definitely gets a role. Behold a not-well-known opinion, but the question (some kind of lack of European security) is worthy of further consideration. (Figure 1)

Fragmentation of the European and Eurasian Security Order

It can be treated as a fact that the challenges in front of the world are numerous and complex, that is why it is difficult to resolve them. The situation in the OSCE area is characterized by a number of major "fragmentation zones" as well as security challenges. These can be classified into four groups: first, fragmentation and divisions within and between societies; second, fragmentation within the integration structures; third, conflicts in Russian–Western relations; fourth, negative influences from the outside. [20: 11] (Here, only the second and third group will be presented.)

The second group: fragmentation within the integration structures

The EU is a most special entity, modern integration structure in the OSCE area (all EU member states are at the same time participating States of the OSCE). "Its development is key for the whole of Europe, and the EU–Russia relationship is a major pillar of the European security

system.”¹⁶ [20] “NATO is also facing significant challenges in relation to the conflict for example in Syria, where different member states are going on different and even conflicting strategies.”¹⁷ [20] Moreover, the current situation is difficult, therefore it is difficult to resolve burden sharing proportionally among stakeholders. An interesting example is the Eurasian Economic Union (EEU) that has not yet become a driver of economic cooperation among its member states (the Ukraine crisis has caused political problems among members),¹⁸ but their national interests’ realization depends on the relationship between Russia and the West. The situation is similar to the Collective Security Treaty Organization, too. The solution has been found by these countries through their multidirectional foreign and security policies.¹⁹

Third Group: conflict in Russian–Western relations

According to the experts’ opinion Russia’s involvement in the Ukraine crisis was worrying in the West, especially among Russia’s neighbours. That is to say after the Cold War, the Moscow’s policy purpose was the review of the European security architecture. This was a revisionist idea. At least this has moved Russia’s neighbours, which have already become members of the EU and NATO, “to seek credible reassurances from the Alliance and to move towards a deterrence posture vis-a-vis Russia”. [20: 14] The expert writings really indicate perceptible, some times a “Cold War behavior”, and it is determined that “this kind of essentialist approach is a really alarming sign”.²⁰ [20]

How does all this relate to the German OSCE Chairmanship? So, this crisis or conflict is now more dangerous, with “no clear rules of the road”.²¹ [33] The German foreign minister, Frank-Walter Steinmeier, an advocate of dialogue made the same (see before) point: “It’s a fallacy to think that this is like the Cold War. The current times are different and more dangerous.” [33]

The Missing Link of the European Security

Another reading of the fragmentation problem examines the issue of European security as a whole. What do these “Olympic circles” mean? The interesting approach draws attention to the lack of “European security link”. (Figure 1)

¹⁶ More details of the EU’s internal disagreements, the deep socioeconomic North–South, Brexit and etc. are in [20: 11–13].

¹⁷ Ibid.

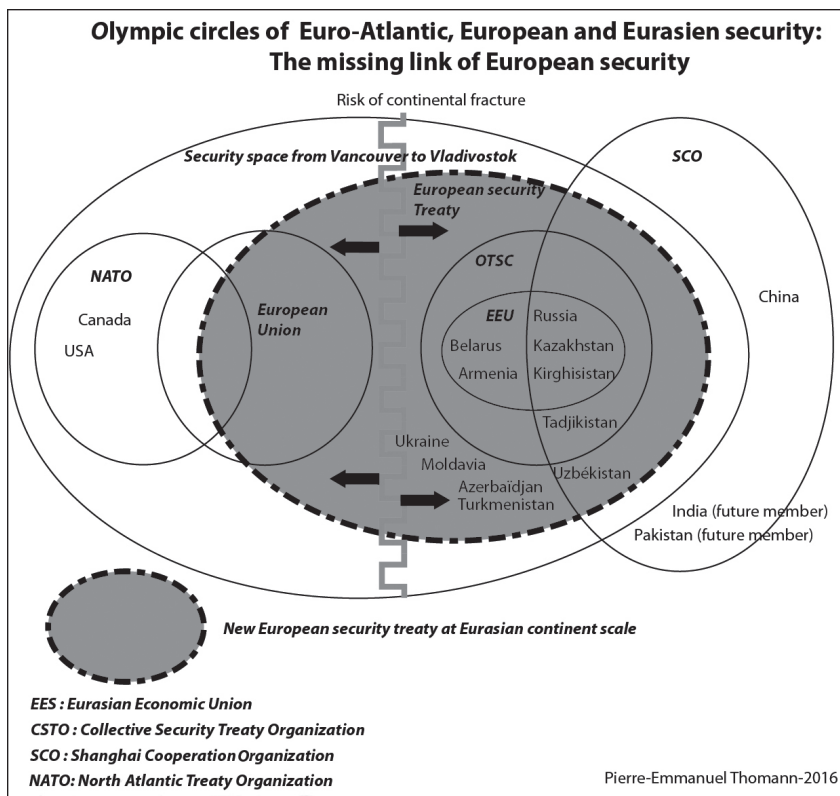
¹⁸ More details see in [20:12].

¹⁹ It means that they strive for enlargement their relations with NATO, the EU, the OSCE to balance their relationship with Russia.

²⁰ By working group [20:14].

²¹ Sir John Sawers, the former head of MI6 said. [33]

Risk of continental fracture



EEU: Eurasian Economic Union
OTSC: Organisation du Traité de sécurité collective, namely Collective Security Treaty Organization (CSTO) SCO: Shanghai Cooperation Organization
NATO: North Atlantic Treaty Organization

Figure 1. "Olympic circles" of Euro-Atlantic, European and Eurasian security to fix the missing link of European security. [12]

According to the experts again,²² it would be therefore interesting to imagine new treaties and institutions, resembling the "olympic circles"²³ which would allow maintaining stability on the whole Eurasian continent. There is a common interest. However the missing European security can be restored on an equal and rule-based economic cooperation with the EU–Russia. [12] We must understand that the OSCE is important, but specific institutional arrangements might be necessary.

²² Pierre-Emmanuel THOMANN is Scientific Advisor in geopolitics and geostrategy at the European Institute for International Relations (IERI), Brussels.

²³ "Olympic circle": A new "security space" from *Lisbon to Vladivostok* would be the inner circle of the security space from *Vancouver to Vladivostok*. In this configuration, we would find the EU as a pivot/political centre and Russia as a neighbouring pivot/political centre at the crossroad of overlapping security spaces from *Vancouver to Vladivostok* (NATO and OSCE, USA–EU–Russia), *Lisbon to Vladivostok* (EU–Russia), *St. Petersburg to Peking* (OCS) and *Minsk–Duchanbe* (OTSC). [12]

The expert's opinion says that there is a missing link in the European security architecture that needs to be fixed in order to avoid a further fragmentation of the European continent between Euro-Atlantic and Euro-Asian alliances. We also have to assume that an enlargement of Euro-Atlantic institutions (NATO-EU-OSCE) to the whole of the Eurasian continent is impossible. Why? Thomann argues that firstly, further enlargement is not on the EU's and NATO's agenda. Secondly, the Euro-Atlantic institutions are unable to handle the geopolitical diversity of the Eurasian continent. "The solution to fixing the missing link in the European security architecture is based on the "geographical tightening" principle in the context of NATO's and EU's overstretched capacities. Geographical proximity would be a central criterion to build regional alliances in order to foster stability and prevent further Eurasian fragmentation." [12]

The only question is how would it be possible to balance among the different states, the alliances and the political and security institutions in the area of the continental fracture? The answer is evident, that is the balancing can be solved using the OSCE dialogue and co-operation methods.²⁴

The Five Priority Areas

"The German Chairmanship in 2016 was an interesting diplomatic experiment for the OSCE", [14] because a real political "heavyweight" was taking over the Chairmanship. "Germany is the most powerful OSCE participating state ever at the helm of the organization in its 20-year history." [14]

Under the motto "Renewing Dialogue, Rebuilding Trust, Restoring Security", the German Osce Chairmanship 2016 planned five priorities. The most important priority was the Ukrainian situation, namely focused on crisis and conflict management in and around Ukraine. Furthermore, "Germany will also continue the OSCE's long standing work on finding lasting solutions to the so-called protracted conflicts in the OSCE area, including Transdnistria, Nagorno-Karabakh and the South Caucasus." [15] Secondly, they have to strengthen the OSCE's capabilities at all levels the conflict cycle, but this idea affects the increase of the budget, too. Thirdly, the OSCE has a major task in the area of the arms control and the renewal of the Vienna Document²⁵ on Confidence and Security-Building Measures. This proposal is promoted by such seminar works as High-Level Military Doctrine Seminar which Berlin focused on (it has also been realized). Fourthly, the issue of the human dimension was highlighted. Germany paid special attention to this area, because it is related to current crises and security problems such as tolerance and non-discrimination, freedom of expression, freedom of the media, and minority rights, etc. "The human dimension is an area of considerable disagreement among OSCE participating States with Russia and some of its proxies accusing the West of double standards and distorting the balance between the three security dimensions of the OSCE." [15] Finally, the economic (and environmental) dimension was on the meeting table. This would be a good opportunity to make better and more effective this dimension when there are no progresses in the other two (politico-military, human) dimensions. The Presidency focused on two issues inside this dimension: good governance and connectivities (dialogue between the public and the private sector). This

²⁴ Between organizations like NATO, EU, OSCE, OCS, OTSC, etc. which should lead to more stability. [12]

²⁵ More details on the Vienna Document. [34]

dimension really received great attention during the German presidency, so much so that e.g. “Good Governance was the main theme in 2016 year’s Economic and Environmental Forum, [...] good governance was a key topic at the Economic and Environmental Dimension Implementation Meeting...”²⁶ [16: 9]

After these the expert’s question is straightforward and legitimate: “Germany a neutral and honest broker?”²⁷ [15] Germany’s priorities were generally welcomed and supported by most of the OSCE participating States. The real question is how did Berlin manage the renewed confrontation between Russia and the West? It seems that a common understanding was missing (the European security system is fractured, see above) therefore the finding an acceptable solution was waiting for the German Presidency.²⁸ In addition, the Final Report²⁹ [35] is proof that “the role the OSCE could play today in the form of a common forum for mediation and conflict prevention is more important than ever, as military tension and the likelihood of accidents and conflict escalation is increasing”. [20: 8]

According to Stephanie Liechtenstein³⁰ “with regard to the Ukraine crisis, Germany will be expected to act as honest and neutral broker and to help build consensus.” But neutral by all sides? In her view Germany is “the leading power within the EU and a strong member of NATO”. All the two previous Chairs, Switzerland and Serbia were neither EU nor NATO members. Switzerland was “well-placed to mediate between Russia, the West and Ukraine”, still it is neutral. Hence, Germany may be “viewed as lacking neutrality, especially when it comes to mediating between the parties” to the Ukraine crisis. Namely, Germany has supported sanctions against Russia within the EU and is a member of NATO. “Thus, for Berlin, its engagement with Moscow has so far been dominated and influenced by the former’s role in those two Western institutions.”³¹ [15]

The OSCE Chairmanship was a great opportunity for Berlin in connection with Moscow. First of all Germany was in the same organization in which Russia was an equal partner. Moreover, it was an organization where decisions were taken by consensus. “Germany can thus deal with Moscow in a more balanced way, not overshadowed by EU sanctions or military rhetoric. This may open new possibilities to ease tensions, which today can neither be managed through the EU nor through NATO.” [15] Secondly, the changes within the EU and NATO have affected the Euroatlantic region. Germany was/is a powerful state within the two organizations. It was especially important that it could keep the opportunity of its OSCE Chairmanship in order to maintain a balance between parties (the EU, NATO and Russia).³² [17: 2]

“The priority status of the Ukrainian conflict and talks with Moscow has been shown by the appointment of Gernot Erler (SPD) as Special Federal Representative in the OSCE. Gernot Erler was a close associate of Minister Steinmeier between 2005 and 2009. He has served as Secretary of State in the Foreign Affairs Ministry in charge of Germany’s Eastern

²⁶ All details on the Report [16: 9–10]

²⁷ Stephanie Liechtenstein’s question.

²⁸ It should be mentioned the Final Report of the Panel of Eminent Persons (details see above) could be useful in this context. For this to happen it is all-important that the dialogue on European security issues should continue permanently within the OSCE.

²⁹ As recommended by the OSCE Network of Think Tank and Academic Institutions. [35]

³⁰ This paragraph is based on her complete study [15].

³¹ It is important to mention that German Chancellor Angela Merkel has always had a privileged relationship with Russian President Vladimir Putin.

³² More details of the difficulties in paragraph: *Defusing Conflicts Outside the Vienna Agenda*. [17: 2]

policy and, since January 2014, as Federal Coordinator for Russia, Central Asia and Eastern Partnership.” [28: 2–3] The negotiating framework was “a perfect distraction from the multilateral diplomacy of NATO member states towards Russia, which is critical due to the suspended cooperation between the NATO Council and Russia”. [28: 3]

Although the Ukrainian conflict remained the most important task, the German presidency continued to give political support to other observation missions, and cooperation with 55 experts. [17: 3] They paid particular attention to Transnistria, South Caucasus and Nagorno Karabakh. The Berlin presidency considered important the member states’ contribution to the OSCE budget, itself being the second largest contributor. The OSCE budget was €141.1 million in 2016. [28: 3]

How could the German presidency accomplish tasks of the five priorities area? What methods and tools were used? We could keep asking questions endlessly, but there are also answers.

It was not easy, but Germany was able to make good use of its own potential. “Whether the format includes ministers, senior officials from capitals, or ambassadors in Vienna, informal high-level meetings should be encouraged as much and as often as possible to continue a confidential dialogue aiming at bridging the gap.” [17: 3] Furthermore, Germany could also use its OSCE Chairmanship to make easy Track One and Half³³ or Track Two Diplomacy³⁴ “in carefully chosen fields, harnessing the capacity of think-tanks and research institutions for a common cause”. [17: 3] So, the “keeping lines of communication” were open, the Chairmanship focused on small, concrete steps to begin improving the confrontational atmosphere and to create mutual trust. Five areas³⁵ seem particularly well-suited to create these “cooperative islands”. [17: 2]

The following quotation is useful for a summary “The Ukraine conflict has therefore contributed to a ‘German moment’ without (as yet) transforming it into a European moment”. [22: 112] German Presidency played pronounced role in crisis management in Ukraine and in the realization of negotiations between the Ukrainian and Russian parties. E.g. Steinmeier Foreign Minister presented the OSCE Observer Mission in 2014 and together with the Swiss OSCE Chairmanship made efforts to set up a special observation mission. Furthermore, Germany was closely concerned “in the shuttle diplomacy of the Swiss OSCE chairship for the establishment of a trilateral contact group at the beginning of June 2014 under Swiss Ambassador Heidi Tagliavini, which led to the conclusion of the first Minsk agreement on September 5, 2014 between Moscow, Kiev and pro-Russian separatists.” [22: 125–126] This preference for the OSCE is also related to the OSCE tools (dialogue, cooperation, presence diplomacy), when the Swiss OSCE chairship was, which immediately offered OSCE support for crisis management. So in the end “as a result, the OSCE gained importance as an institution for crisis management and emerged from the conflict reinforced, while the EU has been weakened.” [22: 126]

It seems to me this example demonstrates that the OSCE can be a relevant partner for the current Presidency, and this was proven during the German Presidency, too.

³³ Track One and a Half Diplomacy as “unofficial interactions between official representatives of states”.

³⁴ Track Two Diplomacy offers insights into the role of informal and non-official discussions in resolving conflicts. Informal diplomacy is a relatively new one in the field of international relations.

³⁵ For details of areas see in [17: 3].

Conclusion

Jean Monnet was right, who was often called the founding father of the European Union, when he said: “Without men nothing is possible, without institutions nothing is permanent.” [6] Later Jaakko Iloniemi [6] also pointed out the same thing about the OSCE. Quoting him in his own words “political and legal institutions that are strong enough to weather storms and upheavals are the best guarantee we have for an orderly and successful management of international relations”. [20: 9] It can be stated that the OSCE can fulfil its roles and mandates.

The German Foreign Minister himself thus appreciated the annual work: “Without a doubt, the path there is a very, very long one. But let me borrow a quote from Willy Brandt: Small steps, he said, are better than no steps. Willy Brandt was himself a trailblazer for the CSCE. He would advise to take the small steps now, while the large steps are still far off.”³⁶ [36] And the German Foreign Minister said as OSCE Chairmanship in his closing remarks, left the participating States with a question: “A quarter of a century after the end of the Cold War, we find ourselves at something like a crossroads. We are faced with the fundamental question: do we want to continue pursuing this vision of cooperative and comprehensive security or not?”³⁷ [21: 4]

A remarkable statement by the foreign ministers of Germany, Italy and Austria to strengthen the role of the Organization for Security and Cooperation in Europe has been read on the pages of the *Frankfurter Allgemeine Zeitung*. “Just in stormy times, we need a strong OSCE”, said with one voice Frank-Walter Steinmeier, Paolo Gentiloni³⁸ and Sebastian Kurz. The three ministers identified some common areas for action, such as “the creation of new platforms for dialogue and for a lasting solution of the crisis in Europe, a new beginning of monitoring conventional arms, a common approach to global challenges. The ministers speak of “too restless times in Europe” that “have questioned the architectural pillars of European peace” and they again mentioned the Ukrainian crisis. [23]

To sum up the German OSCE’s method (cooperation, dialogue, presence diplomacy, trust) which at the same time is an effective instrument not only in the Ukrainian crisis, but it also would be a good example for crisis management elsewhere. And as Swiss Foreign Minister Didier Burkhalter once said: “The OSCE has become the eyes and the ears of the international community in Ukraine.” [29: 2]

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³⁶ The full speech can be read at [36].

³⁷ Ministerial Council, Hamburg, 2016.

³⁸ The OSCE stretches “from Vancouver to Vladivostok (and its) concept of security is now more relevant than ever,” said Italian Foreign Minister Paolo Gentiloni. [24]

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Prerequisites of Virtual Teamwork in Security Operations Centers: Knowledge, Skills, Abilities and Other Characteristics¹

Balázs Péter HÁMORNIK,² Csaba KRASZNAY³

Cybersecurity is an emerging field of national security where usually the technical aspects of defense take first place. Cyberdefense is heavily relying on teamwork where members of Computer Emergency Response Team (CERT) or Computer Security Incident Response Team (CSIRT) or Security Operations Center (SOC) teams are often geographically dispersed. In cybersecurity teamwork, computer supported collaboration is crucial as the team functions virtually in many ways. In this paper we present the results of interviews that were conducted with SOC experts and we summarize the reviewed relevant literature. We have reviewed knowledge, skills, abilities and other characteristics (KSAOs) that make a team of cybersecurity experts capable to perform as virtual teams. These results revealed that to treat the cybersecurity team as a socio-technical system and supporting to cope with challenges of virtual teams helps them to be more effective and enhances employee retention. This perspective may contribute to cyberdefense of both industry and military.

Keywords: human factors, Security Operations Center, teamwork, KSAOs, virtual teams

Introduction

As cybersecurity is getting one of the most important national security issues worldwide, nations began improving their ability to tackle this challenge successfully by setting up specialized forces for cyberdefense. One of the best-known setup for such groups is a Computer Emergency Response Team or a Computer Security Incident Response Team. A CERT or a CSIRT can support one organization or a set of organizations with the same interest. The basis of their success is the continuous flow and interpretation of security related information. This can be done in a Security Operations Center (SOC) that is the key element of modern incident management.

There are several CERTs or CSIRTs in Hungary, some of them support private companies, some of them were established by non-profit organizations, some of them came into being through the effects of a law. CERT-Hungary is responsible for the incident management of all governmental and municipal bodies, meanwhile Mil-CERT deals with the cyber incidents

¹ The work was created in commission of the National University of Public Service under the priority project PACSDOP-2.1.2-CCHOP-entitled “Public Service Development Establishing Good Governance” in the Ludovika Cybersecurity Workshop.

² Ph.D., Assistant Professor, Budapest University of Technology and Economics, Department of Ergonomics and Psychology; e-mail: hamornik@erg.bme.hu

³ Ph.D., Assistant Professor, National University of Public Service, Institute of E-government; e-mail: krasznay.csaba@uni-nke.hu

of Hungarian Defense Forces. Although cooperation is essential between such groups, they have to be built up as an operational internal team first. [1] Unfortunately, one of the major problems in information security is that there is a million-man strong manpower shortage in this profession worldwide. In military, this might be solved by simply reassigning some troops, but old traditions may not work in a modern age with knowledge workers. Therefore, it is worthwhile studying people related questions of cyber defense and highlighting the findings to support Hungary's national security efforts in the cyberspace.

Knowledge, skills, abilities and other characteristics (KSAOs) could be identified that make employees capable of working effectively in SOC teams. This includes both general and virtual teamwork approaches. This step should rely on the results of research on work-related stress in other high-risk industries, such as aviation or nuclear power-plant (NPP) where employee selection focuses on tolerance against monotony or on vigilance. [2] The application of the expected results from this latter step would contribute to better employee selection, retention, and development in SOCs even in the military, which in turn could help alleviate the serious lack of experts that, as mentioned previously, SOCs are facing nowadays.

Security Operations Centers (SOCs)

Security Operations Centers are defined as both a team and an organization unit, often operating in shifts around the clock. SOCs are also a facility dedicated to preventing, detecting, assessing and responding to cybersecurity threats and incidents, as well as to fulfilling and assessing regulatory compliance. This implies many aspects that invite closer examination: the team (in the first place), the organizational unit, and the external expectations that compliance requirements bring. It is important to emphasize that SOCs cover multiple security activities that require different skill sets when it comes to effective teamwork. A fully functional SOC running 24/7 requires a team of minimum eight to 10 people just to maintain two people per shift, working three days on, three days off, four days on and four days off in opposing, 12-hour shifts. [3] This requires effective teamwork and competent leadership of such teams. To maintain continuous high quality through the changes in shifts and people, a deep, shared understanding should be developed and kept up-to-date. In addition, the recruitment, selection, and retention of employees is crucial in SOCs: shift work, time pressure, monotony, and high risk all make demands on staff, as they induce stress and fatigue, and are a challenge to work-life balance.

The main activities that an SOC covers are monitoring functions, detection, triage of alerts, resolution of incidents (by taking actions or escalations), handling of issues (aligned with the internal or external processes required, e.g. ticketing system or reporting), threat hunting and threat intelligence (TI).

The last 15 years of the SOC landscape reveal four incremental generations of SOCs developed as responses to increasingly sophisticated attacks. [3] [4] [5] The generations distinguish different sets of tools used and ways of working, as well as more and more requirements to comply with. This evolution is visible throughout the research literature from the years 2000s. [4] SOC generations are as follows:

1. *First-generation SOC*: Security operations are not delivered by the establishment of a formal SOC, but in many cases by some IT operations individual or a team who focuses on a blend of tasks. They cover device and network monitoring, as well as antivirus operation. They rarely work proactively, and the security incident response is

not appreciated highly in the enterprise. This initial generation of SOCs does not usually use a centralized system such as a Security Information and Event Management (SIEM) tool. [3]

2. *Second-generation SOC*: At this stage, SOCs focus on security threat management and event management, which creates the need for SIEM tools. SIEMs aggregate log information from various sources to form events. Events are then correlated to discover the possible relationships between them to help identify a security incident. Incidents are reported and visualized as dashboard alerts to SIEM operators. At this level, SOC activities are integrated with company ticketing systems. The main activity while operating such second generation SOC systems is correlation rule setting and refinement to enable the SIEM tool to capture known or recently discovered threats. This is always a reactive way of working. [3]
3. *Third-generation SOC*: At this level of evolution, incident response tasks are formalized. Other security services, such as vulnerability management are linked to SOC operations. This shows a shift toward a more proactive strategy. [3]
4. *Fourth-generation SOC*: The latest generation is described by the manner SOCs treat data. They can analyze large amounts of data recorded over long periods of time to discover threats and visualize them. This volume of data could also mean big data analytics. The data is enriched using multiple external sources (e.g. geo IP, DNS, IP and Domain reputation service, threat intelligence feeds). Another key differentiator at this level is the automation of remediation measures (as opposed to manual rule setting processes). [3]

Regarding the models of SOCs, based on our knowledge of the market, five distinct models exist:

1. A virtual SOC, mostly found in small enterprises does not have a dedicated facility and consists of part-time members working in a reactive manner. The virtual SOC may be applied when most of the SOC operations are outsourced and the in-house security team is limited to this model.
2. A multifunction SOC/Network Operation Center (NOC) has a dedicated facility, however, it shares tasks and people with the NOC. It provides 24/7 operations and it is frequent in the case of low-risk large enterprises or small/mid-size companies aiming to save costs.
3. A distributed/co-managed SOC consists of dedicated and partly dedicated team members, typically in 5/8 operation times, co-managed with a Managed Security Service Provider (MSSP). It is most frequent in small/mid-sized enterprises.
4. A dedicated SOC has its own facility and team fully employed in-house, operating 24/7, covering all functions required. It is the best practice choice for large enterprises and companies facing high risks.
5. A command SOC is a coordinating, higher-level SOC that provides threat intelligence, threat awareness, and additional services to multiple local SOCs in very large enterprises. Command SOCs are rarely involved in day-to-day operations. Security operations can be outsourced to expert service providers (MSSPs) who run the SOC at their facility, using their own team. In this case, the MSSP's SOC team is shared among multiple clients.

An SOC facility's physical characteristics are inspired by the arrangements found in a network operating room. [3] The aim of the physical setting is to facilitate monitoring, the shared understanding of events, and the collaboration of experts. The analysts at the individual workstations with multiple displays are facing toward a large central screen, which shows a dashboard where alerts may appear and where network status is monitored in tables, logs, and charts. The analysts' displays show the same types of information in details. The individual workstations are grouped by roles of team members. *Level 1* analysts, who investigate alerts at the first step, usually sit closest to the central display. Then *level 2* and *level 3* come at increasing distances from the center. The adjunct functions of the SOC e.g. TI, forensics, malware analysis may sit separately or even in different facilities. The SOC manager as a team leader is positioned to overlook the whole team in the room to be able to orchestrate their work.

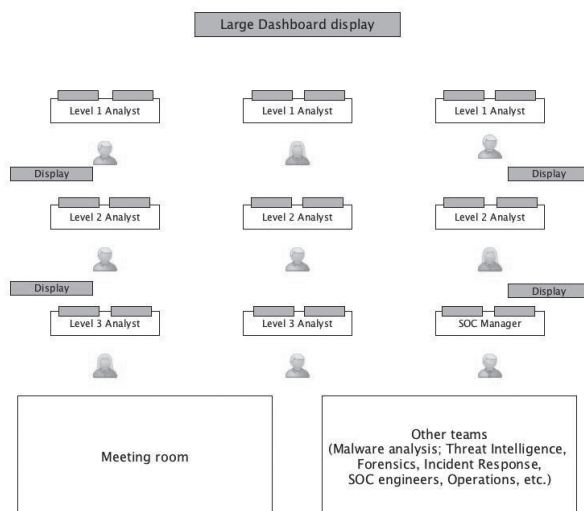


Figure 1. *SOC floor plan*. [Edited by the authors.]

As mentioned previously, the SOC is also defined as a team which has a leader and specialized employees. [3] SOCs are usually led by the SOC manager, who is responsible for the overall leadership. The majority of tasks in the team rely on analysts whose responsibilities can include security event monitoring, incident report investigation, incident handling, threat intelligence, vulnerability intelligence and reporting. They are organized in escalation levels (1–2–3) or tiers from juniors to seniors. The most advanced experts are doing forensics and malware analysis, which may be somewhat separated from the escalation levels. There are engineering roles (SOC engineers) too, who are responsible for the testing, staging, and deploying of new technology platforms or major releases/updates to those platforms. This also includes the setting and the refinement of correlation and detection rules. Operations roles also exist, focusing on the maintenance and operation of the SOC platforms. Beside these core roles, other support functions can also be represented in the SOC team: project managers, compliance and audit support experts, process/procedure developers, training specialists, communications specialists, etc.

SOC is a Field of Teamwork

Teams are groups of people working together toward reaching a common goal. They work in an interdependent way: every team member's performance contributes to the overall performance and they rely on each other. [6] Their activity is coordinated by a leader who orchestrates the processes and procedures they follow. These are especially valid in the case of high-risk industries—such as aviation, nuclear power-plants (NPPs) and information security—where an error can lead to fatalities, accidents, or data losses.

Teams are more than the sum of their members: interdependency and collaboration among members produce higher performance than can be reached by the individuals making up the team. This originates from the way knowledge is used and combined in a team. Mental representations that contain information that are applied in the team are named in multiple ways in the literature of psychology. A focused field of applied cognitive and social psychology studies team cognition in multiple industries. Team mental models [7] [8] contain the shared knowledge that a team has. This means the up-to-date representation of the internal and external reality, the knowledge that has to be applied during work. It contains the problems and tasks to be solved, the tools to be used, individual knowledge and its distribution (who knows what), the processes to follow on a team or individual level (roles in the team), and the future state that is the aim of the team's activities. The team's mental model functions as a common interpretative frame for the team, which enables them to react effectively to challenges. [8] The team mental model contains decision- and behavioral patterns that can be applied across the team and which enable them to behave coherently.

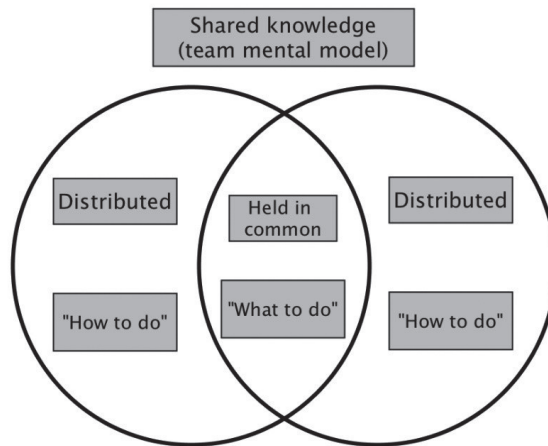


Figure 2. *Team mental model: What is shared and distributed?* [Edited by the authors.]

According to Banks and Millward [9] the procedural knowledge that dictates how to perform a task (a procedure [3]) usually does not have to be owned by every team member. It is not fully efficient to have the knowledge of procedures represented redundantly: a team should not be a group of one-man-armies as it is emphasized in case of SOCs. [3] The declarative

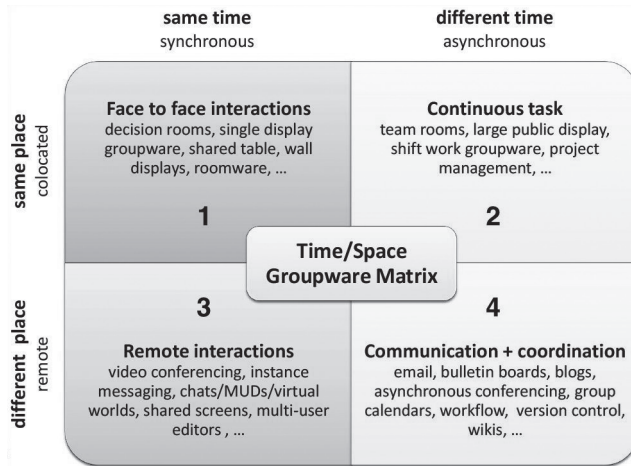
knowledge containing what to do has to be owned by every team member indeed. It enables the team to keep their focus on their aims, and act in a coordinated way toward the same goal.

The key to using team mental models effectively, as a team-level cognitive process, is communication. Explicit communication enables teams to build and update team mental models. [10] [11] [12] During periods of high pressure, there is often no room to communicate, to explain the background of actions or the context. Thus, communication before actions is crucial to a fully functional team mental model. During an emergency situation, teams perform with a limited communication capacity, coordinating their actions implicitly. This means that they presume that everyone knows what to do and how to perform their roles. The team mental model held in the minds of individuals enables the team to perform effectively. As we have previously reviewed information security teamwork in SOCs, this is one of the fields of teamwork in high risk where team mental models, communication, and coordination takes a crucial role in success.

Computer Supported Cooperative Work (CSCW)

Information security and security operations centers places where teams are using technology to collaboratively complete their tasks, reach their goals. This makes the research field of Computer Supported Cooperative Work (CSCW) highly relevant. According to Carstensen and Schmidt CSCW addresses: “how collaborative activities and their coordination can be supported by means of computer systems.” Relying on the definition of Carstensen and Schmidt “*computer-based support for cooperative work can be provided by offering better communication facilities, providing improved monitoring and awareness possibilities to the actors, and by aiming at reducing the complexity of the coordination activities to be conducted by the involved actors*”. [13: 620] CSCW focuses on the study of tools and techniques of groupware, as well as their psychological, social, and organizational effects. [14] In order to use our concepts distinctively, we have to define what we mean by collaboration and cooperation. Collaboration is when people work together toward a single shared goal. Cooperation is slightly different: while cooperating, people perform together but also work on their own goals (goals that fit the common aim’s direction).

The “CSCW matrix” (Figure 3) considers the work context along two dimensions: space features of collaboration (co-location or geographically distributed) and time features of collaboration (synchronous or asynchronous working). The resulting four cells cover most of the possible ways a team can collaborate or cooperate. [15]

Figure 3. *The CSCW Matrix.* [16]

Previously we have defined SOC teamwork as where team mental models expected to be observed and identified expound the characteristics of it in the CSCW perspective. [17] In this study we are focusing on a mixture of synchronous and asynchronous tasks heavily relying on remote interactions, communication, and coordination.

Virtual Teams

Security Operations Centers are assumed to be a field of teamwork where technology plays a crucial role while more and more frequently geographical distributed experts are requested to collaborate using communication channels provided by information technology. These characteristics of teams fit what literature defines as virtual team. Traditionally virtual teams are defined as: “*a group of people who interact through interdependent tasks, guided by common purpose. Unlike conventional teams a virtual team works across space, time, and organizational boundaries with links strengthened by webs of communication technologies.*” [18: 6] This definition fits the CSCW matrix cited above and integrates into the research paradigms of work and organizational psychology. Virtual teams are in the current focus of organizational psychology, since approximately 79% of knowledge workers work in dispersed teams so it became a standard form of working. [19] In the following section, we are examining collaborative aspect of security teamwork where virtual teamwork may appear.

Virtual Collaboration in SOCs

Information security work both in individual and team levels started emerging as a research topic in CSCW from the early 2000s. Hence the emphasis of supporting the effectiveness in this field remained on the technology side. The technology provides more and better data, indicators, anomalies, less false positive alerts which security experts are getting faced with. Focusing on the human factors Goodall, Lutters, Komlodi [20] [21] studied the analysts using intrusion detection system (IDS). In that time SOCs were not widespread and the activities

of IDS Analysts could be considered to be the ancestors of SOC Analysts. IDSs are pattern based alerting tools aiming to prevent attacks against the organizations computer network. Analysts handle alerts that are false positives in a very high percentage: however, they have to maintain their vigilance to look for alerts indicating real compromises. Considering the IDS analysts' work as a socio-technical system [20] three points can be highlighted: (1) understand the work-behavior of analysts, what effects both (2) the way to design technology that fits their tasks, and (3) the staffing of such teams. IDS Analysts work consists of monitoring, analysis, and response. These tasks are mostly identical to SOC analyst tasks. Especially since these have similarities in collaborative means: analysts do not work in isolation: they are interactive with other experts responsible for other domains in the security team (security manager) or in the organizations or even outside the company when looking for or sharing threat intelligence information (TI)—email feeds in 2004, TI platforms nowadays.

1. *Monitoring*: IDS analysts handle high quantity of alerts, considering most of them as false positives. This high load of alerts causes the monitoring and reacting activities to be performed under time pressure. This is a time consuming but not cognitively challenging task.
2. *Analysis*: When an alert is not considered false positive analysis is required to make the further decision on what reaction to take. This is a highly unpredictable yet non-routine task. Both the frequency and duration of an analysis can take minutes, hours, or even a day. Analysts use heuristics for promoting decisions as fast as possible: they look for known patterns of events, use their previous and mostly implicit experiences, and their knowledge on the signature set (considering some signatures or rules more reliable than others). For the decision, the experience, the context and the knowledge of the own network are essential. With a steep learning curve for this it is hard to share knowledge what is acquired on the job that relies on experiences (e.g. eyeballing long lists of logs). Seniors mostly teach juniors on the job even though both of them have high workload. As the organization size grows, the required network knowledge emerges and job roles are more distinct (system administrators, security administrators, analysts in multiple tiers with SOC or without SOC) what causes heavier reliance on collaboration. Over the time multiple solutions appeared to collect and correlate data in order to reduce the number of events, reduce false positive alerts, enhance collaboration between team members in remote locations. Nowadays SIEMs are the main software functioning in the heart of SOCs providing surface of many individual and collaborative activities.
3. *Response*: IDS analysts make intervention, feedback and reporting when responding to incidents. The intervention takes place in coordination with others both in face-to-face and virtual collaboration. The feedback in case of IDS and in modern SOCs using SIEMs means refining the signatures or rules and generating share threat intelligence information from the incident. The response phase is closed by reporting and the remediation of damages (e.g. restoring from backups).

Reviewing Goodall, Lutters, Komlodi [20] [21] and current SOC literature [3] the similarities show that over time it can be stated that the “security work is collaborative both within the organizations and across the internet”. [21: 345] The authors made an important proposition to commit organizational changes besides subsequent technological efforts being made. They

identified the lack of time to analyze alerts and information overload as key issues in case of IDS analysts. Goodall, Lutters, Komlodi [20] advised the separation of monitoring (junior level) and analysis (senior level) job roles and introducing information visualization tools, to furthermore provide support for collaboration. These advices are parallel with the current trends in improving SOC efficiency.

The support of face-to-face and virtual collaboration was obviously missing from this field back in 2004, and it is still requiring major improvements nowadays. Information security teamwork is a CSCW field of collaborative problem solving under high workload, time pressure, and high risk what makes team cognition (e.g. team mental models) a key perspective to understand and provide support. Since then the issues related to staffing and transferring expertise still remained unsolved. It is now crucial to understand what knowledge, skills, abilities and other characteristics contribute to successful information security work and how to support the acquisition of these.

Since 2004 SOC are widespread that is a dedicated team working in collaboration among its members and with other teams, in a structured way. The tasks are both structured within the team and the team space (the SOC room, see Figure 1) is designed towards promoting a common understanding of the security situation. However, the virtual collaboration of remote team members appears as a growing challenge.

Challenges of Teamwork in SOCs

Goodall, Lutters, Komlodi [20] described a workplace where time pressure, monotony of time consuming but not cognitively demanding tasks, and information overload as major challenges in case of analysts; these remained major issues today also.

SOCs nowadays face challenges from both internal and external issues. A global shortage of skills and employees constrains the building of SOC teams. From the point of view of external challenges, intensive and ever more complex cyber-attacks constantly push SOCs toward applying new technology, and toward a change from a reactive to a proactive way of working, one that is based on threat intelligence and hunting activities. [22] From the perspective of internal challenges, once an SOC has been built, the task cannot be considered done. Indeed, the operation and the further development of processes, people, and technology remain crucial all along. From the people's side, collaboration within the SOC team and with other teams are specifically emphasized in recent market analyses. [23] The employee retention is a crucial internal issue compared to all others.

The emerging special segment of SOCs and security teams working together in virtual or mixed ways such as virtual SOCs (model 1), co-managed SOCs (model 3), MSSPs (model 5), or dedicated SOCs (model 4) that are monitoring companies of multiple remote locations are all facing challenges of SOCs in general and mentioned above. In order to identify the key causes of challenges in computer supported collaboration using mixed or entirely virtual channels within and between the teams we are focusing on KSAOs that make people capable to perform in a highly efficient way. The SOC models mentioned above are highly relying on virtual teamwork so the possible human factors of success can be studied. Schultze and Krumm [19] highlighted three main challenges appearing in virtual teams such as we think SOC teams are: (1) technology usage, (2) cultural differences, and (3) geographical dispersion.

Aims

In the previous research phase, we have been focusing on applying teamwork and computer supported collaborative work (CSCW) research to SOCs. [17] As a further step in this paper we are focusing on the prerequisites of a successful teamwork in this environment. We are approaching the question from the challenges of human factors, and virtual teamwork.

Security Operations Centers can be considered as fields of virtual or augmented teamwork. In our study we are aiming to identify the prerequisites of successful SOC teamwork limited to the aspects of virtual teamwork. Information security as all other fields heavily relies on dispersed teams collaborating through computer supported channels both in synchronous and asynchronous ways. The knowledge, skills, abilities and other characteristics (KSAOs) are supposed to play an important role in being effective as a virtual team working in a SOC. Are there KSAOs that promote people in SOC to perform better, stay motivated, work better as a team? We are aiming to identify the challenges and possible KSAOs relating to them using field interviews and literature research.

Methods

We have conducted 15 semi-structured field interviews with industry experts who are operating an SOC or performing tasks related to SOCs. The interviews were focused on the following topics: processes for investigating incidents, roles in the team, collaboration, tools used, levels in SOCs, time frames and escalations, what information is presented and available for the experts, the physical organization of the workplaces, the largest challenges among the daily tasks, etc. Also we included questions in case of managers that cover the employee recruitment, career planning, and learning opportunities in their SOC teams.

The experts interviewed come from the Western-, and Central & Eastern Europe region, North America, and North Africa. They operate SOCs or security organizational units in the IT, finance, governmental, research, and IT security industries. There can be found both in-house SOC operators and managed security service providers (MSSPs) among the interviewees. These interviews were combined with two field visits to currently operating SOC departments: one was an in-house SOC of an IT company, the other was a large managed SOC of an MSSP serving clients in Western Europe. This set of interviews and visits were completed with literature review, the analysis of sector-specific market researches (e.g. Gartner, Forrester), and two interviews with independent market experts. We handle all the sensitive company information anonymously and present them only as aggregated results here.

Results

We have found that SOCs show large differences in maturity levels and SOC models.

On the one hand, there are SOCs owned by enterprises only for compliance reasons, and these are not operated at their full potential. On the other hand, there are highly structured in-house and managed SOCs that focus on proactive security monitoring. The industry trend is to focus on threat intelligence and become more proactive [22] in order to keep up with the rising number of attacks.

We have found that SOC activities are separated from the overall security or operations departments in most cases. Depending on maturity, this means more specified roles, positions, and locations. Similarly, to what have been observed by Goodall, Lutters, Komlodi, [20] [21] the smaller the organization, the more roles a security expert shares in it including system administration, forensics, security administrations, etc. Summarizing the processes that these SOCs (or SOC-like teams) follow, it is important to emphasize that all of them have dedicated escalation levels with defined time frames to handle an event or incident. This is one main source of time pressure across the teams. The main activity besides event and incident handling is the setting and refining of rules. The core tool used in SOCs is a SIEM that uses rule-based alerting. These rules are reactively made based on previous and recent incidents. The rule set builds up a large knowledge base of security incidents that the SOC can detect and handle. Nevertheless, this rule set requires continuous updating as attacks tend to evolve and change over time. This is the most time-consuming and effortful activity in SOC teams. Besides SIEM other specialized tools are also used in SOCs. These tools for e.g. IDS, net flow, malware analysis, endpoint protection, firewalls, threat intelligence sources are also providing information in an incident response situation when all data available have to be analyzed. The multiple tools used cause workload by dividing attention of the users especially when the user experience of these are heterogeneous. Following the trends that Gartner [23] revealed, therefore, TI and proactive ways of working (e.g. use of machine learning) are gaining popularity to reduce the hassles caused by manual rule setting.

The interviews shed light on challenges that specifically related to computer supported cooperation of remotely located people or teams. Experts working in MSSPs mentioned that delay in working hours (because of different locations and time zones) causes interruptions in incident responses and gathering of context information. Cultural related challenges are appearing in language skill differences among distributed team members what makes different preferences in communication channels (email, phone, ticket, etc.). The knowledge of the network monitored and protected is not accurate or up-to-date enough in case of large organizations or managed SOC services providers: the system administrators or clients are neglecting providing this information to the (remote) SOC team. This lack of knowledge of the own network hinders fast understanding of event context thus the ability to respond effectively.

These findings ensure that our sample of SOC experts are representing the industry well and their experiences are a valuable foundation of identifying challenges.

Regarding human factors, it is important to note that monotony is a strong source of stress for analysts: the monitoring task is repetitive and most of the time no significant incident happens, hence vigilance has to be maintained. Most of the events examined are false positives. When something happens the time-pressure is high because the incident handling time windows are limited and sometimes regulated by SLAs. This causes high workload. This is, among others, a cause that contributes to low retention and a lack of employees in the sector. Shift working in 24/7 is the other factor that contributes to heavy workload and stress. Contrarily to other high-risk fields like aviation or utilities, in IT security people are more prone to change jobs (and leave stressful SOCs) to other IT jobs where their skills are applicable. This all together contributes to a lack of skilled security employees in the industry on every level.

The physical work settings, in every case, aim to support the visibility of information: large screens, multiple displays per workstations, and specialized light conditions. The tools analysts use are largely customized based on company requirements, for example, integrated with or even built around the ticketing system.

The roles in SOC teams are highly structured, hence the lack of skilled employees may eventually contribute to more flexibility (e.g. through job rotation) in order to support employee retention. This is an effort observed multiple times in our discussions with experts that SOC management makes in order to cope with human factors challenges. The policies, processes, and even procedures are highly defined to fit company regulation or compliance requirements.

In the SOCs studied, collaboration and cooperation are observable on multiple levels and mediated by several channels. First of all, local team members communicate within the team verbally or using email, chat for synchronous cooperation, and the ticketing system for asynchronous cooperation. The security teams observed in global companies have connections or sub-teams in various locations in the world. There is intensive communication with these remote team members using computer-mediated channels, phone calls, and rarely face-to-face meetings. These later examples are fitting the definition of virtual teams described above. Finally, there is cooperation and communication with employees of the company who are not involved in security functions. They are the “ordinary” people who can be both targets of an attack or represent an insider threat. Information exchange with employees mainly happens using email and phone calls. Reaching company employees is especially complicated in the case of a managed security service when the SOC is operated by an external company in a time zone different from the one where the customer to be protected is. These later issues mentioned by the experts interviewed are related to mixed or virtual team collaboration. All together these features of teamwork either a mixed setting where technology augments the face-to-face interaction or virtual teamwork where the team members are distributed in geolocations, working times, organizational units. This includes both in-house and managed SOC teams on a spectrum of fully virtual team who rarely meet face-to-face to a team that augment their collaboration by using communication technology.

A schematic way of incident handling in an SOC is described by Muniz and his colleagues [3] is summarized in Figure 4. This process is supported by our findings based on our interviews and visits.

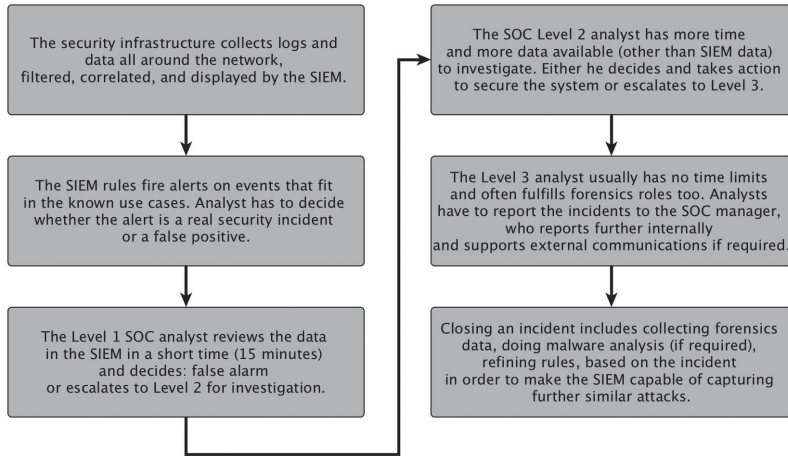


Figure 4. *The schematic steps of incident handling in an SOC is described by Muniz et al.*
[Edited by the authors.]

Besides this chain of actions performed when something out of the ordinary happens, the daily routine of the SOC team consists of prescribed monitoring tasks, threat hunting for suspicious events in data, and rule refinements—these are often monotonous tasks.

Discussion

The findings summarized above prove that the information security activities performed in Security Operations Centers rely heavily on team collaboration, cooperation and on how information is shared and used in teams. These teams use multiple computer-mediated channels for working together and for collecting, displaying, storing information, and taking actions. Examples of these channels are the ticketing system, chat applications, phone calls and wikis.

There are multiple levels of remote or virtual collaboration observed in SOC teams sorted using the cells of the CSCW matrix. [16]

1. In the case of face-to-face interactions, discussions and meetings take place in the same time and space in the SOC. The large displays of events or alerts happening in real time are visible from all parts of the SOC room and they provide information in a collocated synchronous way.
2. The same large displays, dashboards, and project management tools (e.g. Jira, Slack) supporting continuous work can be used in an asynchronous way too, while analysts are changing shifts or new experts are involved in the incident response.
3. Remote interactions happen through messaging or chat tools (sometimes integrated in project management applications). The same dashboards and SIEM data are visible in multiple remotely collaborating locations of a SOC. The real-time monitoring of privileged users also fits into this cell of the matrix, that is, when an activity is remotely observed as it happens.

4. Teamwork that is asynchronous in both time and space is related to communication and coordination tools such as the project management or ticketing tools, emails, wikis (e.g. Confluence) and calendars. Threat intelligence and forensics data collection and sharing also fit into this cell.

The issues learned from interviews and field visits are matching the challenges highlighted by the research of virtual teams. Not only technology but individual and organizational factors take important roles in solving challenges that SOCs are facing nowadays. KSAOs are crucial in this set as these are the input elements of a high performing virtual team what SOCs are likely to be.

The SOCs in case of three plus one models can be considered as fields of virtual teamwork. Virtual SOCs (model 1), co-managed SOCs (model 3), MSSPs (model 5), and dedicated SOCs (model 4) when monitoring companies of multiple remote locations are all facing challenges virtual teams. These are challenges of technology usage, cultural differences, geographic dispersion (CITE Schultze). These challenges have impact on communication, coordination, cohesion, trust, performance, innovation or even on functioning. [19] These impacts cover almost every field of teamwork. The results based on the interviews verify these challenges appearing in case of SOC teams. Also the high reliance on technology in case of virtual teams in SOCs make the earlier observations of Goodall, Lutters, Komlodi [20] of IDS analysts from the perspective of CSCW applicable. Even though these have moved to the forefront of discussion in the literature, the high workload and the personnel issues remained a problematic area in the security domain. Changes in technology has to be matched with changes in the organization in order to facilitate a successful cooperative work. [20] Implementing novel tools will not solve the challenges in SOCs: organizational improvements e.g. redesigning job roles or career paths are also required to be successful.

Specifically referring to challenges and related to virtual teams, that SOCs are considered to be similar in certain cases, Schulzte and Krumm [19] provides a detailed review of literature. The authors match the challenges with relevant KSAOs which provides a framework of future research and field applications of virtual teams e.g. to SOCs.

Challenges in Virtual Teams

The main challenges appearing in virtual teams are (1) technology usage, (2) cultural differences, and (3) geographical dispersion. [19] In details the challenges consist of the following:

1. *Technology usage*: the technology used to connect team members often suppress social cues, nonverbal communication which reduces attractiveness, understanding, relationship and trust-building in virtual collaboration. [19] In case of SOCs the technology used to reach out other experts or clients often mentioned to be a source of problems and biases: they are hard to reach or the mutual understanding is missing. Especially in case of asynchronous communication (e-mail, ticketing system, wiki, etc.) the ratio of relational messages in the communication often causes feelings of uncertainty, larger demand for coordination and problem solving. It strengthens this challenge that intensive and ever more complex cyber-attacks constantly push SOCs toward applying new technology.

2. *Cultural differences*: it means differences in values, communicative behavior and language skills. Poor language skills cause anxiety which causes less communication. [19] This may lead to lack of information that is required to be shared across the SOC's dispersed team.
3. *Geographical dispersion*: meaning also configurational, spatial and temporal dispersion. It includes problems of low visibility, reduced awareness of isolated team members leading to increased coordination requirements. Team members dispersed in multiple time zones may suffer low accessibility of information (e.g. who knows the answer is out of his working hours) and reduced coordination which reduces performance. [19] In case of managed SOCs the service provider suffers problems reaching clients out of their working hours and SOC employees working in night shifts to cover the client's time zone are prone to larger workload and stress.

The interviews revealed issues in all three challenges which underline that SOCs share the problems of virtual teams as they are functioning alike in many cases. The knowledge, skills, abilities, and other characteristics (KSAOs) that considered as drivers of virtual team success are grouped into six clusters [19]:

- *Media KSAOs*: knowledge about the medium, knowing how and when to use what, and adapt to channel restrictions
- *Communication KSAOs*: enables people to communicate effectively within dispersed teams, share knowledge, interpret messages appropriately
- *Trust-related KSAOs*: the skill to develop interpersonal trust (e.g. responsiveness, dependability, active and frequent participation)
- *Intercultural KSAOs*: both knowledge and skills that help to interact with people from different (organizational-, functional-, national-) cultures
- *Self-management KSAOs*: the skill to manage oneself effectively (e.g. self-, time-, project- management)
- *Conflict management KSAOs*: the skill to constructively solve conflicts

Schultze and Krumm [19] reviewed the relevant facets of challenges and KSAOs (including motivation, experience, and personality). In case of virtual collaboration in SOCs we consider a selection of this broad review to be summarized here as a practical conclusion providing answers for issues emerged in the interviews.

Knowledge about the Challenge of Technology Usage [19]

The inadequate team communication or collaboration media choice harms teamwork. Contrarily knowledge about media channels is promoting teamwork. Consciously using media with low synchronicity helps transmitting information (conveyance). Using media with high synchronicity promotes mutual understanding in teams (convergence). The complimentary usage of communication technology also supports virtual teamwork. The more modalities are involved in the teamwork (modality augmentation) the less errors and information overhead will happen. These may apply to the selection of tools and communication channels to use in SOCs collaborating in mixed or virtual ways.

Skills about the Challenge of Technology Usage [19]

Certain communication skills support virtual teamwork through usage of technology which are applicable to SOCs. These are expressiveness, coordination (e.g. timing of emails), attentiveness, composure (e.g. how confident one is). These are important for communication within the team or between teams or with clients' communication.

Knowledge about Cultural Differences Related Challenges [19]

Cultural knowledge is a plus in any case of collaboration. Knowing how cultures perceive channels of communication technology differently reduce misunderstandings and even conflicts. It is a valid case of an organizational culture described in one of our interviews where email is the accepted channel of work orders so this is used for a trigger of forensics tasks to do. No other channels apply for this role and the knowledge about this helps to work with that team better. Similarly, email is effective in reducing language problems, miscommunications because it is asynchronous, causes less anxiety in members with lower language skills. The cultural knowledge can be shared in training programs which may have a positive effect on SOC teams' performance.

Skills about Cultural Differences Related Challenges [19]

Cross cultural communication skills acquired by team members promote teamwork in virtual collaboration. Adopting communication with partners (e.g. communicate clearly, reducing slang words) occur 80.3% in verbal and 60.7% in written communication. Verbal communication is a stronger trigger to adapt language level. This application of culture related skills lead to higher trust in the distributed team and higher performance. This facet is fitting the case of global SOCs (of large organizations) and global MSSPs providing service for culturally different clients. These skills should be assessed and developed in order to make a successful SOC team.

Knowledge about Geographical Dispersion Related Challenges [19]

The knowledge that distance hinders synchronous interactions helps to apply compensatory solutions. Regular face-to-face meetings and site visits have a positive effect on virtual teams. The same effect was observed in case of video conferences where non-verbal communication channels are more available. It has a positive effect that the team members know that asynchronous communication is good for conveying information across time zones. In general, it promotes team performance when the members know the effects of certain communication channels because it helps to choose adequately. These can be included in training programs for SOC personnel.

Skills about Geographical Dispersion Related Challenges [19]

High skills in time- and self-management supports virtually collaborating teams to plan, strategize, schedule and reduce communication delays (e.g. keeping shifted working hours

of others in mind). Communication skills applied adequately by providing contextual information promotes shared identity of the team and trust. The same effect is related to frequent and spontaneous communication. Such skills may be the characteristics to look for in SOC employee selection or to develop in training.

Motivation

Motivation plays an important proximal role in virtual team performance. Motivation towards technology usage may appear perceived usefulness of tools or even in computer anxiety which are determining factors in technology usage. [19] Organizations having SOCs or using managed security services have high compliance regulations (e.g. financial sector) where early adoption to new tools and technology is rare. Thus, motivation towards the usage of virtual teamwork related technology may appear constrained. Motivations related to cultural differences in virtual teams appear as a fear of communication in foreign languages or high cultural intelligence as a better case. [19] These motivations can either be perceived or shaped by SOC management. Motivational issues are related to geographical dispersion of the teams for example the feeling of anonymity, low social control, low visibility of own/other team can end up in social loafing which reduces performance. [19] Contrarily trust, coordination, goal setting, self-efficiency promoting motivation of team members dispersed in various locations. Geographic locations per se have an effect on motivation which has to be considered in case of virtually collaborating SOC teams or using managed services.

Experiences

Experiences of team members with virtual team work have a positive effect on coping with all three challenges. [19] Experiences with technology shapes the media channels' perception. Intercultural experiences are precursors of culturally intelligent acting. Dispersed work experiences support self-efficacy which promotes performance. This is applicable to SOCs when searching for employees: experiences with virtual teamwork and its challenges predict better performance.

Personality

Personality characteristics are the less studied area in this field. On a high level, the openness factor of the personality has a positive effect on adaptation to new technology and learning about other cultures. [19] Personality factors may be measured in selection, so looking for high openness in SOC applicants' tests could promote to hiring the right people.

Conclusion

It is important to take into account the fact that not all people are equally capable of working together in teams using computer supported collaboration e.g. virtual collaboration tools. Krumm and colleagues' [24] [25] broad research revealed different sets of knowledge, skills, abilities and other characteristics (KSAOs) that affect virtual teamwork.

SOCs are extensively relying on virtual teamwork especially in case of virtual SOC (model 1), co-managed SOC (model 3), MSSPs (model 5), and dedicated SOC (model 4) when monitoring companies of multiple remote locations. The challenges related to virtual teams were observed in the interviews conducted in this research phase. Focusing on this special and emerging subset of SOC, the virtual team performance related KSAOs proved to be applicable.

These KSAOs can be learned, trained, or looked for in case of selection. These promote SOC team performance and reduce the turnover in SOC personnel. These can be considered as prerequisites of effective virtual teamwork in SOC. Exactly what KSAOs may be relevant that depends on the working conditions of the teams: the virtual team performs at the highest level when the members have the knowledge, skills, and motivation relevant to the setting.

In a broader perspective: the work of information security teams using computer supported means of collaboration (e.g. virtual or mixed teams) cannot only be supported by new technology but human factors have to be taken into consideration. Changes of technology should be accompanied by organizational changes or support. It requires a perceptive management that perceives the SOC and all information security activities as socio-technical systems. [20] Goodall et al as an example of that suggested refining roles and positions, designing an effective information visualization tool to enhance IDS analysts work and promote employee retention, and satisfaction despite high workload. Following the authors perspective of CSCW and adding virtual teamwork with the KSAOs predicting high performance we consider that SOC teams have to be studied, supported, and managed in a complex way. This should include technology to provide data, technology to enable collaborative work of dispersed members and knowledge, skills, abilities, and other characteristics to promote a high performance in this setting.

As a practical conclusion identified challenges appearing in SOC related to virtual teamwork and KSAOs enabling performance to focus on. These KSAOs may help coping with the challenges: finding the right people, develop the people, retain talents, provide leadership guidance in SOC. This completes the fast-evolving technology in information security industry by adding human factor and interpreting SOC work as a socio-technical system.

This conclusion can be also useful within the military. We should not forget that more and more cadets start serving from Generation Z with deep skills in IT and an option to leave service and start a new career in the private sector. Meanwhile, the threat agents in cyberspace will not be reduced. Officers and politicians responsible for national cyber defense have to keep in mind this generation change and should establish this cultural and environmental change. Cyberspace is the fifth domain of warfare where new strategies and tactics appear on the attacker side day by day, therefore we have to rethink the defense capabilities as well.

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Major Chemical Accidents in the 21st Century Europe and its Lessons Learned in Higher Education¹

József DOBOR²

This article provides an example of how to use case studies in the case of disaster management education subjects. The development of the subject's program and content are a continuous activity, actually a consequence of the changing world. Companies carrying out chemical processes while maintaining their competitiveness, cannot be considered constant in parallel with the constantly evolving technical conditions. Therefore, industrial processes, chemical processes, accident prevention, recovery techniques, presentations in the lectures need to be updated.

New methods can be used for computing devices, applications, or their results. In the case of hazard analysis, the software and the presentation of their computational results are, in my experience, effective in the line of teaching methods. Namely, depicting and propagating the propagation of a gaseous material with a dangerous property, the direction and speed of the wind (and other physical chemical parameters) is an effective frontal technique for the students.

The chemical processes are based on numerous chemical processes, which are able to operate under constant control of the control parameters. There is a strong professional justification for describing these processes, which is the subject of the Dangerous Technology section of the subject in the field of industrial security.

Keywords: hazardous chemicals, case study, chemical industry, chemical accident, higher education, disaster management

Introduction

Mankind was helped by numerous accidental discoveries and inventions to achieve today's development level. Here are a few seldom heard special discoveries:

Thanks to the development of Sir Humphry Davy in 1815, by replacing the lamp used for lighting in mines with a safety alternative, much fewer accidents occurred in coal mines. Methane was an undesirable by-product in many coal mines, resulting in frequent firedamp explosions. Davy's lamp saved many lives and proved to be a huge opportunity for mining. [1]

In 1839, Charles Goodyear invented a process that made it possible to use rubber extracted from the rubber tree on an industrial scale, thus making rubber one of today's most useful materials. The vulcanization process was accidentally invented. This process is a chemical process which increases the strength and durability of rubber tires. The tire retains

¹ The work was created in commission of the National University of Public Service under the priority project PACSDOP-2.1.2-CCHOP-15-2016-00001 entitled "Public Service Development Establishing Good Governance" in the Miklós Zrínyi Habilitation Program.

² Ph.D., Assistant Professor, National University of Public Service, Institute of Disaster Management; e-mail: dobor.jozsef@uni-nke.hu

its elasticity in a much wider range of temperature, therefore vulcanised rubber can be used for more purposes. [1]

In 1846 nitroglycerin was produced by an Italian scientist, Ascanio Sobero, the first to do so according to the publications. Nitro-glycerine is a very explosive liquid, so it was very risky to use.

In 1866, Alfred Nobel, a Swedish inventor, mixed silicon dioxide with liquid nitro-glycerine, thus obtaining an extremely explosive paste and patented the process in 1867. Nobel's aim was to place dynamite on the market and use it for larger construction work, such as building roads and tunnels. Unfortunately, however, dynamite has been used by the military as a weapon in numerous battles. [1]

The contradictory story of dichloro-diphenyl-trichloroethane (DDT) is also worth recounting to the readers. DDT was first produced in 1874 by the German chemist Othmar Zeidler. Its usefulness was proved by Swiss biochemist Paul Hermann Muller in 1939, discovering its effectiveness as a general insecticide. Muller received a Nobel Prize in 1948. The introduction of DDT reduced the occurrence of malaria, typhoid, yellow fever and bubonic plague which had killed millions of people. However, it was found that DDT is not selective, its effects are not limited to insects and it is very dangerous to the human body, because it is able to cause many changes in the body. Decays very slowly and accumulates in different living organisms.

The first artificially created element was technetium (Tc), created in 1937 by Emilio Segre and Carlo Perrier. Alloys containing technetium oxide reduce corrosion. [1]

Justification for the Choice of the Subject

To maintain today's standard of living, it is inevitable to have contact with dangerous substances on a daily basis. Production, transportation, use and storage are all activities involving continuous risk factors throughout the world. Work accidents, malfunctions, damage incidents, transport accidents in the country; the release of dangerous materials whether they are gaseous, liquid or solid are practically everyday occurrences. It is important for disaster management specialists to have a professional routine in activities involving chemicals, so that they can provide effective professional advice to students they are in charge of, the would be future professionals. Naturally, primary interveners and professionals from authorities may also encounter this problem.

A Brief Introduction to Present Europe's Chemical Industry

The chemical industry supports virtually all segments of the economy and is closely entwined with its customers downstream. Rubber and plastics, pulp and paper, and the automotive industry are all huge users. Closely two-thirds of EU chemicals are supplied to EU manufacturers or construction. The EU chemical industry distributes technology throughout the region's economy. The EU chemical industry's share of world markets has declined in the past two decades. Trading chemicals all over the place prompts competition, provides an incentive to develop different markets through innovation, inspires production efficiency and helps develop the quality of human life.

Characteristics of the EU28 chemical industry structure:³ [2] [3]

- number of companies: 28,221;
- turnover: 520.2 billion €;
- direct employees: 1,155,000.

The chemical industry demands energy and competes globally. Anything that increases energy costs in Europe in relation to our participants has a major impact on competitiveness. EU legislation adds several costs for the European chemical industry, hampering its worldwide competitiveness. [2] [3]

Among others REACH prices will likely decrease after 2018; on the other hand complying with biocidal product and plant protection regulations will become costlier. The aim is to guarantee regulation by achieving its objectives in the most well-organized way, and correct any shortcomings without negotiating health, safety and environmental protection. Europe's chemical industry needs a regulatory framework that is fit for the purpose, consistent, cost-effective and which does not negatively impact its competitiveness vs other regions.

Over the last two decades, the European chemical industry, together with pharmaceuticals has made a huge effort to minimise the environmental impact of its production. The European chemical industry is still a world leader, and a highly inventive sector. Germany and France are the two largest chemicals producers in Europe, followed by Italy and the United Kingdom. [2] [3]

Characteristics of Hungary's Chemical Industry Structure

The chemical industry plays a significant role in Hungary's economy. The chemical and pharmaceutical businesses have a long history in Hungary, as they do investigation, improvement and novelty that are mainly essential now to the competitiveness and sustainable development of the country's chemical companies. [4] [5] [6] [7] [8]

Manufacturers operate laboratories and research centres. The Chemical Research Centre of the Hungarian National Academy and the technical universities of Budapest, Veszprém, Debrecen and Miskolc participate in both basic and applied research projects in cooperation with companies and/or under EU programmes and projects.

Characteristics of Hungary's chemical industry structure:⁴ [4] [5] [6] [7] [8]

- turnover: > 16 billion €;
- direct employees: 80,305.

Strengths of the Hungarian chemical industry:

- a robust petrochemical base,
- rule economies of scale, up-to-date technologies and sound environment practices,
- powerful presence on the stock exchange,
- volume improved by investment to meet demands from electronics and agriculture.

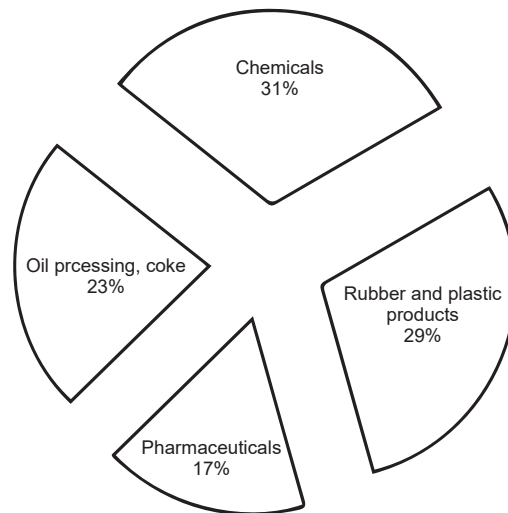
³ Based on data of the year 2015.

⁴ Based on data of the year 2015.

Development targets of the Hungarian chemical industry (weaknesses):

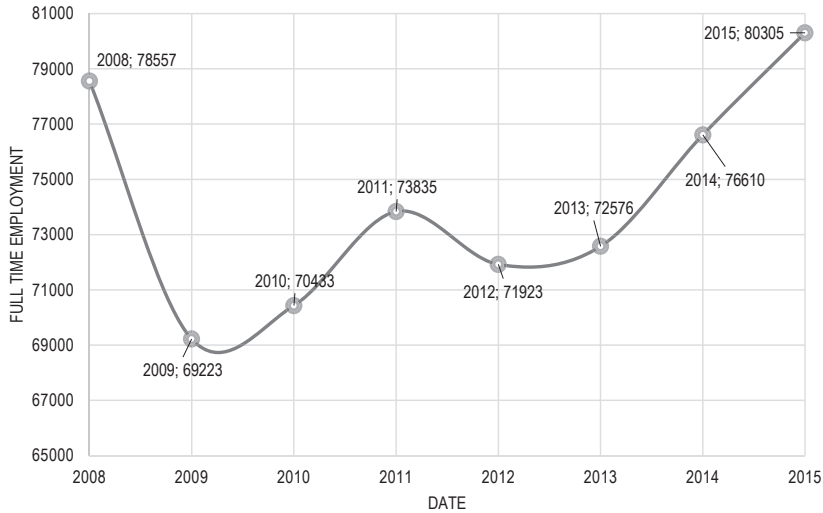
- depends heavily on imported raw materials and energy,
- high and volatile energy prices weaken competitiveness.

The chemical enterprises are trying hard to maintain and develop close relations with vocational training schools, dedicated high-schools and technical universities to attract young, well-trained and highly educated people to replace the aging employees. This aims to avoid skill shortages and losing professionals to other developed economies. Chemical industry structure in Hungary (2015), source: Hungarian Chemical Industry Association as shown in Graph 1. [4] [5] [6] [7] [8]



Graph 1. *Chemical industry structure in Hungary (2015),*
source: Hungarian Chemical Industry Association.
(Compilation of data by the author based on source [4–8].)

The business is a giant employer, with more than 80,000 workers, including 14,000 in chemicals and 17,000 pharmaceuticals. With gross wages above the national average, the chemical segment is a valued employer. Full time employment in the Hungarian chemical industry (2008–2015) source: Hungarian Chemical Industry Association as shown in Graph 2. [4] [5] [6] [7] [8]



Graph 2. Full time employment in the Hungarian chemical industry (2008–2015)
 source: Hungarian Chemical Industry Association.
 (Compilation of data by the author based on source [4–8].)

In the following part of my paper some characteristic major chemical accidents will be discussed and lessons learned and accepted in higher education will be summarized.

Toxic Leakage in a Frozen Food Storehouse in France

On the premises of a company operating hundreds of frozen food storehouses located in the village of Nemours, near the A6 motorway in Seine-et-Marne, France, packaging, distribution and storage of food products take place. The company employed 236 employees in 2005 and consisted of two buildings separated by a passageway. The logistics warehouse contains a laboratory and a refrigerated storage room with the refrigerator containing ammonia. This technology line is capable of storing up to 2 tonnes of ammonia. [9]

As regards the pressure vessel containing ammonia, it is important to note that it was only equipped with filling and fluid drainage valves, but it did not have various pressure accessories, such as pressure gauges or safety valves.

Between 20th and 26th April 2005, safety improvements were planned for the refrigeration equipment used by the company to replace the condenser and other accessories (including, for example, the valves) of the cooling system circulating ammonia under pressure. Prior to the development work, part of the ammonia had to be removed from the system. As noted in subsequent studies, during this process, it escaped the attention of the maintenance workers that 500 kg of the 2 tonnes of liquid ammonia in the cooling circuit remained in the evaporator. 1500 kg of ammonia was transferred into four 450 kg tanks rented by a subcontractor specializing in the maintenance of refrigeration equipment, which were placed outside the storehouse and stored under guard. On April 23, 2005, one 450 kg ammonia tank began to leak.

The toxic cloud affected a total of 100 people on the plant site, including 21 warehouse workers and people who were parking 200 meters from the tank at the rest area on the A6 motorway.

Following this incident, the authorities required the operators to prepare and fully comply with a so-called internal emergency plan.

During the response, significant protection resources were used with substantial efforts and professional supervision. About 100 firefighters, 40 vehicles, and 2 helicopters were needed to manage the incident.

Local ambulance units reported approximately 50 people injured, 28 of them were examined and five injured were hospitalized for a severe asthma attack. Due to the internal emergency plan, a 150-meter radius security perimeter was set up by local professionals.

At the site of the incident, the primary interveners diluted the ammonia gas leaking from the ruptured tank with the help of a water curtain, thus preventing the ammonia cloud from spreading to the nearby rest area. [9]

The waste water generated during the intervention was collected in a 300-m³ basin and after a laboratory inspection, it was released into the communal drainage system.

The major problem identified as the reason of the accident was the rupture of the pressure vessel, caused by the overpressure in the tank, which can be traced back to overfilling during the transfer. Vessels used for the transfer were originally designed to store liquefied gases and liquids with a filling rate of 85–100%. As a further problem, post-accident analyses revealed that the tanks in which the ammonia was transferred were not suitable for filling above 430 kg, which was very close to the container's storage capacity.

A further complication that also contributed to the damage incident was that the transfer method applied was not suitable for the tank model used by the operator and the company did not have documents or instruction manuals which could have explained the markings used on the tank. [9]

After the investigation of the accident, the following measures were required from the company by the competent French authority: [9]

- preparation of a training material for the employees, which included the events that had happened before, simulations, presentation of consequences and analysis of the event;
- the company was to take measures that are capable of preventing or minimizing leakage of a similar dangerous material;
- clarifying, continuous updating and practicing the internal emergency plan;
- the instructions of the tank filling processes need to be revised;
- installation of devices for the measurement of the concentration of ammonia and their mobile use if the dangerous material is transferred in an open space;
- defining the responsibility of the actors involved in the event in legal proceedings.

Measures taken by the dangerous establishment following the accident: [9]

1. replacement of some of the equipment in the technological line with more suitable ones that fit the parameters more accurately, e.g. tubular heat exchangers were replaced with plate heat exchangers;
2. the maximum amount of ammonia present at the site was reduced to 600 kg;

3. building well-designed loading stations which greatly facilitates the process and in the event of a possible ammonia leak, the toxic gas clouds automatically flow to the chimney due to a ventilation system, thereby reducing the harmful effects on workers.

As regards the equipment used by the operators, concerns were raised about the use of simple, multi-function tanks that did not have safety valves, pressure and overcharge accessories, avoiding incomplete ammonia removal.

Road Accident of a Tanker Truck Transporting Ammonia

On 19th September 2006, on the outskirts of Balatonberény, Somogy County, a tanker truck with UN marking 1005 crashed into a ditch and leaked dangerous material. The police officer arriving at the scene of the incident found that the accident was caused by a truck driver unlawfully overtaking the truck transporting ammonia. [10]

The disaster management units observed the following points during the reconnaissance:

- the ambulance arriving at the scene began treating the injured;
- the accessories protecting the valves at the top of the trailer of the lorry were damaged in the accident and ammonia leaked through the damaged valves.

Measures taken during the response: [10]

- the road section affected by the accident was closed by police officers in a radius of 60 metres;
- disaster management specialists equipped with type “A” personal protection (gas-tight protective suit) closed the deformed valves on the top of the damaged tank and temporarily stopped ammonia leakage with an emergency patch;
- the dangerous material was transferred from the damaged tank into a suitable container vehicle;
- the local unit of Disaster Management, the Emergency Reconnaissance Team (the predecessor of the Disaster Management Mobile Laboratory) carried out reconnaissance and took measurements (inside the danger zone) which revealed the presence of the dangerous substance in the immediate vicinity of the damaged tank;
- the presence of ammonia was not detected after closing the valves.

Ammonia Leakage in a Facility in Nagykanizsa, Hungary

On 3rd January 2003, the service staff of a facility in Nagykanizsa performed the scheduled replacement of one of the pumps responsible for cooling the plant. According to the maintenance workers’ narrative, prior to performing the operation, they were planning to separate the sections of the pipelines as prescribed in the operational instructions. Meanwhile, in order to remove the small amount of gaseous ammonia remaining in the pump, they opened the air valves and the gas was released (into the hall) at full pressure through an opening of approximately 16 mm diameter. The maintenance workers immediately alerted the employees in the factory who then left the danger zone and gathered in a safe place. [11]

Following the incident, the relevant units of disaster management were immediately alerted and squads from the Nagykanizsa Fire Department arrived at the scene, who reported

the incident to the Zala County Disaster Management Directorate, the Nagykanizsa Civil Protection Branch Office and the Nagykanizsa Police Department. Soon the Emergency Reconnaissance Team was also alerted and the West-Transdanubian Inspectorate for Environmental Protection was informed about the events in addition to other establishments in the vicinity of the establishment. [11]

Primary interveners dressed in fully protective clothing, equipped with breathing apparatus disconnected the power in the plant. Then during the reconnaissance, it was revealed that the air in the room containing the pump became saturated with ammonia and thus it was leaking through the doors into the plant.

For the sake of the operations, they designated the intervention zones according to hazard. The primary zone was a circle of 10-meter radius around the leakage and it was the one with the strictest personal protection requirements (full respiratory and chemical protection equipment) were put in place to protect the primary interveners. The second zone was a circle of 50-meter radius, in which the incident commander required interveners to wear firefighting protective clothing together with the accompanying respiratory protection equipment. [11]

Subsequently, under the professional guidance of the specialists of the plant arriving on site in the meantime, valves were closed in the pump room and with further operations, ammonia leakage was completely stopped. The ammonia accumulated in the pump rooms of the facility was removed with vaporised water. During the described operations, the chemical reconnaissance units continuously monitored the concentration of ammonia in the air (with the help of detection tubes and measuring instruments).

Subsequently, the plant gradually channelled the ammonia contaminated water into the communal wastewater system, bearing in mind the sustainable capacity of the residential network. In the coming days, all the facilities in the factory were ventilated and inspected.

Reconnaissance findings and the accident analysis later revealed that approximately 300 litres (about 200 kg) was leaked out of 3 tonnes of ammonia and due to the effective intervention, there was no injury or permanent damage to the environment. Based on the continuous reconnaissance, it was stated that the concentration of ammonia did not reach the life-threatening value, but its level was repeatedly found in the range of “harmful to health”. The loss of working hours resulted in a significant economic damage in the operation of the plant. [11]

Accident of a Fuel Tank in Hungary

On 25th March 2010, at the Csepel Base Depot of MOL⁵ Group, an explosion occurred during the cleaning of a tank of 5,000 cubic metre, originally used for storing petrol; the hydrocarbon compound residues caught fire in the empty uncleaned tank. As a result, the top of the tank collapsed and the subcontractor worker performing maintenance inside the tank lost his life. The dead body of the man burned beyond recognition. It could only be pulled out through a crack at the bottom of the tank formed as a result of the explosion. At the site, the cleaning work was carried out by a subcontractor company which claimed to have provided the workers with appropriate personal protective equipment, namely respiratory protection (breathing apparatus), protective clothing and the necessary external professional supervisors

⁵ Magyar Olaj- és Gázipari Nyrt. – Hungarian Oil and Gas Plc.

were also present. The rather robust tank of 5,000 cubic meters cracked open as a result of the physical consequences of the explosion and the roof structure of the tank collapsed. It is assumed that the industrial incident occurred when the hydrocarbon residues were removed and an explosive mixture of petrol vapour and water was formed and an adverse event resulted in a spark. The cleaning worker probably had taken a non-explosion proof hand-held radio with himself, while other case studies claim that his clothing was not entirely suitable and became charged with static electricity due to friction. The author of this article, as a member of the primary mission unit on the day indicated was on the site and conducted a chemical investigation. [12] [13]

Explosions in a Pharmaceutical Plant: Linz, Austria

The case happened in Linz, Austria, in an industrial park where thirty chemical companies are located. The plant involved in the event produces chemical and intermediate products for the pharmaceutical industry, the highest tier according to Seveso. In the unit affected, glyoxylic acid was produced, using ozone, oxygen, methanol dimethyl maleate with the help of a catalyst in several steps. The chemical process was performed with ozone at $-20\text{ }^{\circ}\text{C}$ and 1.7 bar. After a lengthy experiment, a technological process was developed and the product became more valuable for the company. [14]

On 13th August 2003, after 10 o'clock in the morning, the technological unit exploded as a result of a harmful side process. The material released during the event, which was largely methanol, caused fire. According to the witnesses, a special phenomenon occurred, called "fireball", with a diameter of at least 80 m, causing considerable damage to the structure. Several units arrived on the spot, both the company's own industrial firefighters and local firefighters as well, and thanks to the effective primary intervention, the fire did not spread to other facilities. [14]

Many of the workers on the site suffered burns, broken bones and bruises that were made even more serious by the broken glasses. According to the available literature, twenty people had to be treated. The unit was completely destroyed in the explosion. This accounted for about one quarter of the total area of the facility, so the damage was enormous.

A further fact is that closed offices were also destroyed or suffered significant damage due to the explosion. In the entire industrial park, chemical activities were shut down until the event was settled. Fortunately, environmental damage was not detected beyond the boundaries of the facility. Specialists attributed this to the fact that a significant part of the chemical material was burned in the explosion process.

The analysis revealed that one of the columns had an irregular chemical leak, probably methanol and peroxide. It resulted in a spontaneous combustion and decomposition which then spread to the first and then to the second column. This is referred to as the so-called domino effect which means that the dangerous effect spreads further to other chemical processes. [14]

Based on the information available, it is interesting to note that, after the event, the pharmaceutical company did not change its procedures and introduced only minimal technological improvements. Among others, the columns used in the ozonolysis process were installed in the refrigeration units, in a separate, closed and guarded building unit. Naturally, the ozonator units of the facility were equipped with ozone sensors.

The reactors were equipped with pressure relief valves to withstand explosions in case of overpressure and additional safety measures were introduced, for example regular control parameter measurements (temperature, pressure) were scheduled.

Despite the increased security level of the technology, two more explosions occurred on the same site one year after the complete restart. These events resulted in a significantly lower material damage. The analysis of the damage incident showed that the new security measure was carried out properly from a professional point of view. These measures made it possible to avoid injuries but are not yet sufficient to prevent the occurrence of a second accident in the future. [14]

The company relied on more than 50 experts and spent about 400,000 Euros on expertise and analysis. Consequently, the technology underwent a significant change, the reaction is carried out with air and inert gas in the future instead of ozone.

A Chemical Incident During the Cleaning of a Tanker Truck in Budapest, Hungary

On 8th July 2014, in a truck washer in the 13th district of Budapest, a trailer truck with tank lined up for cleaning the inside of its tank. Previously, a flammable hydrocarbon, pentane, was carried inside. Prior to the cleaning, the material previously transported was identified with the help of the consignment note and the visual elements displayed on the tank such as dangerous goods labels and orange warning plates with numbers. The tank cleaning started in line with the instructions manual, although it was not detailed enough. The truck parked in that part of the truck washer where chemicals are cleaned. The driver of the vehicle unlocked the dome covers but they were not opened. The attendant opened all the four dome covers of the tank and attached the cleaning device to three of them. The attendant grounded the tank with the cleaning heads, since there was no separate grounding point on the tank. The discharge valves on the right side of the tank were turned open and the cleaning device was started. Pressurisation began in the system until normal working pressure was reached, which was maintained during the whole cleaning process. Once normal working pressure was reached, the attendant launched the washing process. The washing process involved high pressure water of approximately 80 °C. The washing water going through the tank flowed into the drainage system built at the bottom of the washing area. At the end of the cleaning process, the attendant stopped the washing and switched on the ventilation system of the washing area. After the ventilation system was switched on, the attendant left the area and an explosion occurred. No personal injury occurred during the damage incident; however, the material damage caused was significant. In addition to the vehicle and the cleaning device, the roof structure of the facility got damaged as well as the wall structure separating the washing areas and another vehicle. The damage did not render the vehicle immobile. The truck and its trailer managed to leave the spot without outside help. The case analysis identified pentane residues as the cause of the explosion. Most probably, air-pentane mixture was formed, in which a static spark triggered an explosion. [15] [16]

Explosion and Fire in an Oil Storage Depot—Hertfordshire, England

On 11th December 2005, at around 6 a.m., several consecutive explosions occurred at the Buncefield Oil Storage Depot, located in Hertfordshire, England. Following these explosions, there was a huge fire that burned for several days and caused enormous damage to the surroundings of the facility in South-England. The blasts in the storage depot in Buncefield started with the detonation of hydrocarbon-air mixture coming out of an overfilled tank. Overfilling was due to the failure of the signalling system measuring the tank parameters. However, the strength of the explosion could not be explained with this circumstance. [17] [18] [19] [20]

Despite the extraordinary damage, the number of serious injuries was relatively low. To be more precise, 43 people suffered minor injuries and there were no fatalities. The nearby commercial and residential properties suffered minimal damage. It was a major disaster management task that approximately 2,000 people had to be evacuated on short notice from the damaged commercial and residential buildings. Residents in the properties in the vicinity of the industrial park that had not suffered damage were warned to stay indoors. [17] [18] [19] [20]

On 12th December 2005, the fire escalated at around lunch time. At this time, 26 fire engines, 180 firefighters and 20 support vehicles took part in the rescue.

The primary interveners acted in accordance with the instructions for the management of chemical incidents, while partner organisations, such as the Environment Agency worked in close co-operation with each other. Experts from the Environment Agency provided professional advice to interveners in order to minimize contamination, paying close attention to nearby surface- and groundwater (and water bases). At the beginning of the incident, the Health Protection Agency experts were ready to participate in the analysis of the situation. [17] [18] [19] [20]

The Buncefield incident has clearly pointed out the need for a suitable, well-functioning (properly updated) emergency management plan, an ideal solution for a potential chemical accident in order to provide a proper professional basis for primary interveners. In addition, a publicly available document is easily accessible for the interested population. Furthermore, the event also highlighted the problem of commercial and residential areas being in the vicinity of a dangerous establishment, for which there are plenty of examples around the world. Moreover, it also serves as a typical example for the physical, chemical and biological impacts of a damage incident. The plant's land use plan ignored and failed to simulate, calculate and analyse the potential for the formation of gaseous hydrocarbons. The main lesson to be drawn is that greater attention should be paid to the risks affecting the population in emergency planning. [17] [18] [19] [20]

An effective emergency planning addresses the following issues: various communication channels between the primary interveners, the specific tasks and the probable consequences of the event. The plan must include concrete actions to be taken in the event of an emergency, specifying precisely the responsibilities of the plant employees in the document.

Over the past 12 years, the case has been covered in countless studies to provide valuable lessons to the readers. Since the case is extremely well-documented (including a lot of photos and videos), it has a relatively large publicity and reputation, hence the popularity of this

topic. The professional reason why this topic is addressed to students in the disaster management specialization is that a typical series of events and its consequences can be modelled through this case: in a carbohydrate depot, filling a tank of several thousand cubic metres led to a serious industrial disaster caused by a series of human errors. When analysing the case, it was found that on the whole, the response of primary interveners was efficient and highly professional.

Educational Methods and Their Development Opportunities in Education in Disaster Management

The causes of industrial and chemical hazards and their disasters are failures, unanticipated side effects of technical systems. However, this is a misleading over-simplification and many other factors are involved. The calculus of industrial hazard is a blend of industrial structures, people and environments that contain atmospheric, ecological, psychological and social components.

The object of the disaster management's main specialisation is to update the knowledge and skills of the college students on multi-dimensional aspects of chemical catastrophe risk management and emergency incident-response, effective planning, integration and organization. [21] [22] [23] [24] [25]

The objectives of the disaster management specialization planned for the present is to enable the students to assess and deliver their respective aspects and roles in relation to chemical disasters management and delineate strategies for risks mitigation and implementation of effective response in case of emergencies.

The educational aims of the subject program (elective course-unit, joint training, credit-based education) purpose to allow the students: [21] [22] [23] [24] [25]

- identify the scenario and challenges associated with chemical disaster risks and consequences;
- explain described observations about chemical disaster risks, mitigation methods and response mechanism;
- define preparedness for chemical emergencies and response of various services in chemical disasters;
- integrate environmental planning with disaster management in siting of Industries and Industrial estates;
- understand hazard and risk in materials, processes, others;
- understand how to avoid, how to treat events and how to minimize the number of victims, the economical and environment damages.

Educational methods shall be chosen for teaching a particular aspect of chemical disaster, from a range of the following:

- presentation (slides) and discussion,
- group work / project/ dialogue-exercise,
- film, simulation show followed by question-answer, discussion,
- lecture followed by query-answers,
- demonstration/hands on exposure (computer based).

At the end of this educational unit, the participants will be able to : [21] [22] [23] [24] [25]

- define and separate between chemical and industrial hazards,
- label their causes and impacts,
- comment the global, national and regional scenario.

To conclude, case studies of chemical disasters give the opportunity to:

- define the on-site hazards and risks of accidents that can lead to disaster within premises and outside,
- state the industrial siting aspects of off-site emergencies in case of a chemical disaster,
- analyse the vulnerability of the off-site population, property and environment to the risk of a chemical disaster,
- calculate the risk perception level, mitigation and preparedness including response measures, planning, coordination and command system on-site and off-site for handling emergencies.

A nation's legislative and institutional systems provide the basis for plans and administration in all areas of disaster risk reduction and emergency response. Then strong engagement exists between environmental degradation and disaster risks, environmental legislations and their implementation is a central criterion for disaster risk management. Conversely, the role of legal provisions on environment and natural resources can play significant role in addressing hazards and reducing vulnerability of natural disasters, and in handling after a disaster relief and recovery challenges, are seldom recognized. [21] [22] [23] [24] [25]

Conclusion

In the recent past, there has been a large number of industrial accidents in Hungary and European countries as well as in distant countries, some of which occurred during activities involving dangerous substances. For our daily activities, it is inevitable to come into contact with large quantities of dangerous chemicals. The life cycle of chemicals is so closely related to our everyday lives that it can be definitely stated that each and every person performs some kind of activity involving chemicals on a daily basis.

Using detergents, heating or cooking with gas-fired appliances, fuelling a car, a car engine running inside a garage, a poorly functioning combustion equipment, improperly installed and operated ventilation equipment, spraying in a kitchen garden or in a huge agricultural area are all just a few examples that can happen in a household in our everyday lives. The activities mentioned above are carried out on a thousand or even on hundreds of thousand-fold scale in industry, agriculture, and of course with many different chemicals in the lead.

Statistics reveal that for most of the damage incidents people are to blame, mostly because of the following reasons: non-observance of operation rules, inattention and professional incompetence can all lead to accidents with serious consequences. It is of utmost importance for students studying in any of the three specialties of the disaster management course to master the basics and application of physics and chemistry. During their studies, students take part in both theoretical and practical training, through which they get into contact with the subfield of natural sciences connected to industry. After obtaining a degree, they should possess professional skills in incidents involving dangerous substances that allow them to

make high quality decisions. For a disaster management specialist, in addition to legislation, the knowledge and the sensible, conscious use of natural sciences is crucial for decision-making.

Chemicals and related activities can create increased emergencies and pose a risk of malfunctioning or accident. The main purpose of my paper was to present the importance of education through case studies. Ultimately, disaster management students are familiarised with various dangers that may occur during industrial activities, their occurrence characteristics and the methods of identifying the hazards.

In a dangerous establishment with an advanced safety management system, the main guidelines relevant to the employees are discussed at least on a monthly basis in the form of further training and professional discussions.

Conclusions from the case studies are compatible with the curriculum of the disaster management course, and in addition, there are numerous other professional points for continuous improvement of the course syllabuses.

Closing remarks

In Hungary, natural sciences education is world-renowned, with over 120 years of tradition. Thanks to the high-quality, internationally acknowledged national higher education in natural sciences, there are many innovative processes in the domestic chemical industry. The undesirable effects of an industrial accident can be significantly influenced by the fact that disaster management higher education equips those in charge of managing interventions and training interveners with technical-natural sciences qualifications. A lecturer with empirical experience can familiarise students with technical and natural subjects with considerable efficiency. The teaching of natural sciences is not complete with the teaching of only theoretical knowledge. The desired outcome is that a prospective expert is able to make effective decisions. Our rapidly changing world is also reflected in the chemical processes.

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Decisive Change or Determined Continuity? The Trump Administration’s Foreign and Security Policy Viewed from Central and Eastern Europe

Gábor CSIZMAZIA¹

The election of Donald J. Trump as President of the United States may be viewed as a watershed in American foreign policy. The Trump team entered the White House with several controversial views on America’s relation with the outside world, thus raising the question of whether the Trump Presidency will introduce decisive changes or will it follow the tradition of continuity in U.S. foreign policy. Due to some of his provocative remarks on NATO or Russia, President Trump’s actual performance is particularly important for Central and Eastern Europeans who have their own respective views on transatlantic relations. The Trump Administration’s principle of “America First” has indeed re-evaluated America’s responsibilities in the world but has not brought fundamental changes so far. In fact, Central and Eastern Europe may experience U.S. foreign policy continuity in a narrower or wider context alike.

Keywords: *Trump Administration, transatlantic relations, Central and Eastern Europe, Russia*

Introduction

The outcome of the 2016 U.S. presidential election is regarded as a unique political development for several reasons. The campaign highlighted tensions in U.S. domestic politics: in addition to the divisions of American society on certain issues (such as migration or Obamacare), the race between Hillary R. Clinton and Donald J. Trump represented a confrontation between the “establishment” and the “outsiders”. The latter’s triumph indicated a sharp change in both the rhetoric and the agenda of the White House. The Trump campaign emphasized the aim of “making America great again” which meant the revision of U.S. investment and burden in its international political, economic and security affairs. Simply put, Donald J. Trump challenged the pillars of the international order that had been established and maintained by the United States,² therefore, the election process was followed with even greater attention by Washington’s transatlantic partners. This was particularly true for Central and Eastern Europe where the major security pressures from the East and the South are most direct. Donald J. Trump’s views during the campaign on Russia, migration or the American

¹ Assistant Lecturer, National University of Public Service; email: csizmazia.gabor@uni-nke.hu

² The political, economic and security pillars of the international order are the support of democracy, free trade and cooperation through international organizations. According to the liberal theory of international relations, these factors reinforce each-other and underpin international peace. Consequently, some of Donald J. Trump’s critical remarks—e.g. praising the leadership qualities of Vladimir V. Putin, rejecting North American Free Trade Agreement (NAFTA) and waving the idea of introducing additional tax on certain imports, or questioning the United States’ obligation to defend all NATO allies—have been regarded in the West as challenges against the founding principles of this order.

security umbrella over European NATO allies were outspoken and were giving cause for either concern or relieve in the countries within the region—depending on the specific issue in hand. Nevertheless, while several of the new president’s remarks have implied a decisive change in U.S. foreign and security policy, there is—as always—a great chance of some continuity. The aim of this article is to review this dilemma by displaying the major highlights of the Trump Administration’s foreign and security policy and their implications on the transatlantic relationship from a Central and Eastern European perspective.

The Trump Administration’s Heritage in Central and Eastern Europe

In order to have a clear view on the main possibilities for the Trump Administration’s position toward Central and Eastern Europe, its predecessors’ respective views should be observed in the wider context, namely the main strategic thought of previous U.S. administrations. Accordingly, the following paragraphs will focus on the background and the rationale of Washington’s policy concerning the region after the Cold War.

Central and Eastern Europe on the Previous Administrations’ Agenda

By the time William J. Clinton entered the White House, the dissolution of the Soviet Union and the Warsaw Pact left NATO in search for a role in the post-bipolar world. Moreover, the disappearance of these powers created a security vacuum [1: 81] in Central and Eastern Europe with the risk of re-emerging hostilities among nations within the region. The Clinton Administration started to slowly but surely fill this vacuum with NATO which was intended to remain the backbone of transatlantic security. [2] Thus the first post-Cold War NATO enlargement took place in 1999 with Poland, Hungary and the Czech Republic becoming new members of the Alliance. Following the 2001 September 11 terror attacks, the presidency of George W. Bush was inseparable from the global war on terror. The fight against evil [3: 12] taking the form of terrorists and tyrants intending to acquire weapons of mass destruction was in the spotlight of America’s foreign and security policy. Washington’s focus shifted toward the Middle East, specifically to countries identified as “rogue states”. This change also affected NATO expansion: the second round of enlargement in 2004 included seven new members from Central and Eastern Europe, [3: 17–18] as Washington needed allies who could complement U.S. efforts in the “global war on terror”. Arguably,³ Eastern European countries seeking membership in NATO were viewed as possible providers of niche capabilities. Yet perhaps more importantly, the accession of these nations had a political⁴ aspect as well. This was felt during Europe’s division over the support for the Iraqi war in 2003

³ While the overall military capabilities of the new members were relatively insignificant, their contribution in the form of niche capabilities and overflight rights were deemed useful in Washington. [4: 59]

⁴ According to another view, the Bush Administration was more interested in the political power rather than in the capabilities the new members would bring to the alliance. This perspective was based on experiences such as the operations in Kosovo where the military performance of European allies lagged behind the U.S. efforts. [5: 100–101]

with Central and Eastern European allies being more eager to stand behind Washington.⁵ This led to an American practice of utilizing NATO as a toolbox which caused tension in the transatlantic relationship and was ultimately counterproductive.

Barack H. Obama promised a fresh start in transatlantic relations. For Central and Eastern European nations, the new American approach was perceived as a less pleasant development. The Obama Administration showed signs of losing interest in the region and was more focused on withdrawing from the Middle East and conducting a “pivot” toward the Asia Pacific.⁶ In addition, Washington’s emphasis was set on global issues such as climate change and nuclear non-proliferation.⁷ This led to the “reset” with Russia which was primarily aimed at cooperation on shared security challenges, including international terrorism and the spreading of weapons of mass destruction. The latter issue provided the highlight of the “reset”, the 2010 New START. While the Obama Administration continued enlarging NATO, and opposed the idea of a Russian sphere of influence in Eastern Europe, allies in the region were wary of the realist pragmatism of Washington. They were afraid that while taking the Euro–Atlantic orientation of the countries within the region for granted, Washington might make a deal with Moscow over their heads. The White House did rush to reassure these allies in October 2009, however, it also made it clear that America expects more from Europe and that the region is not exempt from this.⁸ This was a reconfirmation that due to its global agenda, the Obama Administration was focusing less on Central and Eastern Europe. Russia’s interference in Ukraine was a watershed, as it led to an increased NATO presence on the Eastern flanks of the Alliance with the United States being the first NATO member to make military reassurance measures in the Baltics, Poland and Romania via the European Reassurance Initiative. This could be regarded as a sharp turn in Washington’s policy, although the nature of U.S. military presence in the region has remained the same.⁹ The relationship of the United States with Russia on the other hand has further deteriorated.

⁵ From the Bush Administration’s perspective, former communist countries in Europe were adamant allies, as they held freedom and western values in high regard, precisely due to their historical experience of repression. [3: 20]

⁶ The Obama Administration’s decision sent an unpleasant message to European allies thus the term “pivot” was softened to “rebalance” albeit the policy remained the same. One of the first announcements of the “pivot” was Secretary of State Hillary R. Clinton’s article “America’s Pacific Century” in the 2011 November issue of *Foreign Policy*, however, President Obama’s remarks in Australia the same month were also outspoken: “I have directed my national security team to make our presence and mission in the Asia Pacific a top priority. As a result, reductions in U.S. defense spending will not—I repeat, will not—come at the expense of the Asia Pacific.” [6]

⁷ President Obama’s security policy priorities included the efforts for a world without nuclear weapons, announced in his remarks in Prague and Berlin on the 5th of April 2009 and the 19th of June 2013 respectively.

⁸ In Vice President Joseph R. Biden’s words: “we no longer think in terms of what we can do for Central Europe, but rather in terms of what we can do with Central Europe.” [7]

⁹ In order to avoid higher costs and the further escalation of the conflict with Russia, there was a debate on the actual form of reassurance, specifically about its size and time-span. This led to a persistent rotational deployment of land, air and sea forces (instead of permanent large deployments) via trainings and exercises, positioning of equipment and improvements in infrastructure. This is in line with the 2012 U.S. Defense Strategic Guidance which in general called for developing “innovative, low-cost, and small-footprint approaches to achieve our security objectives, relying on exercises, rotational presence, and advisory capabilities”. [8: 3]

The Russia Factor

Washington's relationship with Moscow is an important component in clarifying the U.S. stance toward Central and Eastern Europe. In fact, the latter is often viewed in the context of the former. Through its geographical size and position, military capabilities and political clout, Russia is a player the United States does not ignore in global affairs. Accordingly, American administrations in the last couple of decades have laid special emphasis on Russia, so much so that this emphasis often enjoyed priority over the focus on Central and Eastern Europe, meaning the idea of "Russia First" in U.S. foreign policy. [9: 59] Facing the critique that NATO's enlargement could alienate the already wary Moscow from the West, the Clinton Administration called for the 1997 NATO–Russia Founding Act which was meant to clarify the post-Cold War relationship between the alliance and its former adversary.¹⁰ George W. Bush acknowledged Russia as a great power¹¹ and recognized the importance of the strategic bilateral relationship in the sphere of arms reduction, and especially in the light of the threat by rogue actors in the international system.¹² Yet the concerns regarding democracy and human rights in Russia, the American position on Kosovo's independence and missile defence represented serious clashing points in U.S.–Russia relations.¹³ The Bush Administration also pushed for the invitation of Ukraine and Georgia into the Alliance. This not only divided European NATO members but angered Russia¹⁴ whose five-day war with Georgia in 2008 indicated the lowest point in U.S.–Russia relations since the Cold War at the time. For Central and Eastern European nations, the events only reconfirmed their views that Russia continues to claim its former sphere of influence—backing it up with force—and that therefore the transatlantic bond should be enhanced.

President Obama's election in 2008 promised change in many areas, including the relationship with Russia albeit in a modest way. Throughout the campaign Barack H. Obama was increasingly condemning the Russian aggression against Georgia, and was clearly supporting U.S. missile defence in Central Europe.¹⁵ On the other hand, he seemed more open to cooperation with Russia on certain issues such as arms control or the fight against terrorism. Overall, the Democrat nominee enjoyed more confidence in Russia with the possibility of a fresh start. The latter came in the form of the "reset" which was the Obama Administration's attempt to reaching out to President Medvedev's Russia. Announced by

¹⁰ President Boris N. Yeltsin's remarks of the agreement showed the limits of Russian enthusiasm: "We believe that the eastward expansion of NATO is a mistake and a serious one at that. Nevertheless, in order to minimize the negative consequences for Russia, we decided to sign an agreement with NATO." [10]

¹¹ "In the breadth of its land, the talent and courage of its people, the wealth of its resources, and the reach of its weapons, Russia is a great power, and must always be treated as such." [11: 29]

¹² "Instead of confronting each other, we confront the legacy of a dead ideological rivalry—thousands of nuclear weapons, which, in the case of Russia, may not be secure. And together we also face an emerging threat—from rogue nations, nuclear theft and accidental launch. All this requires nothing short of a new strategic relationship to protect the peace of the world." [11: 29–30]

¹³ The Bush Administration's plans for enhancing America's—and NATO's—ballistic missile defence system included the deployment of a radar facility and ten interceptors in the Czech Republic and Poland respectively. While the idea was viewed controversial even in the host countries, they eventually signed up for the plan irritating Russia which regards the establishment of these military installations as potential threats.

¹⁴ "Welcoming [Ukraine and Georgia] into the Membership Action Plan would send a signal [...] throughout the region that these two nations are, and will remain, sovereign and independent states." [12]

¹⁵ The Obama campaign specifically noted that while missile defence is necessary, the Bush Administration's plans in Central Europe should be revised.

Vice President Joseph R. Biden¹⁶ at the 45th Munich Conference on Security Policy in 2009, the ‘reset’ was aimed at bringing forward the aforementioned areas of cooperation with Russia but without appeasement from Washington in other issues such as acknowledging a Russian sphere of influence in Eastern Europe.¹⁷ Still, the “reset” has received mixed views in Central and Eastern Europe.¹⁸ President Obama’s 2009 September decision to alter his predecessor’s missile defence plans in Poland and the Czech Republic was not unexpected, nevertheless, it did not help the situation.¹⁹ The “reset” did have its achievements during President Obama’s first term including the New START Treaty and Russia’s WTO accession. Furthermore, the 2012 U.S. presidential elections showed that President Obama is less wary of Russia than his Republican opponent.²⁰ Yet by the same year the “reset” became exhausted: Vladimir V. Putin blamed Secretary of State Hillary R. Clinton for inciting protests after the Russian legislative elections in December 2011, and—a year later—Secretary Clinton openly opposed the Russian integration project in Eastern Europe and Asia.²¹ Legislative branches of the two governments did not embrace each other either: in response to the Senate’s approval of the Magnitsky Act (introducing sanctions in finance and travel against Russian officials who had contributed to the death of Russian whistle-blower Sergei Magnitsky), the Duma approved the Dima Yakovlev Law (banning U.S. citizens from adopting Russian children). [16] This geopolitical opposition culminated in Eastern Europe through the events in Ukraine, leaving U.S.–Russia bilateral relations in the cold for the 2016 U.S. presidential elections.

The Trump Administration and Central and Eastern Europe

In order to highlight the outlooks of transatlantic relations under the Trump presidency from a Central and Eastern European perspective, it is essential to outline the principles of the Trump administration’s foreign policy. With the exception of Russian attempts to influence the U.S. presidential elections, the international security environment has not displayed

¹⁶ “[I]t’s time to press the reset button and to revisit the many areas where we can and should be working together with Russia.” [13]

¹⁷ “We will not agree with Russia on everything. [...] We will not recognize any nation having a sphere of influence. It will remain our view that sovereign states have the right to make their own decisions and choose their own alliances.” [13]

¹⁸ “We welcome the “reset” of the American–Russian relations. As the countries living closest to Russia, obviously nobody has a greater interest in the development of the democracy in Russia and better relations between Moscow and the West than we do. But there is also nervousness in our capitals. We want to ensure that too narrow an understanding of Western interests does not lead to the wrong concessions to Russia.” [14]

¹⁹ While the Obama Administration was adamant that the decision was not meant to appease Russia, the way it was announced was questionable. Firstly, whereas President Obama declared his decision in a television announcement in the United States, the Government of Poland was informed via a phone call in the middle of the night. Secondly, the sensitive announcement came on the 17th of September—the day on which the Soviet Union began the invasion of Poland in 1939 (in accordance with its secret pact with Germany). Lastly, while neither the change in U.S. missile plans nor the attempt to mend NATO–Russia relations was a surprise, the latter was announced just one day later through the first major public speech by Secretary General Anders F. Rasmussen titled “NATO and Russia: A New Beginning”.

²⁰ One of the highlights of the 2012 U.S. presidential election campaign was when Republican presidential nominee Willard Mitt Romney called Russia America’s “geopolitical foe”, a position which President Obama deemed outdated, saying that “the 1980s are now calling to ask for their foreign policy back” in the third presidential debate on the 22nd October 2012.

²¹ Secretary Clinton deemed the Russian plans for a Eurasian Union as attempts to “re-Sovietise the region.” [15]

qualitatively new major challenges to the Trump presidency. President Trump on the other hand introduced a drastically new approach to the already existing issues and toward the outside world.

President Trump's View of America and the World

Although the 2016 presidential election campaign was loud of scandals and personalities on both sides, it did highlight several pressing foreign and security policy issues of today's America which the Trump Administration has set on its agenda. The primary items on this list of challenges include illegal immigration, international terrorism and the negative effects of American leadership in the world (i.e. the costs of international security) and of economic globalization (i.e. the loss of American jobs and an increasing U.S. trade deficit). The Trump team's position and rhetoric on these issues have two defining characteristics: on the one hand, all of them directly affect the American public in their everyday lives and were addressed in the campaign accordingly. On the other hand, all of these problems were linked with the Obama Administration (and previous governments) by the Trump campaign. As a result, Donald J. Trump promised a decisive departure from President Obama's foreign policy which he described as a random one without vision, purpose and thought-through strategy, and one leading to the lack of respect towards Washington from friends and foes alike. [17] The first and foremost important change President Trump intends to introduce is the dismissal of an active liberal approach on a global level.

In practical terms, this means two things. Firstly, defying "the false song of globalism", President Trump believes that "the nation-state remains the true foundation of happiness and harmony". [17] This seemingly set Washington once again at the juncture of internationalism and isolationism which is a re-occurring dilemma in American foreign policy debates. However, President Trump is not an isolationist but rather a nationalist who intends not to end but to alter America's economic and security relationship with others—be it allies, partners or potential adversaries—to its own advantage.²² The "America First" approach ultimately raises the question of the United States' role in the world. In Washington, American leadership has been a widely accepted component of the international order. On paper, the Trump Administration is no different in this regard with President Trump emphasizing America's capability to lead.²³ Yet due to its aforementioned nationalist perspective, the Trump Administration's aptitude for global leadership has received doubts. A recent example for this was when President Trump decided to withdraw the United States from the 2016 Paris Agreement on the joint efforts to combat climate change—a decision which caused widespread disappointment among members of the international community. Still, international trade deals find themselves even more in the crossfire of the Trump Administration. President Trump has promised to revisit America's hitherto international arrangements in trade and economy. In practical terms, this means a new take on free trade agreements and reshape or even nullify those that are disadvantageous for the United States. President Trump's main targets in this

²² "We will respect historical institutions, but we will respect the foreign rights of all nations, and they also have to respect our rights as a nation also. Free nations are the best vehicle for expressing the will of the people, and America respects the right of all nations to chart their own path. My job is not to represent the world. My job is to represent the United States of America." [18]

²³ "Our allies will find that America is once again ready to lead. All the nations in the world—friend or foe—will find that America is strong, America is proud, and America is free." [18]

regard were the 1994 NAFTA between the United States, Canada and Mexico, and the 2016 (signed) Trans-Pacific Partnership (TPP) between the United States and 11 other nations bordering the Pacific Ocean. While NAFTA can expect renegotiations, American participation in TPP was actually abandoned on President Trump's first day in office.

Secondly, the Trump Administration denounced the "global projects" of its predecessors, and specifically urged for "getting out of the nation-building business", particularly in the Middle East. [18] In other words, the Trump Administration is not in favour of democracy promotion abroad, in fact, it regards such attempts as sources of destabilization in the Middle East which enabled the rise of additional extremist groups such as the Islamic State of Iraq and Syria (ISIS).²⁴ Instead, President Trump focuses on international terrorism under radical Islam with one of his first decisions being to task the Administration "to develop a comprehensive plan to defeat ISIS". [19] The war against terrorism is among the top security policy priorities for the Trump Administration who has continued to rally allies for the U.S.-founded Global Coalition to Counter ISIS. So much so that one of President Trump's main goals and achievements at his first NATO summit was the Alliance's formal inclusion into this coalition. In a certain sense, this development offers nothing substantially new, as all NATO members were already members of the coalition. However, it does reveal President Trump's view of NATO. During the campaign, he called the Alliance "obsolete" for having an anachronistic mission instead of fighting international terrorism. President Trump's first change of heart came in April 2017 when he indicated that NATO as an organization does agree with him on fighting against terrorism.²⁵ In reality, the Alliance has already been contributing to the war on terror, although several member states were wary that NATO's formal inclusion into the Global Coalition to Counter ISIS would serve with more problems rather than solutions. So far, the end result of President Trump's first NATO summit in this regard was a decisive yet limited support from European allies.²⁶

Implications for the Transatlantic Relationship and Russia

European cautiousness is a by-product of the Trump Administration's foreign and security policy. In President Trump's eyes, the aforementioned U.S. efforts aimed at more fair deals cannot exclude the area of defence. Specifically, America's allies need to display more responsibility for their respective security by increasing their defence spending and thereby decreasing their reliance on American support. Next to NATO's role in the fight against terrorism, this was President Trump's main message at the Brussels summit in May 2017. [22] America's demand for a more equal transatlantic burden-sharing in security is not new at all.

²⁴ "We went from mistakes in Iraq to Egypt to Libya, to President Obama's line in the sand in Syria. Each of these actions have helped to throw the region into chaos, and gave ISIS the space it needs to grow and prosper. It all began with the dangerous idea that we could make Western democracies out of countries that had no experience or interest in becoming a Western democracy. We tore up what institutions they had and then were surprised at what we unleashed. Civil war, religious fanaticism; thousands of American lives, and many trillions of dollars, were lost as a result. The vacuum was created that ISIS would fill." [17]

²⁵ "The Secretary General and I had a productive discussion about what more NATO can do in the fight against terrorism. I complained about that a long time ago and they made a change, and now they do fight terrorism. I said it was obsolete; it's no longer obsolete. It's my hope that NATO will take on an increased role in supporting our Iraqi partners in their battle against ISIS." [20]

²⁶ In addition to the political message of its support, NATO would enhance its efforts in surveillance, anti-terror intelligence, and in training but would not participate in combat operations. [21]

Before President Trump, former U.S. Secretary of Defence Robert M. Gates set the frank reminder about this several decades-old reality.²⁷ The novelty of Donald J. Trump's position was that he openly questioned the U.S. obligation to follow NATO's Article 5, making it dependent on the defence spending performance of the attacked ally in question. [24] Accordingly, the Trump Administration's commitment to collective defence was an awaited statement in Brussels. While President Trump remained silent on this at the NATO summit, he ultimately re-confirmed U.S. commitment to collective defence, and in fact argued that the constant reminders of members' responsibility to pay 2% of their respective GDP on defence was for the greater good of having an overall stronger Alliance.²⁸

Whereas President Trump's statements on certain issues such as climate change has raised doubts about his government's ability of international leadership in Western Europe (specifically in France and Germany), U.S. allies in Central and Eastern Europe are more interested in the Trump Administration's reliability, especially in security and defence. From a Central and Eastern European perspective, U.S. commitment to Article 5 is the cornerstone of transatlantic relations. Thus, the President's earlier remarks on NATO and collective defence should have provided ground for worries in these countries. Yet there is an important principle in this regard: words and actions need to be distinguished. After Mr Trump's campaign statement on tying American defence of allies to their respective financial contribution to that defence, Hillary R. Clinton emphasized that "words matter when you run for President, and they really matter when you are President [and] it is essential that America's word be good" [26] thereby stressing the possible negative consequences of such remarks. However, even in the wake of NATO's Brussels meeting where the reassuring words on collective defence were missing, the Alliance's eastern flank did not give an echo of concern. This was due to the fact that American commitment to NATO's Article 5 is openly supported by both Secretary of Defence (Ret. Gen.) James N. Mattis and Secretary of State Rex W. Tillerson but more importantly, regardless of any statements, the United States continued to send troops to Eastern European member states.²⁹ In fact, the Trump Administration's defence budget request for fiscal year 2018 included an increase of \$1.4 billion for the European Reassurance Initiative (ERI) thus planning with an ERI budget growth of nearly 41%. While this increase is not as massive as the Obama Administration's increase³⁰ for 2017, it does show the continuing American

²⁷ "The blunt reality is that there will be dwindling appetite and patience in the U.S. Congress—and in the American body politic writ large—to expend increasingly precious funds on behalf of nations that are apparently unwilling to devote the necessary resources or make the necessary changes to be serious and capable partners in their own defense. Nations apparently willing and eager for American taxpayers to assume the growing security burden left by reductions in European defense budgets." [23]

²⁸ "I have been an advocate for strengthening our NATO Alliance through greater responsibility and burden-sharing among member nations. [...] I'm committing the United States to Article 5. And certainly we are there to protect. And that's one of the reasons that I want people to make sure we have a very, very strong force by paying the kind of money necessary to have that force." [25]

²⁹ For example, while Slovak Minister of Foreign and European Affairs Miroslav Lajčák said that although he would have preferred to hear President Trump's devotion to collective defence, "the commitment under Article 5 is so obvious there was no need to mention it", Polish Minister of Foreign Affairs Witold Waszczykowski remarked that American boots on the ground in Poland are "much better than just a declaratory mention of Article 5. I prefer to have 5,000 troops from the United States in Poland. This is a commitment". [27]

³⁰ ERI was announced in June 2014 by President Obama whose Administration initially received \$985 million for 2015. While in 2016 the ERI budget decreased to \$789 million, the Obama Administration successfully requested an increase, eventually almost quadrupling the overall budget to \$3.4 billion in 2017. [28]

interest in enhancing allied military presence, readiness and capabilities on Europe's Eastern Flank (including the defence capabilities of Ukraine).

The increased ERI budget means that U.S. military presence in Central and Eastern Europe in the form of forward positioned forces and exercises is assured until 2020. However, it is noteworthy to mention that this continued financial support may not necessarily lead to an increase in U.S. troop numbers. [29] Due to this limitation in American numbers, the focus is set on the "speed of assembly" i.e. the time required for moving U.S. and allied forces from one place to another. Hitherto exercises served this purpose as well. Two examples of the earlier exercises continued under the Trump Administration are Saber Guardian and Saber Strike. The former represented the largest exercise held in Europe in 2017 with 25,000 U.S. soldiers cooperating with 24 nations between 11–20 July in Hungary, Romania and Bulgaria [30] whereas the latter was held between 28 May and 24 June in Poland and the Baltics with 11,000 U.S. and allied troops. [31] One of the lessons of these exercises was that the allied troops' peacetime border-crossings continue to face infrastructural and bureaucratic difficulties and that the latter could be eased by the establishment of a "military Schengen zone" within NATO. This American observation [32] was already made in 2015 by Commander of U.S. Army Europe Lt. Gen. Ben Hodges, however, it has begun to circulate among European stakeholders as well. [33]

The other major form of American military presence in Central and Eastern Europe is via the U.S. missile defence sites in the Republic of Poland and Romania. The Obama Administration's plans for the European Phased Adaptive Approach (EPAA) is scheduled to be completed in 2018, however, due to the manifold factors³¹ possibly impacting its development, the U.S. missile shield in Europe may be altered by the Trump Administration. That said, little is known of President Trump's view on the subject so far. Before assuming office, Donald J. Trump promised to "fully eliminate the defense sequester" as well as to "develop a state of the art missile defense system" in response to the threats from Iran and North Korea. [35] The Kim regime's missile tests have led President Trump to call for an increase in the budget for missile defence, although Congress has proven to be more eager in this regard: by mid-September 2017 both the House and the Senate have passed their respective versions of the National Defense Authorization Act for Fiscal Year 2018, overbidding the President by allocating \$8.5 billion for the Missile Defense Agency within a nearly \$700 billion overall defence budget. [36] This is especially interesting when taken into account that the Pentagon's Ballistic Missile Defence Review was not finished by the time of voting. The document is of high importance, as it serves the purpose of providing information on the possibilities for further improving U.S. missile defence capabilities, and therefore, offering implications for the fate of President Obama's EPAA schedule which has not been addressed by President Trump yet. Missile defence also raises the issue of nuclear weapons: for Russia, NATO's ballistic missile defence in Europe—as well as the intensified military presence in the region—has served as a reason to deploy nuclear-capable missiles closer to NATO

³¹ The core concept of the European Phased Adaptive Approach is that U.S. missile defence plans in Europe can be altered at any stage depending on the change in security climate, available technical capabilities or financial framework. In practical terms, the EPAA's further realization may be affected by the security relationship with Iran, the developments in American missile technology and the U.S. Government's—legislative and executive branches'—position on providing additional funding for missile defence. In addition, fierce Russian objection against the plan and the possible consequences of this opposition set the Central European missile shield in the spotlight of international security. [34]

members, thereby increasingly undermining such arms control regimes as the 1987 INF Treaty. Similarly, to the eventual development of missile defence, the changes in America's nuclear posture—and its effects in Europe—under the Trump Administration depends on several factors: firstly, despite President Trump's intention to make-up with Russia, he has denounced the Russian violation of the INF Treaty. While Central and Eastern European countries are highly interested in constraining nuclear weapons within their own region, they are also dependent on NATO's nuclear umbrella. Subsequent to the crisis in Ukraine, Poland was reported to consider participating in NATO's 'nuclear sharing' programme, although this was ultimately denied by the Polish Government. [37] Secondly, Donald J. Trump has called for the enhancement of the United States' nuclear arsenal while also hinting that the 2010 New START was a "just another bad deal" of the Obama Administration [38] which is an alarming note concerning future arms reduction agreements. Nevertheless, just like in the case of missile defence, the exact position of the U.S. Administration on the American nuclear capabilities will be revealed in the Pentagon's—currently ongoing—Nuclear Posture Review.

Politically speaking, NATO allies in this region are particularly important for the Trump White House, as many of them can be set as examples for increasing national defence budgets. It is no surprise that President Trump's first trip to the region was to Poland which is one of the few Alliance members having their national defence expenditure reached 2% of GDP.³² While his address to the people of Poland was primarily focused on defending Western civilization from such major threats as radical Islam and international terrorism, President Trump also spoke about the threat posed by Russia.³³ Apart from confirming U.S. devotion to NATO's Article 5, the Trump Administration came closer to reaching an agreement with Poland on the purchasing of medium-range Patriot missiles for the latter's air defence system, as well as to initiating U.S.–Polish efforts aimed at modernizing the Polish Armed Forces. Other Central and Eastern European nations are also looking ahead of modernizing their respective air and missile defences which could open the door for enhancing the security relationship with the U.S. [40] Yet these ties can reach into the sphere of economy as well. President Trump's Warsaw visit included his participation at the Three Seas Initiative³⁴ Summit of Central and Eastern European countries. President Trump expressed his support for providing U.S. assistance in these nations' efforts for energy security by selling American liquefied natural gas (LNG) to them. [41] While this is a long-awaited development in Poland and the Baltics, its roots are actually found at the Trump Administration's energy policy. One of Donald J.

³² The geopolitical aspect is also worthy of mentioning: due to their respective geographical position and to their size in territory and population, Romania and Poland enjoy special attention from Washington within the region and pursue strongly Atlanticist foreign policies. Accordingly, President Trump's first bilateral meeting with leaders from Central and Eastern Europe was held with President Klaus Iohannis of Romania and President Andrzej Duda of Poland on the 9th of June and on the 6th of July 2017 respectively.

³³ "Today, the West is also confronted by the powers that seek to test our will, undermine our confidence, and challenge our interests. To meet new forms of aggression, including propaganda, financial crimes, and cyberwarfare, we must adapt our alliance to compete effectively in new ways and on all new battlefields. We urge Russia to cease its destabilizing activities in Ukraine and elsewhere, and its support for hostile regimes—including Syria and Iran—and to instead join the community of responsible nations in our fight against common enemies and in defense of civilization itself." [39]

³⁴ The Three Seas Initiative is an informal platform aimed at supporting regional economic, energetic, transportation and communication projects in the wider region of Central and Eastern Europe, specifically among countries in-between the Baltic, the Adriatic and the Black Sea.

Trump's campaign promises was to revive the coal, oil and gas industry in America and to boost their exports. In the case of shale gas and LNG, this requires U.S. Energy Department permits for special facilities and shipment. [42] Accordingly, the Trump Administration went ahead by loosening legislation in this area, making it easier for U.S. companies to extract and export coal, oil and gas.³⁵ Selling American gas would have a major effect in the security of Central and Eastern Europe. While the motivations of the Trump Administration in this regard are primarily related to creating U.S. jobs and improving balance of trade, the United States would inevitably compete with Russia who has been using the 'energy card' in keeping grip on countries (depending on Russian gas) within the region.³⁶

Another important issue for Central and Eastern Europe is how the Trump Administration approaches its transatlantic partners. Specifically, would it regard and treat the European Union as a partner or would it try to bypass the EU and deal with member states one by one? Donald J. Trump's nationalist remarks during the campaign³⁷ [17] and his position on Brexit suggest that he is less enthusiastic about the EU, regarding it as an instrument for Germany.³⁸ Furthermore, German Chancellor Angela Merkel's policies on trade and immigration received harsh criticism from President Trump. Regarding the first, the U.S. President raised the idea of imposing additional taxes on German products (primarily vehicles) and of rearranging commerce between the two countries. This however cannot be negotiated with the German Federal Government, as negotiating international trade deals are to be done with the European Commission. As for migration, President Trump's views³⁹ are closer to the position of several Central and Eastern European countries. That said, it is unlikely that the Bush Administration's notion of "Old and New Europe" would repeat itself. Firstly, while the EU does have its internal debates and problems, Central and Eastern Europeans are not interested in further dividing the Union, as it provides them with better bargaining positions in international relations. Secondly, while the crisis in Ukraine served as a wakeup call in itself for Europeans to increase their national defence budgets, President Trump's view of America's relationship with the world underlined the notion in Central and Eastern European

³⁵ This move is also related to the denouncing of the Obama Administration's energy and climate change policy with President Trump saying that "for the past eight years, the Federal Government imposed massive job-killing barriers to American energy development. Since my first day in office, I have been moving at record pace to cancel these regulations and to eliminate the barriers to domestic energy production, like never before." [43]

³⁶ This, however, is a hypothetical situation. While several Central and Eastern European governments share the Trump Administration's enthusiasm on the issue, the actual contracts of LNG purchase are to be signed by specific companies who will only do so if it is financially lucrative. Gas prices have decreased in the last years and Russian gas is already considered relatively cheap due to the proximity of production and the means of transportation (pipes instead of special LNG terminals). Thus, receiving American gas in Central and Eastern Europe will be about the actual price these nations are willing to pay for reducing energy dependency on Russia. [44]

³⁷ "The nation-state remains the true foundation for happiness and harmony. I am sceptical of international unions that tie us up and bring America down and will never enter." [17]

³⁸ "You look at the European Union and it's Germany. Basically, a vehicle for Germany. That's why I thought the UK was so smart in getting out [...] I believe others will leave. I do think keeping it together is not gonna be as easy as a lot of people think." [45]

³⁹ "I think [Chancellor Merkel] made one very catastrophic mistake and that was taking all of these illegals [...] And nobody even knows where they come from." [45]

countries that—in addition to the preservation of the transatlantic link—the geopolitical realities make additional integration efforts in security and defence vitally necessary.⁴⁰

One of these realities is Russia⁴¹ which continued to be in the spotlight of American foreign policy debates, although in a new context. The notion of great power rivalry has remained in place largely due to Russian attempts to interfere in the 2016 U.S. presidential elections. During the campaign, the Trump team represented a more open approach to American–Russian relations, incorporating the traditional idea of fighting against ISIS and terrorism hand in hand. While Donald J. Trump praised the leadership qualities of Vladimir V. Putin, he also utilized this idea in his argument that this was a source of exploitation of America. In other words, despite not being a hardliner on Russia throughout the campaign, Mr Trump indicated that approaching the Russians requires statesmanship with authority (demanding respect) and that some issues—such as cooperation on nuclear non-proliferation—need to be revisited from Washington, since the Obama Administration had reached bad deals with Russia including the 2010 New START Treaty.⁴² The case of Ukraine is similar. Initially, Donald J. Trump called out against the violation of the country’s territorial integrity, yet his criticism was largely aimed at the Obama Administration for being weak on the issue. [49] Other members of President Trump’s team, including Secretary Tillerson and Ambassador to the United Nations Nikki R. Haley, indicated that while the Trump Administration is seeking better relations with Russia, it continues to condemn Russian actions in Ukraine for which U.S. sanctions will remain in place. [50] Similarly, American–Russian relations have not improved in the case of Syria so far either. Keen on distancing himself from his predecessor regarding the “red line” of chemical weapons, President Trump ordered a military strike against Syrian armed forces on the 7th of April 2017 which the Russian Government unsurprisingly denounced.⁴³

While the Trump Administration claims to represent a stronger stance under the motto of ‘America First’, it is also under pressure from Congress where bipartisan efforts are made to increase sanctions on Russia for its aggression against Ukraine. Hardliners on dealing with Russia have gained momentum within the legislative branch of the American Government following Russia’s attempts of meddling with the U.S. presidential elections, and the possi-

⁴⁰ “The global geopolitical environment is changing fast. Instability in the European Neighborhood, new dynamism on the global level and internal developments in the EU represent challenges the Union needs to address in the spirit of shared interest and responsibility. [...] We should strive for deepening our cooperation in defence and achieving European strategic autonomy. The European defence capabilities have to be developed, while preserving the role of NATO in providing collective defence in Europe. Equally, in order to tackle common geopolitical and security challenges, the Union should strive to strengthen the transatlantic relations and to continue close cooperation with the United Kingdom. We should reaffirm the EU’s position as a major global trading partner, advocate an open, rules-based trading system and continue establishing new partnerships based on principles of reciprocity and mutual benefit.” [46]

⁴¹ Similarly to his predecessor, President Trump also received an open letter from Central and Eastern European public figures who warned him about President Putin’s intentions to loosen the transatlantic bond. [47]

⁴² “I never met Putin. This is not my best friend. But if the United States got along with Russia, wouldn’t be so bad. Let me tell you, Putin has outsmarted [Hillary R. Clinton] and Obama at every single step of the way. Whether it’s Syria, you name it. Missiles. Take a look at the ‘start up’ [New START Treaty] that they signed. The Russians [...] create warheads and we can’t. [...] And all you have to do is look at the Middle East. They’ve taken over.” [48]

⁴³ U.S. Ambassador to the UN Haley called Russia and Iran responsible for the utilization of chemical weapons in Syria. As for the overall U.S. involvement, like its predecessor, the Trump Administration seems to avoid more direct confrontations in Syria, especially with the Russian forces whom their American counterparts had alerted about the strike in advance. [51]

bility of linkage between the Trump campaign and the Russian Government.⁴⁴ Accordingly, the Trump Administration has also widened earlier sanctions against individuals through the Treasury Department in parallel with President Trump's meeting with Ukrainian President Petro O. Poroshenko. [53] That said, some in Congress believe that President Trump would be too soft on Russia. Therefore, following the proposal of Democrat and Republican leaders in the Senate, the legislative branch has passed a bill that not only introduced new sanctions against Russian actors involved in the support for the Assad government in Syria or in the hacking of U.S. elections but also called for a Congressional review in case the President would intend to ease hitherto sanctions against Russia by himself. [54] Though calling for Russia's accountability in the aforementioned hacking, Secretary of State Tillerson had asked Congress not to handcuff the Trump Administration in fine-tuning sanctions. [55] President Trump has signed the "Countering America's Adversaries Through Sanctions Act" into law in early August 2017, however, he did emphasize his dislike in the document.⁴⁵ Thus it can be said that President Trump may argue that his White House would engage with President Putin's Kremlin as great powers do, however, the ways of such action do have their limits in the international arena and at home alike.

Conclusion

Donald J. Trump made sure throughout the 2016 U.S. presidential election campaign that his views vastly differ from the hitherto practices of the establishment—especially Democrats—in Washington D.C. Thus in theory, his foreign and security policy should display a noticeable deviation from that of President Obama. Indeed, America's overall stance toward the outside world has been set into new light by the Trump White House. The principle of "America First" does not call an end to American leadership in the world but it does re-evaluate its costs and benefits from a nationalist perspective, and thereby introduces a new approach to international actors, roles and frameworks alike. Nevertheless, the Trump Administration also showed a perpetuation of its predecessors' policies either by repeating older or by continuing recent ideas and practices of U.S. foreign policy. The President's priority focus on the fight against international terrorism is not new, nor is the issue unprecedented on NATO's agenda. In addition, terrorism has once again served as the key driver behind the contemporary U.S. Administration's intention to find common ground with its Russian counterpart which has enjoyed preference by the White House despite other Russia-related issues being unresolved.

Furthermore, although President Trump's critique aimed at European allies for their lagging defence expenditure has been harsh, it does not offer new in content compared to

⁴⁴ President Trump's first meeting with President Putin at the G20 summit on July 2017 highlighted this issue perfectly. Regarding the unresolved issue of Russian interference in U.S. elections, Secretary Tillerson noted that the President "rightly focused on how do we move forward from what may be simply an intractable disagreement at this point". In other words, while the Trump Administration considers the issue problematic, it is also interested in moving on and finding common ground with the Russians in other areas. The same cannot be said of members of Congress, especially Democrats whose Senate Minority Leader Chuck Schumer deemed this position "disgraceful" adding that for President Trump "to give equal credence to the findings of the American intelligence community and the assertion by Mr Putin is a grave dereliction of duty and will only encourage Russia to further interfere in our elections in the future." [52]

⁴⁵ While agreeing with the idea of not tolerating the actions of North Korea, Iran and Russia in the respective matters, President Trump noted the bill is "seriously flawed", as it limits his space of manoeuvre in conducting America's foreign policy and may lead to causing collateral damage for U.S. business and European allies. [56]

Washington's complaints during the Obama-era or even in the last five decades. In contrast to earlier threats of having U.S. commitment to NATO's Article 5 depend on members meeting defence expenditure targets, the Trump Administration has re-confirmed its support for collective defence, moreover, it has continued to back-up this commitment by resources in the form of U.S. troops deployed on the Eastern Flank and an increased ERI budget. These are crucial factors in the calculations of central and eastern European allies when assessing the reliability of the United States.

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Effects of Employee Satisfaction on Attrition of Military Officers at Hungarian Defence Forces (HDF) Military Hospital

Szilárd JASZTRAB¹

In the results of this study, I examined the employee satisfaction survey given between 2011 and 2014, and I compared it with the research on emigration conducted at the Hungarian Medical Chamber and at the Hungarian Resident Association. We received between 412 and 801 answers annually. The importance of the topic is indicated by the fact that the media regularly deals with this issue and the shortage of doctors in the military severely compromises fighting ability. The Organisation for Economic Co-operation and Development (OECD) predicts that by 2022 the European Union will have a shortage of 1 million physicians, which affects 14% of the total health activities. The situation is further worsened by the fact that the Hungarian civil sector (including pharmaceutical companies) presents a serious draining effect as well.

Keywords: *employee's satisfaction, attrition, disarmament of military doctors, Ministry of Defence, Military Hospital*

Research

Non-representative survey-results—obtained in high schools—give a partial explanation why military service as a career option is not popular among young people before making career choices. Romantic notions are attributed to Hungarian soldiers in the military service. On the other hand, they are viewed negatively based on stereotypes made by the parents' and grandparents' generation. The view of society concerning soldiery, did not change after the regime change. The image of military life was not widely re-evaluated after the elimination of line infantry, draft and the professionalization of the profession. [5]

For what reasons does somebody opt for the military? There are several possibilities such as the idea of protecting the homeland, the possibilities of high-level professional learning, new challenges and career or a lack of other options. Nowadays, according to social public opinion the emotional part of the military has been pushed into the background. [6]

Professionals conducted career tests with students, who wanted to be doctors or soldiers. The study detected a relatively early determination. In the sample, 24% decided to become soldiers, and had made their decision. 41% of the students who started their studies decided in high school to become a doctor or soldier. The presumption of existential security can promote positive attitude enforcement towards military careers. Recent test results confirm the conclusion of the research: in the psychological and personal aspects of a military career existential security as a decisive factor is crucial. As for the social context, the family background is the decisive factor. The aspect of a commissioner livelihood is a very important

¹ Captain, Budapest, HDF Military Hospital; e-mail: jasztrabszilard@gmail.com

motivating factor when choosing career and even later on. The “secure job” as a motivation, in many cases comes from the living condition of a person. [7]

In recent times, the prestige of the armed organizations and professions has gradually decreased. The decrease of prestige is supported by labour market analyses. These labour market analyses were carried out to establish the occupation policy of the army. The international trend is that most members of the military stem from a poorer class of society. Primarily, they come from physical worker families. [8]

For those, who choose a military career, the livelihood, as motivation plays a prominent role. However, many medical students need to re-evaluate their former idea about their career when they face the anomalous state of the national health care during their residency period. The state of national health care can often lead to migration or changing of jobs among young doctors. Many young people decide on other jobs or migration, because of different reasons: aversion towards discipline in the military, regional disparities in the medical community, contradictions in parasolvency (a kind of mandatory gratuity unique to the sector), competition for patients at a doctor’s office and among private patients. In this situation, the military has a solution for the medical students. The Hungarian Defence Forces (HDF) have a scholarship program created to stop students migrating abroad. The scholarship supports students who have qualifications which cannot be obtained in military institutions. The positions are filled with the help of the scholarship program. The scholarship program is based on statute 9/2013. (VIII.12.) HM and the 2012. CCV regulations. The scholarship scheme allows contractual employment for doctors and medical students. The program prescribes the execution of basic training and the adoption of the first offered rota. Contractual legal relationship is necessary for successful applicants. The successful applicants start to work as career starters for the HDF. They work as doctors and practice their profession. The eligibility conditions are the same for professionals and contract soldiers alike. [9]

Working abroad and migration are often interrelated phenomena. Many people who work abroad often decide to permanently emigrate. Migration takes place within the country and outside the country. According to literature data, emigration can have many reasons which coincide with various viewpoints: macro-micro, push-pull and cyclic-structural effects. The reasons need to be better examined, because it can be concluded that the workers return to the domestic labour supply when the cycle goes up. During periods of crisis, the unemployment rate increases, which as a pushing effect increases the rate of migration, while the high rate of job finding is the puller effect. The cyclical reasons include the unemployment rate, differences in employment opportunities between the sending and receiving countries. For people who opt for migration, the employment opportunities are significant. Structural reasons include wage differentials, which are key factors in the decision to work abroad. The wage difference must be significant, since the person is able to cover the costs of relocation and integration. In addition, the international movement of labour allows the equalization of wages between nations. Similar languages being spoken in the sending and receiving countries can also increase the probability of migration. Studies show that this process works only to a certain degree, because it reaches a saturation level. The decrease of administrative obstructions is another positive factor leading to working abroad. There are differences between the sending and receiving countries in the social and education systems. The cultural environment of the country—the general political mood, exclusion, instability—are all able to enhance migration. [10]

The domestic labour market, affected by regional—sectoral inequalities—also experiences labour shortages and oversupply, as well as the departure of highly skilled workers, generating skill shortages (health care workers, IT specialists and engineers). As such, it must cope with more dissonances. The migration has positive and negative effects on the sending country. The study of the National Bank of Hungary (MNB) examined the effects of the migration on the sending country from 4 + 1 aspects. Among them is the decreasing of the population. With a smaller population, there is a smaller number of unemployment as well. Negative effects include demographic trends and migration of young people. The sustainability of the pension and health care system are increasingly in danger. From the perspective of selective migration, if the less productive individuals go to work abroad, the domestic average productivity increases. Otherwise, if the more productive individuals go to work abroad, the average productivity decreases at home. There are more reasons in the background. If the emigration is increasing or is at a high level, the domestic labour market can offer more work opportunities and less effort is needed to hold a job or to obtain it. From the workers' perspective, a decrease in their motivation is in direct proportion with their productivity. [12]

After the regime change, detailed timelines are available about employment trends, including data about emigration. For example, the number of foreign workers increased significantly: from 2009 to 2013, at determined moments of time: October to December. Within all workers, the proportions of Hungarian foreign workers more than doubled. [13]

Some surveys show a clear picture of the age groups. Among the foreign workers, the young adults represent the largest group—predominantly the 18–35 years age group and the 18–50 years age group. [14] On the basis of educational attainment, a higher proportion of graduates choose to work abroad. Among the graduates, four times more choose to work abroad, than people with low educational attainment. In 2004, the proportion of money sent home by the foreign workers, jumped over 1.5%. Of course, this change happened within the domestic GDP. These changes draw politics attention to migration and working abroad. [14]

In case somebody with a profession that is in oversupply in our country goes abroad, the domestic situation may improve. The mismatch problems may show a negative trend, if somebody goes abroad with a profession, which is in high demand in our country. The remittances to Hungary can change positively the domestic volume and the modernization of education. The negative consequences of remittances can result in the deterioration of domestic productivity. [15]

The migration of healthcare professionals has become a global phenomenon, which deals more and more with health and migration policies. In a country the number of health professionals influences decisively the function of the national health system. It influences indirectly the health status of the population. The consequences of this phenomenon will make their effects felt in the coming decades. The lack of health professionals influences the ability of the health care. The economic performance and quality of life of a country's population depends on the health care system. In case the system is not able to function properly, the right of access to health care gets injured. [17]

The migration of the physicians has four determining factors. First, the recognition of qualifications is automatic within the EU. Second, there are shortages in the healthcare sector. Powerful labour recruitment, which in many cases takes shape aggressively. Third, the human resource management, which in recent times has become a very important factor, because the

loss of specialists means accentuated burden to the functioning of the supply system. For example, the drastic reduction of the headcounts of family doctors and anaesthesiologists. The last one includes other positive effects, such as sharing of experience, exchange of information, training opportunities. [16]

In 2014, the government announced a significant wage developments plan for the military. The aim of wage development is to retain the existing soldiers and recruit new candidates. The development plan is being implemented in several phases, over a 4-year period. The salary increase would be an average of 50%. The professionals think that, the life of the military has significantly improved, so fewer soldiers change work. In the HDF a major problem is to attract and retain the voluntary and the contractual soldiers. The results of the research, which investigated the reasons of significant career change, highlight the main reasons of the migration: material and financial reasons, treatment, human relations, disorganization, lack of vision, conditions for spending free time, placement and housing problems. [8]

Some of the military career leavers continue working in an area, where they can utilize their acquired knowledge and skills. In some cases, they switch to another military or security company for a better pay. This shows, that the work is usually for a fixed term, after which it is possible to return to the military. The draining effects of companies is not decisively relevant. [18]

Since military doctors have a special status, the question arises: do they give up their doctor's vocation or their military vocation if they finish their career? Some of the doctors, who finished their military doctor's career, continue practicing as doctors. In this case, we could say, that they give up their military vocation. Is the military a profession for them? Does military mean vocation for them? What is the correct answer, if they think that the military doctor's career is a special exercise of the medical profession? [19]

The doctors, who leave the military and stay in the civil medical sector, have a better bargaining position on the negotiations, because they have special, transferable knowledge. In other words, they have more alternatives, more options to work in the future. For example, they have the possibility to be hired by the private sector, especially by foreign companies where they get a higher salary and during the work they use modern assets. Even the most developed NATO countries face difficulties to fill the short-staffed positions in the military with adequately trained doctors and to guarantee the existing doctors professional and military further development regularly. In Hungary, the number of the professionals researched in this theme is limited, but it has numerous special sociological aspects. However, the problem of the military doctor's discharge shows several problems, which are in the cross-section of the meeting of two professions. [20]

Regarding the contractual soldiers, for example they cannot get pension from the army. Therefore, they join the army for shorter periods. Generally, the entry into force of the statute—2011 CLXVII, conversion of pensions—adversely affected the different groups of the military. [8]

From the answers, it turned out that among the workers at the HDF Military Hospital the most problematic areas are the shortage of staff and exhaustion. The excessive bureaucracy, the lack of moral and material appreciation and the uncertain future perspectives were also highlighted. The other problem is the lack of motivation and professional development. The lack of financial and material conditions, the outdated equipment and long repair times were

also mentioned. The lack of information flow was also a relevant shortcoming. Interestingly, the lack of sports facilities and the insufficient parking facilities were also added to this list.

The organization's leadership and the good relationship and collaboration with the closest colleagues were mentioned as a positive factor. The cafeteria system, the improving information flow and the development of a quality management system (which means a possibility for development) were also highlighted as a positive aspect.

These results coincide with the online survey organized by the Hungarian Medical Chamber in 2013. According to that survey, the biggest problem is also exhaustion resulting from the average 65 hours working week (hospital work +10 hours part time job +15 hours duty). This leads to burn out, stress, disrupted normal family life which is manifested in a greater number of health problems and chronic and malignant diseases. However, it should be noted that compared to the population, doctors typically smoke less and do more sports activities.

According to the Hungarian Medical Chamber's survey, 75% of the respondents consider the situation of Hungarian health care system bad and forecast worsening. Many of them (25%) would not choose the medical profession again.

According to both surveys the physicians are dissatisfied with their earnings, the recognition of their work and their working conditions and their financial situation.

The same positive factor in the two surveys is that they are satisfied with their personal relationships. In the survey conducted by the Hungarian Medical Chamber, the doctors considered their own job performance and housing situations positive.

Both questionnaires asked about the intention of working abroad. At the HDF Military Hospital, this is rising year by year. In 2011 only 18% of respondents planned that in the meantime in 2015 this ratio went up to 22%. This coincides with the result of the Hungarian Medical Chamber's survey, according to that the ratio is 17%. These forecasts a loss of 5,000 doctors form the total of 30,000 physician members. [1]

Among university pupils, the medical students have the greatest willing of emigration. The Hungarian Association of Residents also sent a questionnaire to the doctors who were already working abroad. Two-thirds of doctors participating in the research had worked previously in the Hungarian health care system, but only 15% of them had already decided as students to work abroad. Only 2% of them are planning to come home within 2 years' time. They claimed the biggest deterrent factors are low salaries, the more than 60 hours of work weekly, the impossibility of normal family life and the corruption due to the "gratuity system". The increasing aggression and violence experienced by patients were also mentioned. [2] [3]

In the press, the number of articles on violence against medical personnel has increased: "Staff kicked, spat at, patient received 12 days in custody", "Disgruntled patient used an axe against medical staff", "Drunk patient beats nurse at hospital in Békéscsaba", "He recovered and threw the defibrillator out of the window", and these headlines could be continued endlessly. [4]

Professionals made studies in medical universities in Hungary. The results of the studies did not show differences in various aspects—family background, financial situation, origin, career circumstances—between the students who are going to be doctors and who are going to leave the doctor's career. The results of the studies showed differences in some of the motivations of the career entrants. Those, who remained in the medical career felt more dedication. For them, it was very important to feel competent in this career. They were better motivated because medicine is a career, where they can help people. [11]

The 75% of emigrated doctors would come back if the starting medical salaries increased to an acceptable level (to at least 300,000 HUF which is about 1,000 Euro), and the working conditions and the situation of on-call time improved. I note that the amount mentioned above is the salary of a captain in the Hungarian Army.

Most of the immigrant doctors did not experience integration problems. They considered the quality assurance system based on feedback and questionnaires, discussions, and the fact that many of the proposals usually come to fruition later a positive factor.

They find it important that they can operate and they can work independently, because the gratuity system is not the driver of the structure.

Besides the working hours, there is time to learn and to live well. For administrative tasks, typists are employed. They appreciate that their opinions are asked for and listened to and they are respected as team members. There are training courses arranged and provided for them. However, the doctors mentioned that they need to work hard abroad as well.

In my research among the negative factors, I found the same reasons mentioned above. I need to mention that in some fields some improvements have been made. For example, the parking system and the possibility of sports activities were improved.

At the HDF Military Hospital, the cooperation with close colleagues and the appreciation of the leaders of the hospital were considered good. They found that the quality assurance system also worked well at the Hospital and was leading towards improvements.

Summary

I compared the results of my research studies with the study carried out by the Hungarian Medical Chamber and the Association of Hungarian Residents. The results show that without money the problem cannot be solved. In addition, the reduction of duty and working hours is important in order to have enough time for normal family life. It is important to obtain some time for living as well. It should be stressed that for the young doctors it is important that they can reach their career goals and they can learn and do operations. It should be mentioned that the provision of sports facilities and adequate parking facilities are also important because of the annual military aptitude test. If there is no change in the willingness of going to work abroad in the future, there will be a serious problem in the civil health care system and it will compromise the combat ability of the Hungarian Army as well.

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Milestones in the Foundation and Role of the Most Significant International Organizations against Money Laundering in the European Union

Attila BUGYÁKI¹

In this two-piece study, the author introduces the most important international organizations and institutions fighting against money laundering of our time, through the main chapters of the formation of the international institutional system. The first part is focused on the creation of the international institutional system fighting against money laundering.

By the 21st century the phenomenon of money laundering—with the need of the laundering of gradually increasing “dirty” money, mainly from drugs, weapons and human trafficking, prostitution and corruption—has become a worldwide problem. With the increasing organization of international criminal groups—taking advantage of the free movement of money and financial services—are using more and more refined techniques to get more profits with their illegal activities. Money laundering will not leave terrorism untouched—casting a shadow on our everyday life—as particular radical groups use every means necessary to lay their hands on money sources anonymously needed for their existence, as it supplies their destructive actions; and naturally procuring this money the best sources are the money laundered by criminals. Recognising the money laundering and the negative and destructive effects of new crimes on everyday economic, financial and political life based on laundering, the leading countries of the world started international legislation against money laundering and terrorism which laws and codes are strictly regulating the different financial and bank supervision of the nation states. Despite the onsetting difficulties and indecisiveness, it was clear for the European Union that only strong international collaboration—and the unified understanding of measures—is the only power to stop the spread of money laundering.²

Keywords: money laundering, financing of terrorism, international organizations

¹ Ph.D. student, National University of Public Service, Doctoral School of Military Sciences; e-mail: attila.bugyaki@freemail.hu

² Initially, not even the countries of the EU could come to an agreement concerning the directives to be made—never mind international collaboration—as the lobby activities of different professions (lawyers, notaries) prevented to be included with the announced ones, fearing it would harm their confidentiality obligations. [2: 31]

Milestones in the Foundation of International Institutions against Money Laundering

Over the decades several radical opinions have formed about the role of international organizations and institutions. According one opinion the international institutions are the precursors of the world government, which stand up with unified sanctions in conflicts, requisitioning their organized executor apparatus. [1: 25] This idea seems negated, as today the dominance of sovereign countries is felt significantly, preferring their own national economy through their protectionist attitude. Other—negative—opinions say that the activities of international groups are minimal, negligible and with the loss of threats, their own importance is lost as well. Another opinion says that the international organizations, as they are preventing the conflicts, they are, at the same time, fostering a strong collaboration between the parties. Surveying those above, we can state that due to the different strength and interests of the countries, all opinions have truth in them, thus we can say that the truth about the collaboration of international institutions is a blend of opinions.

The main and determinative party of today's international relations is the country. The foundation of an organic relationship among the countries has given rise to the need of the possibility for institutional activities over national borders. Thus the countries created international institutions via international agreements. These units are to be taken as the new elements of the international system, which help not only treating the conflicts but also the collaboration and interests among the countries and the occurring synergy effects can be utilised at the maximum. That is why communication and collaboration acquires a more and more important role in our globalising world, as through these institutions not only the national but also the regional and global influences can be reached as well.

The main purpose of the fight against money laundering is to prevent the legalisation of profits from different illegal crimes and returning that money into the legal/illegal economy, and collecting informations on the basic crimes and the criminals as well. For achieving this, the law enforcements—constantly collaborating with other countries and international institutions—analysing, using, mobilising and monitoring every possibility given by the law that help prevent the installation or exchange of illegal profits, that is to say: prevent money laundering. As the legalisation of dirty money is mainly taking place on international level—through national borders, overarching continents—the fight against it is only possible on an international level. For a possible outcome not only organized collaboration but also requirements for internal laws of countries are needed as well, meeting the standards and making it technically and professionally possible for the law enforcements to execute their duties. [3: 79] Furthermore, it is necessary to constantly develop the effectiveness of the national legislation, law enforcement and jurisdiction.

The institutions of the EU against money laundering had the first milestone at the end of the 20th century which was later on followed by several international conventions and agreements.

The Recommendation of the European Commission

The above properly confirm the need of regulations. The basis of this was the recommendation of the Committee of Ministers of the European Commission about preventing “*the transfer of funds of criminal origin from one country to another and the process*” accepted on 27 June 1980. [4] The initial European community intention was caused by the basically changed, more organized and violent attitude of crime that could be more and more felt in the member countries. For legalising the illegally acquired money taken with increasingly new types of crimes, the criminals started using the everyday bank system more often, taking advantage of its initial unregulated system. The recommendation—besides the detective organizations—focused on financial and credit institutions which had to scan the clients and worked as a preventive filter as well during the cash flow.³

United Nations: Vienna Convention/Agreement

The Agreement—originally called *United Nations Convention against Illicit Traffic in Narcotic Drugs and Psychotropic Substances* that was commonly known as the *Vienna Convention* or *Vienna Agreement*—created under the aegis of the UN on 20 December 1988 was signed by 67 countries of the world.⁴ [5] It took almost two years for it to become international law in August 1990—after placing the 20th ratification charter—and came into force on 11 November 1990. The purpose of the Convention (consisting of 34 chapters) was for the ratification parties to stand against the crimes committed with drugs and psychotropic substances and the income of these illegal profits in a more organized and effective way. [6: 547] To reach the goals, measures were used concerning the previously strictly used banking secrecy in as much that they were declassified, thus the parties were obliged to give information to each other—based on judicial or other authorizing enactments—and they could not decline to do this referring to banking secrecy. The Agreement in Article 3, 5 and 7 focused on the fight against money laundering calling it a harmful thus indictable and punishable activity, and ordaining the fulfillment of overall legal aids according to this and the identification of devices used, monitoring the illegally acquired properties and the impounding, immobilisation and sequestration of such incomes. As for the collaboration, these activities are to be done co-operatively with other countries, mutually helping each other out.⁵

³ According to this the law obliged the bank system to: 1) Identification of clients for account opening, renting safes, and cash transactions over limit. 2) Use of safes is available for clients graded as reliable. 3) Impounding banknotes related to crimes according to serial number. 4) The professional training of banking staff. Furthermore, the national and international collaboration was specified among banks and authorities and a system that helps the monitoring and comparison of banknotes during depositions.

⁴ Hungary joined the Vienna Convention on 22nd August 1989, when signing the New York agreement.

⁵ For the mutual co-operation, the parties, in case of seizing illegal properties may share it and offer for the national and international organizations to be used for their work.

Basel Committee on Banking Supervision: Basel Statements

The Basel Statements, elaborated by the swiss Basel Committee on Banking Supervision in December 1988 was regulating the practice of bank monitoring as well as the use of banking system for prevention of money laundering, which was signed by representatives of ten countries—United States of America, Belgium, United Kingdom, France, the Netherlands, Japan, Canada, Federal Republic of Germany (FRG), Italy, Sweden—and has been ratified in several countries. [7] The Statements among others was looking for a solution—as the banks and banking systems are organic parts of the financial world, thus they cannot prevent being partners directly or indirectly in money laundering—for the banking system and the authorities as their supervising systems to have principles that can prevent the banks and financial systems to take part in money laundering, keeping them to be trusted. The principles focused on identifying the clients, meeting the requirements and keeping the laws, the collaboration with the authorities and finally joining the Principles Statement. To create the related roles and internationally accepted standards—parallel with the role of national supervising institutions—the conditions of communication and co-operations had to be created, making a client-scanning system which can filter the risky and/or illegal financial transactions. The so-created preventively functioning financial monitoring system was not obligatory but a guidance for parties taking part in international financial life. The above is illustrated by Part 6 of the Statements, which confirms the attitude norms, thus: *„...whatever the legal position in different countries, the Committee considers that the first and most important safeguard against money laundering is the integrity of banks' own managements and their vigilant determination to prevent their institutions becoming associated with criminals or being used as a channel for money laundering. The Statement is intended to reinforce those standards of conduct.”* [7: 2]

European Commission: Strasbourg Convention

The Convention 141/1990 of the European Commission signed 8 November 1990 was about *“Laundering, Search, Seizure and Confiscation of the Proceeds from Crime.”* [8] Part of the direct preludes was an impact study created with the help of experts that was made to measure how well the actual international criminal collaborations and agreements in effect covered the regulations against the money laundering back then. [2: 36] The examination came to determine that the money laundering is an individual and far-reaching source of danger, so a new Agreement will be needed to be placed on totally new basis. According to this the Strasbourg Convention, as a theoretical guideline, is using the following principles:

- Vienna Agreement;
- the need of national regulations on money laundering;
- the undertaking of law aids relating money laundering;
- the authorities of countries financially interested in law aid;
- the question of law harmonization.

The Agreement containing only recommendations and no obligatories emphasises the need of international collaboration and determined directives that can be efficiently used in international acts against money laundering. In case of illegal incomes, the Agreement highlighted the need of the parties to acknowledge and execute the other party's requests based on decree related to confiscation of property, except it does not count as a crime in the other party's laws, or the nation state does not give legal possibility. Given this, the money laundering was titled as crime and defined its illegal scope of activities that need special attention:

- conversion and transfer of possessions from crimes;
- dissembling and hiding original source of illegally acquired properties;
- stealing values of criminal sources;
- supporting and taking part in crimes specified in the Convention.

Directive I of the European Union

After realising the worsening effects of money laundering and organized crimes built around it, the European Union—using the Vienna Convention, Basel Statements, Strasbourg Convention and the 1980 Recommendation of the European Committee and their internal needs—joined the fight against money laundering and created the *Council Directive 91/308/EEC on prevention of the use of the financial system for the purpose of money laundering* which was commonly known as the *Directive I of the European Union*. [9] Besides the above reasons, an emphasised role in the creation was that the previous international agreements were not in harmony with the needs and interests of the member countries and were not obligatory. For the EU members the obligatory Directive—besides harmonizing the law systems—determined the following goals:

- preventing the criminals taking part in money laundering to financially act against the market of the Union;
- the operation of free, internal market of the member countries needs to be harmonized with the measures against money laundering;
- in favor of increasing the effectiveness the European Union has to take active part in the fight against organized crime.

The Directive obligated the banks and financial institutions and other companies suitable for money laundering to identify their clients and over a particular limit (15 thousand ECU)⁶ the clients are deemed to certify their identities. The generated informations and any suspicious activity related to money laundering had to be transmitted to the Financial Intelligence Unit (FIU).⁷

United Nations: International Money Laundering Information Network

Ten years after the 1988 Vienna Convention the United Nations founded the International Money Laundering Information Network (IMoLIN) which took a main role in the fight

⁶ The ECU was the currency of the European Community, and the later European Union between 1979 and 1999, before the introduction of the Euro.

⁷ The main goal of FIU was to foster, ensure and develop the communication between the members.

against money laundering, and together with the international institutions they elaborated a safe internet-based legislative and regulatory information network (database, electronic library, calendar of events), thus giving access to up-to-date information and effective help for the members. [10]

United Nations: The Global Program against Money Laundering

The United Nations Office on Drugs and Crime (UNODC) published *The Global Program against Money Laundering (GPML)* in 1998 to prevent laundering money from crimes and financing terrorism. [11] The program gave professional help, training and means to actualise these, where the fight against crimes related to money laundering was still backward.

Joint Action of the Council: 98/699/JHA

The Council accepted on 3 December 1998 the *Joint Action adopted by the Council on the basis of Article K.3 of the Treaty on European Union, on money laundering, the identification, tracing, freezing, seizing and confiscation of instrumentalities and the proceeds from crime*. This program contains: [12] [13]

- besides the termination of reservations, it gave legal possibility of seizing illegal possessions;
- the European Justice Network created a description to identify, trace, freeze, seize and confiscate illegal possession and means, which helped the informing and detection;
- the member countries during the procedures treated the requests of country members as that of an equal;
- collaboration was urged per the collaborative agreements;
- the member countries had to do every means necessary to prevent the cover-up of possession, unless it was forbidden in their internal laws;
- the member countries provided the authorities with the effective collaborative methods to identify, trace, freeze, seize and confiscate illegally acquired possessions and means.

European Commission Conclusions, Tampere

The European Commission's session on 15–16 October 1999 in Tampere defined the conclusions which approved the principle of mutual recognition both in civil and in criminal cases based on the justice authorities' verdicts and decrees, thus making the basis of the member countries' justice collaboration, the concept of freedom, safety and legal region. [14] Chapter X of the conclusions was about the special measures against money laundering, especially since money laundering is the main driving force of organized crime, thus—taking the Strasbourg Agreement and FATF recommendations into account—it is necessary to take every legal step with the harmonization of laws and information-flow, that is focused on the identification, tracing, freezing, seizing and confiscating the illegal possessions. For the goals to be reached, it was necessary to extend the limit of the power of Interpol to several crimes related to money laundering, and in the interests of increased transparency, within the confines of collaboration and law aid agreements, the possibility needs to be ensured for third countries to be able to trace illegal money.

Wolfsberg Group

The purpose of the Wolfsberg Group⁸—now consisting of 13⁹ international banks, founded by the initiation of the greatest Swiss bank, UBS AG, on 30 October 2000—is to develop and show guidance preventing the international financial crimes and risks, especially on know-your-client (KYC), money laundering and terrorism. [15] The recommendations—also called *Wolfsberg anti-money-laundering principles*—filtering money laundering, elaborated by the organization working on non-government basis are not obligatory, but due to the vocation of the members, these recommendations are met as basic conditions. The group elaborated an anti-laundering questionnaire¹⁰ for the members, which was used as a scanner for the financial service companies. After the terror attacks in New York, the main focus of the group is financing the fight against terrorism.

United Nations: Palermo Agreement

Within the confines of the United Nations, on 14 December 2000, in Palermo (Italy) the *United Nations Convention against transnational organized crime* was elaborated. [16] It is a milestone, as it was the first harmonized UN-action against organized crime. According to the convention, the organization's almost 200 members stand up harmonized against organized crime, corruption and money laundering. Besides the information-flow, for a wide justice collaboration, the followings were elaborated:

- law proceedings have been simplified, among others seizing possessions;
- the members are obliged to create their own Financial Information Units;
- the money laundering of illegally acquired possessions is expressed as crime;
- witness protection is accounted.

Council Decision: 2000/642/JHA

The European Union Council accepted on 17 October 2000 *the concerning arrangements for cooperation between financial intelligence units of the Member States in respect of exchanging information, 2000/642/JHA Decision*, which regulated the direct and effective co-operation among the obligatorily founded Financial Information Units. [17]

Council Framework Decision: 2001/500/IB

The *2001/500/IB: Council Framework Decision* signed on 26 June 2001 elaborated on *money laundering, the identification, tracing, freezing, seizing and confiscation of instrumentalities and the proceeds of crime*. [18] This framework decision was the further reflection of the

⁸ The name of the group derives from the castle of Wolfsberg, where the foundation agreement was signed.

⁹ Besides the 11 founding banks (Banco Santander, Bank of Tokyo-Mitsubishi UFJ, Barclays, Citigroup, Credit Suisse, Deutsche Bank, Goldman Sachs, HSBC, JP Morgan Chase, Société Générale, UBS Banks), later on the Standard Chartered Bank and the Bank of America joined as well.

¹⁰ The Wolfsberg Group's anti-laundering questionnaire contained questions from general to risk management, know-your-client, transparency, transaction shadowing, and the professional qualification of the administrators.

above mentioned 98/699/JHA Joint Action, which determined every conjunctive activity related to covering, hiding, using illegal possessions as a crime. The illegally acquired possession was determined as a legal-economical category, and in the future all illegally acquired possession exceeding one year of imprisonment was urged to be confiscated. The seizing and confiscating of illegal possessions directly or indirectly related to organized crime and assigned to third party could be realized much more effectively as the newly created concepts and regulations were put into practice.

Directive II of the European Union

The extended *Directive 91/308/EEC on prevention of the use of the financial system for the purpose of money laundering*—commonly known as *Directive II of the European Union (Directive 2001/97/EC)*—was signed on 4 December 2001 by the Union members. [19] The direct reason of creating the agreement was—besides the increasing number of crimes related to organized crime and the defense of the mutual European currency, the Euro—clearly a reaction to the terrorist attack in the United States of America on 11 September 2001. The extended Directive II—which has automatically overwritten the previous—adapted from the 40 + 9¹¹ recommendations of Financial Action Task Force on Money Laundering (FATF), the Vienna Convention, realising the unregulated risks in the financial system, which could be used for financing terrorist attacks. Preventing the criminals to stay anonymous, client identification¹² was obligatory in cases when a certain limit is reached. The new directive extended the material and personal extent of crimes related to money laundering. In the previous case, the use of providers' activities for money laundering is taken as preventive purpose and defined which attitudes count as money laundering, obligating the members to keep the prohibition of money laundering defined in the directive. [21: 7–8] With the extension of personal extent besides the financial providers, the partly¹³ or fully involved obliged people are accountants, auditors, lawyers, notaries, estate agents and tax consultants: such entrepreneur types that can be involved with the legalisation of illegally acquired money during their activities. Relating the credible client identification obligation, no specific method was defined, but it prescribed in which cases it must be done.¹⁴ Since there was no specific definition for the case of simplified or strict client scanning, only some cases were defined, the member countries could decide on their own about the strictness of the matter. An important milestone was a new provision about the disclosure prohibition, which—besides not defining

¹¹ The FATF is an independent, government-related, specially authorised, particular and collaborative action group functioning under the Organisation for Economic Co-operation and Development (OECD), defining the strategy and main elements of the international fight against money laundering and financed terrorism. The workgroup has worked their recommendations in 40 points about the unified, internationally accepted basic system, which is not legally obligatory, but the countries accepting it are adjusting their national legislation to it, and it is essential for the international co-operation. FATF declared further 8 points in October 2001, and another in October 2004, totally 9 special points for the fight against financed terrorism, reacting to new types of dangers. [20]

¹² The Directive stipulates that certain steps should be taken to find the real identity of the person in the background in case it is doubtful that the client is not acting on its own behalf. However, the Directive does not determine who should be regarded as the real possessor.

¹³ In case the providers do not provide direct financial services, the Directive defines partial regulations, meaning that they are obliged to notify their activity in particular cases only (e.g. real estate purchase).

¹⁴ Scanning is obligatory at the first meeting of the provider and client, in case of every transactions exceeding 15 thousand Euros, and in the smallest suspicion of money laundering.

exclusions—prohibited the providers to inform their clients if there was any notifications or data-forwarding towards the authorities about them. [22: 137–155]

United Nations and the International Monetary Fund: Model Legislation

The United Nations Office on Drugs Crime and collaborating with the International Monetary Fund¹⁵ published in 2003¹⁶ the *Model Legislation on Money Laundering and Financing of Terrorism*, in order to use international recommendations and practices to foster collaborating authorities' to create international standards. [23]

Council of Europe: Warsaw Agreement

The Council of Europe Convention on Laundering, Search, Seizure and Confiscation of the Proceeds from Crime and on the Financing of Terrorism has been signed in Warsaw on 6 May 2005. [24] The Agreement consisting of 7 chapters and 56 articles, besides increasing the international co-operation and its detailed legal regulations, focuses on increasing the efficiency, in which case all member country needs to create their own Financial Information Unit to “access directly or indirectly, on a timely basis to the financial, administrative and law enforcement information that it requires to property undertake its functions, including the analysis of suspicious transaction reports.” [24] The Agreement detailed the special cases of declining the co-operation and emphasized that if the purpose of the crime is related to financing of terrorism, the data-providing cannot be denied.

Council Framework Decision: 2005/212/IB

Council framework decision on Confiscation of Crime-Related Proceeds, Instrumentalities and Property has been elaborated on 24 February 2005, generally disposes of confiscation of crime-related proceeds, as well as defines the possession surveillance and possession recovery. [25] As the previous, 2001/500/IB council framework decision's expectations about illegally acquired possessions exceeding 1 year of imprisonment to be confiscated in practice of member countries' collaborations, thus to increase efficiency, the authority of confiscating was exceeded to the range of the specific crime organizations¹⁷ and with inclusion of the fight against terrorism.

Directive III of the European Union

The Directive 2005/60/EK on the prevention of the use of the financial system for the purpose of money laundering and terrorist financing came into force on 26 October 2005 which is

¹⁵ The Washington-based international organization interested in global financial collaboration, stability of exchange rate and economic growth was founded in 1945.

¹⁶ The initial basis of Model legislation was founded in 1999 by The United Nations Office on Drugs Crime.

¹⁷ The crimes are the following: counterfeiting related to the introduction of the Euro; money laundering, the identification, tracing, freezing, seizing and confiscation of instrumentalities and the proceeds of crime; human trafficking; aiding illegal immigration and transmigration and illegal residing; sexual exploitation of children, child pornography; drug trafficking.

the *Direction III of European Union against money laundering and financing terrorism*. [26] The leaders of member countries realised that, besides the increasing and more organized crimes, they have to focus not only on the illegally acquired money flowing into the financial system, but on the legal incomes too, because those are capable to be used for financing terrorism as well. The rethought Directive according to the above extended its effect besides the money laundering to fight against terrorism and preventing financing terrorism with taking the 40 + 9 recommendations of FATF, in which case “...*the purpose is not only preventing providers’ activities for money laundering, but also preventing the support of terrorism via these activities or things that can be expressed with money.*” [22: 139–140] The Council gave two years (until 15 December 2007) for countries to apply these Directive. Besides the prevention (prohibition) of money laundering and financing of terrorism, the extended regulation system defines those criminal attitudes and activities which have the possibility of directly or indirectly fostering money laundering and the financing of terrorism.¹⁸ A new element is the risk-based approach which, for the purposes of preventing money laundering, determines a unified obligation of legislation, client scanning and monitoring. At the same time, it declares that the scale of risk in the case of money laundering and financing of terrorism, is not always the same, it may differ in specific cases, thus the directive gave the opportunity for member countries to use stricter or lighter proceedings. As for the client scanning—redressing the lack of Directive II—we have much more definite criteria for identifying the clients and/or real possessors, and the measures for this activity, but the method of identification (e.g. the amount and types of data to record) is still up to member countries.¹⁹ Furthermore—realising the dangers of international corruption—the identification and definition of political persona has been involved in the directive as well. The Directive defined two categories in the aspect of risk-based client scanning. One is the simplified client identification which, in case of meeting specific requirements, gives alternate possibility for identifying low-risk clients and transactions, but in case of possible money laundering and financing terrorism, the identification is obligatory. The other is the obligation of client scanning in cases when the risk of money laundering and financing of terrorism is high, by its nature.²⁰

An important milestone was—when specific requirements were met—the possibility of accepting of client scanning by other providers, aka third party, which was justified by the increased efficiency and faster investigation. As for the disposals of the disclosure prohibition—in spite of Directive II—exceptions have been determined; according to these the prohibition does not concern the disclosure of such transferred information, whose address-

¹⁸ The Directive refers not only to financial but also to non-financial sectors, e.g. to lawyers, notaries, real estate agents, gambling companies, trustee and group providers and all entrepreneurs which have cash-flow of at least 15 thousand Euros.

¹⁹ “*The measures of client scanning are the following: identifying the client and checking the ID; in specific cases identifying the real possessor and creation of risk-based measures for identifying the IDs; gaining information on the goals and attitude of the financial relation; constant monitoring of the financial relation, meaning the scanning of transactions during the relation.*” [26: 23]

²⁰ By their nature they mean greater risk, thus beside defining the concrete measures, the intensified client scanning is obligatory to be done in the following cases: if the client does not appear personally for identification; in the case of border-crossing relationships for correspondent banking with third country institutes; in the case of financial relationships with political personas residing in other member countries or in a third country. [26: 25-26]

ees are authorities and law enforcements providing the supervision.²¹ Besides the above, the directive urges every member country to create their own Financial Information Unit to increase the efficiency of notificational obligation; besides collecting, analyzing and transmitting information, these Units have the obligation of annual data providing. Furthermore, the directive declares the norms of collaborative professional training and sanctions, which sanctions need to be sufficiently effective, proportionate and retentive in case of contravention.

Related to Directive III, the following three later decrees are to be mentioned: [2: 59–60]

- 1 August 2006: Commission Directive laying down implementing measures for *Directive 2005/60/EC of the European Parliament and of the Council* as regards the definition of “politically exposed person” and the technical criteria for simplified customer due diligence procedures and for exemption on grounds of a financial activity conducted on an occasional or very limited basis; [27]
- 26 October 2005: *Regulation (EC) No 1889/2005 of the European Parliament and of the Council* on controls of cash entering or leaving the Community; [28]
- 15 November 2006: *Regulation (EC) No 1781/2006 of the European Parliament and of the Council* on information on the payer accompanying transfers of funds. [29]

Directive IV of the European Union

The European Parliament and Council accepted²² *Directive 2015/849 on the prevention of the use of the financial system for the purposes of money laundering or terrorist financing, amending Regulation (EU) No 648/2012 of the European Parliament and of the Council, and repealing Directive 2005/60/EC of the European Parliament and of the Council and Commission Directive 2006/70/EC* based on the recommendations of Financial Action Task Force on Money Laundering (FATF) on 20 May 2015 in Strasbourg, which is Directive IV of the European Union against money laundering.²³ The purpose of the new Directive, besides increasing the efficiency against money laundering, tax crime and financing terrorism is to strengthen and harmonize the EU’s anti-laundering regulations with international expectations. As its predecessors, the purpose of this Directive was to prevent using financial systems of the EU for money laundering, organized crime and financing terrorism, furthermore preventing illegally acquired possessions to constantly and uncontrollably flow into financial and economic sectors, as it may significantly weaken the stability, integrity and international judgement and development of EU member countries. In order to achieve these goals—besides raising criminal law to a unified EU level—it obliges member countries to stand strictly, purposefully and proportionally against crime in the aspect of both collaboration and execution as well. In the aspect of proportionality, it has been emphasized that in order

²¹ Since it doesn’t result in disclosure, the disclosure of informations about the following providers are exceptions: institutes that are members of the same financial conglomerate; specific non-financial providers, if their activities are connected to the same legal person, or the activities are done in the same unit; in the case of financial and non-financial providers, if the client and affair is the same; if the specific non-financial provider tries to dissuade a client from illegal activity.

²² A decree has been accepted as well, at the same time with the Directive, related to monitoring financial transactions, with the purpose of making simple and effective the monitoring of financial transactions in the future with defining the monitoring and regulating the circle of data to be recorded by financial providers. This gives a major help for the authorities for the future supervision of the source and movement of money.

²³ The Directive contains obligatory regulations for the member countries which have to be introduced until June 2017. [30]

to protect society from crime, the member countries' regulations have to be in harmony with the stability and integrity of the EU's financial systems; furthermore, there should not be such obligations that are legally and financially disproportionate for the companies' activities. To increase the transparency, the Directive introduced new regulations deciding about *the creation of a public, central EU database*, which helps to identify the real possessors of companies, trustees and other legal entities. [31] Access to these databases is limitless and free of charge for specific Financial Information Units and authorities, but for other natural or legal entities access is granted only after proving legitimate interests, online registration and payment.²⁴ The *limitation of access* to these databases is possible only “*in exceptional circumstances, on occasional cases*”, but the emphasized public personas²⁵ and their family members are under special jurisdiction in the aspect of fight against corruption. The obliged providers are to ask for required personal datas for keeping the records during the client scanning, then record these datas; after scanning these datas, suspicious transactions are to be reported.

Another purpose of the new Directive is the aspiration for *unified and harmonized politics* expected by member countries for those countries that are outside the EU in which regulations against money laundering and financing terrorism are not effective enough.

Today money laundering and financing terrorism is clearly global and transnational in nature, thus the Directive emphasizes the increasing importance of coordination and co-operation between the member countries' Financial Information Units, and the share of information in case of identifying and monitoring suspicious cash-flow. An important and expected requirement in the European Union has become the possibility of ensuring and monitoring all financial transactions; with this, informations not only about the owner but *the information about the beneficiary have to be transmitted as well*.

The previously recommended risk-based method²⁶—with this the specific cases of threats are to be taken care of according to their risk level—is obligatory to use in the future for the providers, thus terminating the earlier mechanical data recording. By introducing this, the regulations related to client scanning are getting stricter, and according to the new regulations about the use of data, the providers are obliged to check their datas on clients at least every five years.²⁷

Under the aspect of the sanctions, it is an important change for the Directive to be extended to suspension of licence or deletion from registers, and identifying personal responsibility and suspending leadership or withdrawal of the initiative. Besides the above, the Directive disposes of maximum amount of fines; the amount of this is at least twice as much as the profit from the infringement, or at least 1 million Euros. [32] If the affected entity is a loan bank or financial institution, the maximal fine, in the case of legal entity, is 5 million Euros at least, or 10% of the yearly income; in the case of natural persons the fine is a maximum of 5 million Euros.

Besides the tightenings, a lightening of specific level is the possibility of the new Directive is handing in the ownership statement via electronic way—with meeting specific expecta-

²⁴ Member countries are given permission to operate public registers.

²⁵ Emphasized public personas are: heads of states, cabinet members, judges of the Supreme Courts and Members of Parliaments.

²⁶ Identified threats can be treated most efficiently with risk-based approach (RBA), with which a comprehensive and fact-based, purposeful approach can be used.

²⁷ With the introduction of risk-based approach the client-scanning can be conducted in a simplified, normal or intensified procedure.

tions—instead of the earlier exclusive possibility, when client identification was possible in person, with handing over the authenticated copy of IDs.

With the extension of the Directive, the previous 15 thousand Euros limit is decreased to 10 thousand Euros of cash payment, which is to be used—with extending the vendors' circle—in the cases of commodity merchants and gambling organizers.

As the above shows, several useful changes have been made, but it was soon to be found out that in some areas, further and immediate measures are needed; thus, in December 2015 the EU laws focusing on the fight against money laundering and financing terrorism have been revised and confirmed. The elaborated recommendation of the above has been published on 5 July 2016 by the European Commission; the most important modifications are the following: [33]

- treating the threats of financial transactions via new technologies and virtual currencies;
- the moderation of risks related to non-registered, prepaid devices;
- the increase and harmonization of monitoring and client-scanning of suspicious financial transactions related to high-risk third countries;
- extending the range of Financial Information Units, and ensuring the limitless and immediate access of information;
- confirming transparency.

Transparency is expected to improve with the recommended modifications put in practice, which increases the detection of law enforcement authorities related to the areas of money laundering and financing terrorism as well.

Conclusion

As it has been demonstrated, a long and difficult way lead to the foundation and actual situation of international organizations fighting against money laundering—and organized crime, financing of terrorism—in which primarily, besides the European Union (European Communities), the International Monetary Fund and the Organisation for Economic Co-operation and Development took and still takes active part. As *Directive I* of the European Union defined the money laundering in the *aspect of crime related to drugs and defined obligations for financial sector only*, the *Directive II* extended its effect to the cases of professions and activities as well. *Directive III* following the previous road, used the provisions of FATF extended to financing of terrorism, and is more focused on client scanning and introduced the risk-based approach; the realization of this latter in practice is still in progress. Going along this same path, *Directive IV*, for increasing transparency and repelling corruption, besides introducing the central EU database, focused on obligating the risk-based approach of client-scanning, and creating a more unified and harmonized policies both among the member countries and third countries.

The mission of international organizations founded against money laundering and financing terrorism is to stop legalization and use of money derived from crimes, and to stand against the financial support of terrorism by instituting effective and standardized measures. The leaders of the world realized that for *the effective fight it is not enough to use legal means only; for the success it is necessary to have an extended, harmonized and strong international collaboration and co-operation*. The signed international agreements and the standardised

legal regulations and the increasing number of committed countries show us that the world is on the right track to achieve this. *The problem is, being an international challenge, an international solution would be expedient, but many countries still are not committed to any such organizations*; the reason of this is that the countries cannot or are unwilling to meet the requirements, thus giving up their economical and political interest, and their own sovereignty. For successful actions an international consensus is needed as well—even if it means introducing political and/or economic retaliations and sanctions—which could possibly strengthen the future role and effect of international organizations. *For reaching the goals—as one of the basis of the fight against money laundering is reaction to the criminal methods with following and post factum legislation—it is necessary to introduce regime measures, including creating flexible legal and institutional backing, and at the same time setting up professional training of financial detectives taking part in the workflow.* In addition to the above *it is necessary to focus on the further communal sharing of acquired information, thus stepping over the limits of nation states, raising it to a unional (international) level, whereby more significant results could be reached.* To sum up, we identify the rejoice due to the increasing number of committed members of international organizations, but at the same time the quality of co-operation and communication have to improve significantly. And finally, let me state another important remark. If merely a fraction of the huge fortunes deriving from money laundering—which, according to a rough estimate could reach more than a thousand billion dollars annually [34]—could be confiscated by increasing the efficiency, this substantial amount could be directly spent on fighting crime...

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The Most Significant International Groups and Institutions Taking Part in the Fight against Money Laundering and Financing Terrorism

Attila BUGYÁKI¹

In the first part of the two-piece study the author examined the emergence of the organizational system against money laundering in the European Union. In this second part the daily practice of the war against money laundering is studied, introducing the major international groups and institutions which, with their activities, take active part in the fight against money laundering, financing terrorism, and other related crimes.

Keywords: money laundering, financing of terrorism, international organizations, Financial Action Task Force on Money Laundering, FATF-Style Regional Bodies

The Daily Practice of the Fight against Money Laundering

It is necessary to study the daily practice of the fight, after introducing the emergence of the international institutional system fighting against money laundering and terrorism in the first part. In this context those major groups and institutions are introduced which, with their activities, take active part in the fight against money laundering, financing terrorism, and other related crimes. The committed institutions, according to their activities and programmes, can be divided into three major groups.² The first and most important is the *Financial Action Task Force on Money Laundering (FATF)*, the second one, based on a similar pattern is the later established and currently embracing 9 members, i.e. *FATF-Style Regional Bodies (FSRBs)*. The third group includes: the *collaborating international institutions and law enforcement authorities* which, with their activities—directly or indirectly—effectively contribute to achieve success.

Financial Action Task Force on Money Laundering (FATF)

The basis for founding the international institution *FATF* (officially in French: Groupe d'action financière sur le blanchiment des capitaux—GAFI) was provided by the Vienna Convention, created by seven countries—Canada, Germany, Italy France, Japan, the United Kingdom and the United States—in Paris on 16 July 1989. To the founding G7³ countries further eight

¹ Ph.D. student, National University of Public Service, Doctoral School of Military Sciences; e-mail: attila.bugyaki@freemail.hu

² It is important to note that, in addition to the above, representatives of the civil sphere are also taking part in preventing the increasing security challenges during the fight against money laundering and terrorism—taking advantage of business opportunities—organizing different professional educational trainings, forums, events, conferences, seminars and webinars, which creates an individual category. One of the most acknowledged international member organization is the Association of Certified Anti-Money Laundering Specialists (ACAMS), founded in 1989, which is based in Miami and has offices in several capitals around the world.

³ G7 is the abbreviation of the Group of Seven, which was founded in 1976 by the seven most developed countries to increase political and economic collaboration.

countries joined in two years, and as a result of further development, another 31 countries in 2000, and today the Paris based institution has 37 members.⁴ The members, besides each other, are in daily contact with several other international and regional organizations, which also have interests in the fight against money laundering and financing terrorism. According to the initial plan the workgroup was supposed to cooperate for a predetermined period of time, but due to the successes, the cooperation in the following years was prolonged, and currently the organization is mandated until 2020.

The FATF is such an independent, government-close, specially authorized, particular and collaboration Action Group, which, working under the aegis of the Organisation for Economic Co-operation and Development (OECD),⁵ determines the strategy and main elements of the fight against money laundering and terrorism. [3] Its legal entity is to be considered as qualified, but we cannot state that the situation is the same relative to all the other countries, without recognition. Since it is not supranational, it creates no legal sources, but during its activities, it creates national and EU-recommendations, which are used as international standards in more than a thousand countries. Its duty is creating the international standards for the fight against money laundering and financing terrorism, studying the related legislation, practice and measures of the member countries, monitoring and qualifying the development and harmonization of these measures in favour of the international collaboration. [4: 112–116]

The Financial Action Task Force on Money Laundering elaborated its recommendations about the unified, internationally acknowledged anti-money laundering principle system in 40 theses, which legally is not obligatory, but the acknowledging countries adjusting their national legislation to this, which is an essential basis for creating the international cooperation. The recommendations emphasize the importance of multilateral cooperation, the need for consolidating the international legal systems, the roles of financial institutions and financial authorities, and the importance of international informational flow. [5: 2] In October 2001 the FATF elaborated initially 8, then further one recommendation in October 2004—9 in total—against financing terrorism.⁶ These recommendations—reacting to new and evolving danger—are periodically reconsidered, and according to this are reformed so that they can be initiated world-wide. For this theoretical and practical elaboration, the organization involves three work groups, dealing with independent, legal, financial and foreign relations, so the formed theses ensure a wide and flexible context for the countries to adapt according to their

⁴ The FATF currently comprises 35 member jurisdictions (Argentina, Australia Austria, Belgium, Brazil, Canada, China, Denmark, Finland, France, Germany, Greece, Hong Kong [China], Iceland, India, Ireland, Italy, Japan, Luxembourg, Malaysia, Mexico, the Netherlands, New Zealand, Norway, Portugal, the Republic of Korea, the Russian Federation, Singapore, South Africa, Spain, Sweden, Switzerland, Turkey, the United Kingdom, the United States) and 2 regional organisations (the European Commission, the Gulf Co-operation Council), representing most major financial centres in all parts of the globe. [1]

⁵ The legal predecessor of the Paris based international economic organization was founded by 20 countries on 16 April 1948, and it is called Organization for European Economic Cooperation (OEEC), with the goal of organizing and monitoring the mutual restoration programme, the proper division of aids and restoring the economy after the war—according to the Marshall Plan. It has been operating in its current form since 30th September 1961 and mainly takes part in harmonizing the economic, commercial and financial activities. Hungary has been a member since 1996. [2]

⁶ Initially the FATF was established to fight against money laundering, but after the terror attacks against the U.S. on 11 September 2001, the world's leading countries agreed with the European Union—using the experiences of the group and its achievements—and they decided to extend the role of the Action Group with a further 9 Special Recommendations, which are especially focused on the effective fight against financing terrorism.

capabilities. The FATF, based on the 40 + 9 recommendations and the method system for monitoring creates a report about the member countries periodically. The country-monitoring is discussed by the representatives of the countries on a plenary assembly, which serves as a means for making political-diplomatic pressure. The plenary assembly is used for electing the current president as well, whose mandate is valid for one year.

The FATF elaborated its latest international recommendations for the fight against money laundering and financing terrorism, meeting the standards and the new methods for evaluating the efficiency of the member countries in June 2017, which focuses on technical adequacy and efficiency.⁷ Although the events of the past years required changes, the basic principles have not changed.

The members control the execution of the recommendations in two ways, which complement each other simultaneously. The first is the self-evaluating system, where each member country is inspecting its own situation, and the second one is the system of mutual evaluation, where the situation of a member country is evaluated and monitored by the professionals of another FATF member country. The goal of the monitoring is to unveil those areas—besides the objective and comprehensive picture—that still require changes and developments in the future.

For creating pressure, the members created the category of Non-Cooperative Countries and Regions, with the context of assigning those 25 criteria,⁸ based on which the non-cooperative countries can be identified.⁹ The four established regional groups are: American, Asian/Pacific, European and African/Middle East groups; the countries which do not meet these criteria are on a blacklist.¹⁰

FATF-Style Regional Bodies (FSRBs)

Since the FATF does not wish to accept further members to join, instead it is urging the formation of regional organizations. As a result of this and the severing proclamations and action plans published by the United Nations—using the successes of the FATF—several international regions have created their own institutions for fighting against money laundering and financing terrorism, which are called FATF-Style Regional Bodies (FSRBs). [9]

⁷ The FATF published the recommendations for the first time in 1990, then revised it in 1996, 2001 and 2012, which was last updated in June 2017. [6]

⁸ “The initiative is based on the foreign taxation strategy of the EU, and will complement the ongoing efforts focusing on the prevention of tax evasion. Creating the EU list, the goal is to create and present those norms, which are already obligatory in the EU—said Edward Scicluna. The non-EU countries and regions are to be scanned. They will be on the list of the non-cooperative countries, if they do not meet the minimum requirements of the EU during the scanning. The Council is due to finalize the list of non-cooperative jurisdictions before the end of 2017.” [7]

⁹ On the actual list—several jurisdictions’ examinations are still in process—because of their high risks and the lack of their strategic obligations, nine countries are present: Bosnia and Herzegovina, the Democratic People’s Republic of Korea, Ethiopia, Iran, Iraq, Syria, Uganda, Vanuatu and Yemen. [8]

¹⁰ Hungary is committed to fight against money laundering and terrorism, but since the Group does not wish to extend in this region—they would rather support the fight on a regional and national level—Hungary is not a member of the FATF. Despite this fact, the Hungarian government has indicated its willing to join. Hungary—as a doubtful glory—was on the blacklist in June 2001 for a short while, since it was possible to make anonymous deposits on infinite number of bank accounts up to a limit of 2,000,000 HUF at the time, so the financial institutions were unable to identify the owners of the bank accounts. After legal changes, Hungary was removed from this list in June 2002.

The mutual traits of the individual Bodies are the voluntary, cooperative origination based on the members' agreements, and due to this—as they are not obliged by international contracts—they are to be seen independent. According to this, the members—aspiring to adopting the international and FATF-standards—define their activities and regulations via consensus, which cannot be in contrast with their cultural values and constitutional legal system.

Although the FATF and the FSRBs are individual organizations, independent from each other, they cooperate acknowledging and helping each other's work efficiently to achieve their common goal, repelling money laundering, the financing of terrorism, preventing proliferation and identifying and successfully treating the increasing threats in the financial system. Achieving this, besides creating unified international legal context, they focus on developing the national policies and methods for increasing the collaboration between the member countries. As an evaluating body, during its work, they use mechanisms like the FATF, and the results are constantly evaluated, monitored and shared with each other in favour of mutual aid. In favour of the most efficient compliance and use of the international and FATF-standards, besides technical aiding, the members actively support each other in execution as well. Furthermore, the members are constantly taking part in developing the FATF-standards, harmonizing the collaborative programmes, researches and workshops. Today there are nine individual, but parallel working FATF-Style Regional Bodies in the world, which, in connection with FATF, create a comprehensive and global network in the fight against money laundering and financing terrorism.

Moneyval

One of the oldest and most important regional programmes was founded by the European Commission in 1997 called *Select Committee of Experts on the Evaluation of Anti-Money Laundering Measures (PC-R-EV)*. The tasks of the organization was extended in 2002 to fight against financing terrorism, thus—after its name did not reflect properly the new functions—was renamed as *Committee of Experts on the Evaluation of Anti-Money Laundering Measures and the Financing of Terrorism; Moneyval* in short. The role of the commission founded by 21 members—which today has 47 constant and 6 monitoring members¹¹—is to develop the skills of national authorities for the fight against money laundering and financing terrorism. In this context, it controls its own and the mutual surveys and evaluations with the members, and makes recommendations for realizing more effective measures and collaboration, and organizes events and trainings (e.g. typological seminars), whose purpose is sharing the professional knowledge. [11] Furthermore, since the Moneyval is a crime-focused sub-committee of the European Commission, it focuses greatly on jurisdiction in the context of

¹¹ Permanent Members: Albania, Andorra, Armenia, Austria, Azerbaijan, Belgium, Bosnia and Herzegovina, Bulgaria, Croatia, Cyprus, the Czech Republic, Denmark, Estonia, Finland, France, Georgia, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Liechtenstein, Lithuania, Luxembourg, Macedonia, Malta, Moldova, Monaco, Montenegro, the Netherlands, Norway, Poland, Portugal, Romania, the Russian Federation, San Marino, Serbia, Slovakia, Slovenia, Spain, Switzerland, Sweden, Turkey, Ukraine, the United Kingdom. In addition, observer status: Canada, the Holy See, Israel, Japan, Mexico, the United States of America. Since Hungary is a member of Moneyval as well, it has to meet the requirements of the recommendations by respecting the FATF regionally, and make scanning possible for the international organizations against money laundering and financing terrorism. [10]

the fight against money laundering. “*The goal of its function is to evaluate the individual member countries’ legislation, practice and measures related to money laundering—based on the methods of FATF—and harmonizing and developing these measures, fostering international collaboration.*” [12] During the examination of each country, the delegate of the Moneyval evaluates the specific country’s legal system and the Financial Intelligence Units’ (FIU) activities on a few days long personal visit. It is discussed and accepted on the plenary assemblies, held three times every year. [13: 46] The member countries are authorized to send three persons to the Committee. The Moneyval became an Associate Member of the FATF in June 2006.

Caribbean Financial Action Task Force (CFATF)/ Grupo de Acción Financiera del Caribe (GAFIC)

The *Caribbean Financial Action Task Force*—with 25 members¹²—was the first one to establish after FATF, in May 1990, on one of the Lesser Antilles islands, Aruba. [15] After their establishment, the representatives of the Caribbean and Middle-American countries elaborated a special, 19-theses recommendation [16] in favour of repelling money laundering, which amended the earlier 40 FATF Recommendations. To increase efficiency, it introduced a special regional supporting and training strategy for the members. It holds its plenary assemblies twice a year, where one representative from each country takes part. Its highest body is the Committee, led by the president. With its basic activities it focuses on new kinds of challenges, like increasing terror threats, illegal gambling, human trafficking and fighting the risks of digital currencies. The CFATF/GAFIC became an Associate Member of the FATF in 2006.

Asia/Pacific Group on Money Laundering (APG/APGML)

The organization was founded in February 1997 by 13 countries—some were already members of the FATF—in Bangkok. [17] The first assembly after the establishment was held in Tokyo in 1998, and after that plenary assemblies were held at least annually, where, besides the most important decisions, they elaborated work programmes, which were adapted to the strategic plans elaborated every 4 years. The current strategic plan, valid 2016–2020, defines the organization to function as a regional “government” that focuses its task on moderating and repelling money laundering, financing terrorism and the spread of mass destruction weapons in the Pacific area, taking the international and national standards into account. [18] To accomplish these missions, it has three objectives:

- to work as an efficient multilateral organization, that supports enforcing and executing the FATF-standards and the work against money laundering and financing terrorism;
- to collaborate with the members to understand the risk environment of money laundering and financing terrorism, in favour of executing FATF-standards;
- to evaluate the enforcing and execution of FATF-standards, and react to the changes.

¹² Anguilla, Antigua and Barbuda, Aruba, the Bahamas, Barbados, Belize, Bermuda, the British Virgin Islands, the Cayman Islands, Curaçao, Dominica, El Salvador, Grenada, Guyana, the Republic of Haiti, Jamaica, Montserrat, Saint Kitts and Nevis, Saint Lucia, Saint Maarten, Saint Vincent and the Grenadines, Suriname, the Turks and Caicos Islands, Trinidad and Tobago, Venezuela. [14]

Besides, they regularly organize seminars on the new methods and techniques of money laundering and financing terrorism. The group consists of 41 members¹³—which are divided into 5 groups in order of the efficient control: Northern Asia, South-East Asia, South Asia, Pacific region, CANZUS¹⁴—and several international and regional observers. The APG became an Associate Member of the FATF in 2006.

Eastern and Southern Africa Anti-Money Laundering Group (ESAAMLG)

The Eastern and Southern Africa Anti-Money Laundering Group was founded in August 1999 in Arusha (Tanzania) and it has 18 members.¹⁵ The Group's decisions are made and accepted on the at least annually held assembly by the Ministerial council. [21] The Council accepted the fourth 3 yearlong strategic plan between 2017–2020, whose goal, besides confirming the previous tasks, is increasing the efficiency level of member countries, to become a more efficient member of the global FATF network. [22] To increase the transparency, it created risk-based evaluations, analysis and surveys, and constantly monitors the new trends in money laundering and financing terrorism. Besides the above, it greatly focuses on strengthening the collaboration internationally and regionally between the member countries, as well as the possibility of extension. The ESAAMLG became an Associate Member of the FATF in June 2010.

Inter-Governmental Action Group Against Money Laundering in West Africa/ Groupe Intergouvernemental d'Action contre le Blanchiment d'Argent en Afrique de l'Ques (GIABA)

The Economic Community of West African States (ECOWAS)¹⁶ was founded by 16 countries¹⁷ in December 1999, based in Dakar. [25] Its main tasks, besides prevention are to reinforce and harmonize the capacity of the West African Region, which makes it easier to fit the international standards in controlling the money laundering and financing terrorism. The measures created in this context provide efficient security against crimes committed against banking and financial systems. The GIABA became an Associate Member of the FATF in June 2010.

¹³ Afghanistan, Australia, Bangladesh, Bhutan, Brunei Darussalam, Burma, Cambodia, Canada, China, the Cook Islands, Fiji, Hong Kong (China), India, Indonesia, Japan, Laos, Macau (China), Malaysia, Maldives, the Marshall Islands, Mongolia, Nauru, Nepal, New Zealand, Niue, Pakistan, Palau, Papua New Guinea, Philippines, Samoa, Singapore, Solomon Islands, South Korea, Sri Lanka, Taiwan, Thailand, Timor Leste, Tonga, the United States, Vanuatu, Vietnam. [19]

¹⁴ The word CANZUS is the abbreviation of four countries: Canada, Australia, New Zealand and the United States.

¹⁵ Angola, Botswana, Ethiopia, Kenya, Lesotho, Madagascar, Malawi, Mauritius, Mozambique, Namibia, Rwanda, Seychelles, South Africa, Swaziland, Tanzania, Uganda, Zambia, Zimbabwe. [20]

¹⁶ The ECOWAS was founded with signing the Lagos Agreement on 28 May 1975, with the purpose of fostering the integration of the economic region. In spite of this commerce among the members, in the context of economic and monetary union was standardized. [23]

¹⁷ The Republic of Benin, Burkina Faso, the Republic of Cape Verde, the Republic of Côte d'Ivoire, the Republic of the Gambia, the Republic of Ghana, the Republic of Guinea, Guinea-Bissau, the Republic of Liberia, the Republic of Mali, the Republic of Niger, the Federal Republic of Nigeria, São Tome and Principe, the Republic of Senegal, the Republic of Sierra Leone, the Togolese Republic. [24]

*Task Force on Money Laundering in Central Africa/
Groupe d'Action contre le Blanchiment d'Argent en Afrique Centrale (GABAC)*

The Group—which is a determinative organization of the Economic and Monetary Community of Central Africa—was founded in early 2000 with 6 founding members,¹⁸ with the authorization to fight against money laundering and financing terrorism with executing FATF-standards and evaluating their execution. [27] Its tasks are—parallel with technical support and international collaboration—identifying money laundering methods and techniques used by terrorist groups and their supporters, exploring their traits, analysing, evaluating and sharing them. In October 2015, the FATF recognised GABAC as an FSRB and admitted it as an associated member.

*Financial Action Task Force on Money Laundering of Latin America/
Grupo de Acción Financiera de Latinoamérica (GAFILAT)*

The Financial Action Task Force on Money Laundering of Latin America was founded in December 2009 by 9 members¹⁹ in Cartagena de Indias (Columbia); later full members joined: Mexico (2006), Costa Rica, Panama (2010), Cuba (2012), Guatemala, Honduras, Nicaragua (2013) and the Dominican Republic (2016). [29] The—today having 17 members—Argentine-based regional society was first established as *Financial Action Task Force on Money Laundering in South America* (Grupo de Acción Financiera de Sudamérica, GAFISUD) which was changed on the plenary assembly in July 2014, since the new name reflected better its extension to all Latin American countries. During its activity, besides independency, accuracy, objectivity, quality and keeping deadlines, it is exclusively focused on enforcing, executing and monitoring the 40 FATF Recommendations and the 9 Special Recommendations, and ensuring the comprehensive communication and mutuality, which includes making the documents known as widely as possible. [13: 49] GAFILAT became an Associate Member of the FATF in 2006.

*Eurasian Group on Combating Money Laundering and Financing
of Terrorism (EAG)*

The Group embracing the Eurasian Region was founded in October 2004 by 9 members²⁰ in Moscow. [31] The main purpose was to repel money laundering and financing terrorism focused into the Eurasian Region, as well as the efficient and comprehensive repelling of economic crimes and with increasing transparency the corruption decreases pro rata, just like the likeliness of investments in the region. In favour of this, the Group provides help to the members in adapting, using and developing the FATF-standards, which makes it easier and simpler to cooperate in the key areas. During its work—using the context of communications and collaboration—it makes mutual evaluation, typological research, comprehensive advising and technical support according to the international standards, to reduce the risks.

¹⁸ Cameroon, Central African Republic, Chad, Equatorial Guinea, Gabon, the Republic of the Congo. [26]

¹⁹ Argentina, Bolivia, Brazil, Chile, Colombia, Ecuador, Paraguay, Peru, Uruguay. [28]

²⁰ Belarus, China, India, Kazakhstan, Kyrgyzstan, Russia, Tajikistan, Turkmenistan, Uzbekistan. [30]

The recommendations, based on the above are used to increase efficiency and development. The EAG became an Associate Member of the FATF in June 2010.

Middle East and North Africa Financial Action Task Force (MENAFATF)

The organization was founded in November 2004 with the collaboration of 14 countries, based in the capital of the Bahrain Kingdom, Manama. [32] The Group's goal—extended to 19 members²¹ today—is to set up an efficient system in the region, which is capable to stand against money laundering, financing terrorism and spreading mass destruction weapons, with accepting and executing the FATF-standards and the UN agreements. For this goal, besides a strong collaboration, it is obligatory to increase the enforcement of norms, research of typologies, identify the regional questions, share the experiences and elaborate solutions. The MENAFATF became an Associate Member of the FATF in June 2007.

Collaborating International Institutions and Law Enforcement Authorities

These organizations and authorities—although they are not members of the FATF—also take part in the fight against money laundering and financing terrorism on a daily basis. Their role is important, as they are actively and effectively taking part in the prevention of global crime with their action programmes, shared information and cooperation.

Egmont Group

The *Egmont Group*, founded in 1995 in Brussels—currently having 156 members [34]—is a committed international professional organization, which is important because of ensuring the information flow among the members. [35] The independent, voluntary national office's main tasks are receiving, analysing and forwarding the decisive financial information, which are connected to several crimes and are important in the fight against money laundering. [36] In favour of the purpose, the member countries started establishing their own Financial Intelligence Units (FIU),²² which are basically fostering, ensuring and developing the communication between the members. During their work—after processing, analysing and evaluating the work—they filter suspicious financial transactions which may be connected to money laundering activities. The individual financial investigator offices are in constant connection with important governmental and private finance institutions, law enforcement authorities and foreign FIU units, from whom they may claim data and information, according to international agreements.²³ The inner information flow is ensured by a specially developed, internet-based secret computer software,²⁴ which helps the professionals analyse

²¹ Algeria, Bahrain, Egypt, Iraq, Jordan, Kuwait, Lebanon, Libya, Mauritania, Morocco, Oman, Palestine, Qatar, Saudi Arabia, Sudan, Syria, Tunisia, the United Arab Emirates, Yemen. [33]

²² According to the EU Council decree elaborated on 17 October 2000 the FIU is: "A central, national unit which, in order to combat money laundering, is responsible for receiving (and to the extent permitted, requesting), analyzing and disseminating to the competent authorities, disclosures of financial information which concern suspected proceeds of crime or are required by national legislation or regulation." [37: 124]

²³ The members in specific cases—with the obligation of justification—can limit, or can even deny providing information, if it offends an ongoing investigation or the interests of the nation.

²⁴ Egmont Secure Web

the information with comparing the great amount of partial information. On the annual conference they inform each other about the results, experiences and cross-check about the further collaborations. Hungary joined the group on 16 December 2007, and became official member a few months later, on 10 March 2008.²⁵

FIU.net

The FIU.net is a decentralized computer network initially founded by 5 Financial Intelligence Units—France, Italy, Luxembourg, the Netherlands, the United Kingdom—in 1999. According to the 1999 European Council Tampere decision FIU.net was founded under the aegis of Europol with the purpose of ensuring the efficient and uninterrupted information and data flow between the FIU units during the fight against money laundering and financing terrorism. [39] To the initiative, besides the Netherlands Security and Law Enforcement Ministry, several EU members joined later voluntarily, providing a wider international opportunity to stand against crimes. The system's work is based on the obligation of the party managing money or other value from unusual or suspicious source to report the transaction to the national FIU unit, which, after scanning, in case of reasonable suspicion of money laundering or financing terrorism, immediately forwards it to the proper national authority for prosecution. During the measure the members, besides enforcing security are entitled to share information among each other. Besides the information flow, a further advantage is that the FIU units can compare the collected financial data with the Europol central criminal records, ensuring the unveiling of relations and connections, making faster reaction possible. The maintenance and development of FIU is today totally financed from the Europol's budget—counter to the previous support of the European Committee.

Group of International Finance Centre Supervisors (GIFCS)

The Group was established in October 1980 by the initiation of the Basel Bank Supervision Commission, called *Offshore Group of Banking Supervisors* which, in the past decades, greatly contributed to the Basel Statements and to the introduction of the FATF recommendations. [40] In March 2011 it changed its name to its current form—reflecting its extended roles. Although it manages similar tasks as FSRB, it is not a member of any Regional Syndicate. In 2002 it elaborated its own reference value system for creating regulation contexts and supervision practices called *Trust and Company Service Providers (TCSP)*, which was revised in October 2014 extended with the earned experiences, and is used as a standard, enforced on its members. Its purpose is to create a global financial stability, the border-crossing supervision of banking and financial services and forming an efficient collaboration with the international institutions, and enforcing, fostering and inciting the members to fight against money laundering, financing terrorism and the spread of mass destruction weapons. During the execution of its tasks, it aspires to use the best practices and norms, developing them, increasing transparency, sharing collective and mutual professional knowledge, organizing

²⁵ In Hungary, between 2004–2007, the police (National Investigational Office, Anti-Money Laundering Division) since 15 December 2007 the National Tax- and Custom Office Law Enforcement HQ (Financial Information Division) takes care of tasks related to money laundering. Note: until 31 December 2010 the latter was called Custom and Financial Police Central Law Enforcement HQ. [38]

forums and consultations, extending the membership with members with similar interests, and increasing the capacity, reaching the most positive results when negotiating with affected third parties. The currently 19 members²⁶ of the association, owning global international bank means, owns 10 percent of the market. [42]

European Police Office (Europol)

The Hague-based international organization founded in 1999 is the main institution for the police collaboration in the EU. [43] The purpose of the professionally working organization²⁷ is to produce results in the area of serious forms of crimes and organized crime in the context of an efficient collaboration, and creating a more secured Europe. During managing its tasks—due to the excellently trained professional staff and the humongous technical analysing capacity—they provide local support and information to the members. Dominant operational specializations are: drugs, weapons trafficking, illegal migration, terrorism, Euro counterfeiting, cybercrime, tax evasion and fight against money laundering.

European Anti-Fraud Office/Office Européen de Lutte Antifraude (OLAF)

The OLAF, founded as a totally independent international organization in 1999 is protecting the financial interests of the EU. [44] The Brussels-based institution's tasks are to protect the EU's budget from frauds, corruption, organized crime and related illegal activities. The execution of these—which are guides, not obligations—are done after inner and external governmental examinations, legislation and creating policies, through coordinating the member countries.

The European Union's Judicial Cooperation Unit (Eurojust)

The organization's task (founded in 2002, Den Hague) is optimizing the cooperation between the member countries' authorities and prosecutors, fostering the collaboration cross-border in the case of serious and organized crime, and elaborating EU legislation units for the virtuous and swift impeaching of the criminals. [45]

Financial Crimes Enforcement Network (FinCEN)

Founded in the Unites States of America, in April 1990, in the context of the Financial Ministry. The federal organization's seat is in Virginia; the European HQ is in Vienna. [46] The basic idea of its foundation was initially in order to move forward the American, later the international financial world's transparency and to elaborate, manage and supervise the anti-money laundering policies. Its activities, besides the traditional financial systems was extended to informal banking systems (e.g. hawala), and to suspicious transactions through virtual networks. Its motto is: "*Follow the money!*" Although its main activity is done in the

²⁶ Antigua and Barbuda, Aruba, Bahamas, Barbados, Bermuda, the British Virgin Islands, the Cayman Islands, the Cook Islands, Curacao and Saint Maarten, Gibraltar, Guernsey, the Isle of Man, Jersey, Labuan, Macau (China), Panama, Samoa, the Terks and Caicos Islands, Vanuatu. [41]

²⁷ The staff of Europol has no power to arrest, they attend specific matters as professionals.

United States of America, but since it is supporting to form other countries' and organizations' effective anti-money laundering measures, furthermore it aspires to a tight collaboration in the area of global crime, thus having a major effect on the European Union institutions.

Conclusion

The parties fighting against money laundering and financing terrorism realized the fact that besides corresponding to the stricter security requirements—with increasing efficiency and last but not least evading sanctions—they mutually need each other, since this is the only way for them to be successful in the future. With the foundation of FATF, it defined and founded the global basis of the fight against money laundering, which activities were later extended to fight against financing terrorism and spreading mass destruction weapons—casting a shadow on our everyday life. To the initiative, since 2006, further 9 regional organizations have joined, committing themselves to fully enforce and execute the recommendations and standards, which result in a positive development in the past years. Their power and influence well reflects the fact that the FATF today consists of 37 members, 9 regional organizations and 198 jurisdictions, which closely cooperate with the United Nations, the Egmont Group, fostering the work of law enforcement authorities.²⁸ Their global effect is increased further by the collaborating institutions and law enforcement authorities, which are not members of the FATF, but during their activities, they organically join the everyday war against money laundering and financing terrorism.

Since the FATF does not wish to accept new members, instead they support the creation of collaborative international organizations, working together with them. The regional organizations created this way—taking the local specialties, work methods and permissions into account—can stand against the criminals more efficiently and successfully. With the help of the FATF-elaborated standards, the members can utilize such unified methods, which help stand against money laundering and financing terrorism as a global coalition. The wide utilization of available capacities aspires to help unveiling, interrupting and finally freeze the financial backgrounds of terrorist and criminal organizations. During their activities, in order to keep up their credibility and show results—with taking the risks pro rata and efficiency into account—accountability, consistency, collaborations, sharing information and forming a unified thinking when utilizing the standards have become determinative requirements.

The fight against money laundering and financing terrorism is a never-ending process, which cannot be fully liquidated, but for every country's comprehensive interests, it is necessary to repel these with every legal means necessary. Thanks to the past years' successful collaborations, a significant number of countries and organizations have joined the fight, which—with adapting the standards—already have the skills and related base of knowledge, and help achieving successes when global action is taken. As we can see, the opportunities and conditions are available for the fight, the only question is, how can we utilize these resources efficiently in the future...

²⁸ Note that the FATF consists of more jurisdictions overall, than the UN. [47]

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National University of Public Service
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Hungary
Phone: +36-1-432-9000/29-004
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Fax: +36-1-432-9208
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