

Journal of International Economy and Business

A join edition of the Institute of Social Sciences and Institute of Technologies of Perun Academy
Publishing Company: PSP Publishing
ISSN: 2367-6035
Issue 7, Year VII (2019)
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The Poetics of the Facebook Poem

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Abstract.
The current study examines the changes undergone by the poem as it moves from the printed form to Facebook. After examining hundreds of Facebook poems, I have identified the following new features: brevity, departure from the strange, refraining from using vowel marks (Tashkeel), and using visual and auditory cues.

Keywords: binary opposition, visual poetry, deviation, counter expectation.

1. Introduction

The current study examines the features of poems posted on Facebook in an attempt to answer the following questions: Are these features different from the ones used in the paper poem? What are the differences and similarities? Despite the inevitable changes imposed by Facebook on poetry, is it still possible to produce good poetry? Or,is it possible to take advantage of these new features to make poetry more popular among readers without compromising quality?

This study analyzes texts posted on Facebook, especially through online poetry forums, such asMuntada Al-Kalema, Muntada Al-Qalam, Muntada Noon, etc.

This study of the Facebook poem is listed under the field of poetics. Therefore, it is appropriate to begin with defining the term "poetics." According to Roman Jakobson, "poetics" is, first and foremost, an answer to this question: what gives a verbal message an artistic impact?[1] Roland Barthes considers poetics to be a literary field of knowledge. Similarly, Todorov, sees it either as a theory regarding a form of literary discourse and its function or as a group of abstract features that contribute to the uniqueness of the literary phenomenon, i.e. literariness.[2] Although literature is – by nature – not a field of knowledge but a form of discourse that is evasive and elusive, poetics attempts to subjugate it to the standards that would function as a means to analyzing literary texts in terms associated with knowledge. As for poetic texts, poetics attempts to answer a variety of questions, including what are the characteristics that turn a certain discourse into a poetic text? What are the ingredients of the poetic work? How do they function? How do these ingredients come together to create the poetic body, the poem, and thus generate its implications? Inshort, how is it possible to differentiate what is poetic from what is not? What are the elements that turn a text into a poem? The current study attempts to answer such questions. It should be noted, however, that the Facebook poem has its own features: some of these features are different from those of the paper poem, while others are similar to varying degrees.

2. The Features of the Facebook Poem

2.1. Brevity. Poetry has its own environment, out of which it cannot function. This environment imposes certain limitations. Poetry – much like other literary genres – adapts itself to time and place, and, as such, it either accepts certain limitations that are the product of the dominant culture, or produces a resistance or even a revolution against those limitations. The desert, for instance, imposed its own values and presence on pre-Islamic poetry. Islam, in turn, imposed its own values, negating many pre-Islamic ones and emphasizing others. If one defines poetry – in principle – as a kind of language that communicates and intensifies meaning more than normal language does, intensification becomes an integral feature of poetry.[3]

Arab renaissance poetry was a reaction to the western invasion, on the one hand, and to the policy of Turkification, on the other.[4] It was an effort to revive Arab poetry's golden ages. However, this wooden sword could not resist the western cannon. No matter how skillful an imitation is, the original remains more powerful and valuable. The romantic movement came as a revolt against renaissance poetry, highlighting the individual's

[1] Roman *Jakobson*, *Qaḍāyā al-Shiʿriyya*, (trans. Muḥammad al-Waliy & Mubārak Ḥannūz), (Al-Dār al-Bayḍāʾ, Dār Topqāl, 1988), 24.

[2] Tazfitan Todorov, *Al-Shiʿriyya*, (trans. Shukrī al-Mabkhūt&RajāʾSalāma), (Al-Dār al-Bayḍāʾ, DārTopqāl, 1987), 23.
[3] Thomas R. Arb, *Sound and Sense: An Introduction to Poetry* (New York: Harcourt Brace College Publishers, 1997), 3.
[4] KhālidaSaʿīd, "ʿAṣr al-Nahḍawal-Ṣilabayna al-Nuṣuṣ al-Qadīmawal-Ḥadītha", *Ḥarakiyyāt al-Ibdāʿ*, (Beirut, Dār al-ʿAwda, 1982), 19-21.

concerns and troubles, while rising against past values that had no relation whatsoever to the present. The new values came to mirror the social and economic changes taking place at the time, and to reflect the birth of a middle class that rejected the past while attaching itself to the future. Revolutions in poetry continued to take place. Realism appeared in the free-verse, meter-patterned poem. It was followed by the prose poem, which liberated poetry from rhyme and pattern but imposed implicit limitations, such as rhythm, intensification, gratuitousness and deviation, etc.

No poet could not have anticipated the recent lightning shock: globalization and the rise of Facebook and social media outlets and their contribution to the outbreak of political and social uprisings. Since literature is part of the elite structure, it is affected by the lay structure. This is where the impact was especially powerful. It should be noted that these changes have been recorded in the short story. There are so many social media outlets that no single reader can follow everything posted on all of them. This is why it is necessary to focus on short literary texts. This change could lead to making poetry more democratic, in the sense that it belongs to all the people who can read it. Thus, the first feature of the Facebook poem has been entrenched as being concise, without exceeding 10 lines (which is a random and approximate number).

2.2. Departure from the Strange. Modern poetry tends, in nature, to be more ambiguous, especially in that it depends on deviation and deployment of new, unfamiliar poetic imagery. Ambiguity is an implicit feature that is irreplaceable in every meta-message; the dominance of the poetic function over referential function does not obliterate reference, but rather makes it ambiguous.[5] The Facebook poem is ultimately a message directed at the audience. One must, therefore, ask what is the culture of this audience? For the most part, it is mediocre or middlebrow. For the message to reach this audience, the Facebook poem – in terms of language and structure – must break away from concealment and estrangement, on the one hand, and from old, classical vocabulary, on the other. Instead, it must draw from the language of media outlets, specifically television.

Nevertheless, since readers of the Facebook poem belong to different cultural backgrounds, the poem must address readers from as many of these backgrounds as possible, including the cultured and educated. Hence, the poem must be structured geometrically in the sense that it implies multiple inferences through the use of certain techniques. This feature is called the layered or archeological poem. This poem has layers of gradual inferences beginning with the simple and ending with the deep so that it speaks to various cultural backgrounds, unlike the paper poem, which is usually written for the educated and the intellectual. For example, intertextuality. A simple reader does not need to comprehend intertextuality and its complex inferences. However, an educated reader reads the poem on a much deeper level to decode its inferences by participating in the game of intertextuality and identifying other poetical techniques.

Let us take, for instance, Rabia Al-Adawiyya's poem "I love Thee with Two Loves,"[6] where the title is textually linked to the mystic poetry of Rabia Al-Adawiyya. An educated reader would link this poem to its mystic origin. However, the Facebook poem must break away from mimicry because it will lose its function and its value before the original one.[7] The paper poem, on the other hand, reflects the culture of its writer, and usually tends to be more difficult and much deeper since its readers are small in number and mostly educated.

2.3.Refraining from Using Vowel Marks (Tashkeel). There are two types of writing in Arabic: words with tashkeel and words without tashkeel. If a poem is composed on a smart phone, it does not have any kind of tashkeel since most of those who type do not know how to use vowel marks properly. In addition, it is very difficult to use vowel marks on asmart phone because the screen is fairly small. This leads to a situation where most texts composed on the smart phone have no tashkeel, which leads, in turn, to various readings. These readings can vary either in part or in whole from the original text as intended by the author.

One of the most notable examples of this situation happened on the Makan radio stationwhere the poet Ranya Irshaid broadcasts a nightly poetry program called "All the Poems."On one occasion, when Ranya recited a poem titled "I Love Thee with Two Loves,"she used the female "thee" in Arabic rather than the male one as if the poem was addressed to a female. Thus, the meaning changed entirely from a mystic to a love poem.

I Love Thee with Two Loves

Loving you [female] with two loves in not enough
The blue sky
The cool sheets
And the tears of a woman
The light spray on
The sad windows

[5] Jakobson, *Qaḍāyā al-Shiʿriyya*, 51-55.
[6] Fuʾādʿ Azzām, *Ḥibr al-Ghaym*, (KafrQāsim, MaṭbaʿatKafrQāsim, 2018), 43.
[7] The Russian scholar Mukarovsky says: "The poetic language must be changed constantly because the aesthetic effect of any artistic means is eliminated by automation". See: Jan Mukarovsky, *On Poetic Language*. (New Haven: Yale University Press, 1976),18.

The dark lost hearts
And yet your face [female] is everywhere
The blue sky
The cold music
The broken smiles
And yet your face [female] is everywhere
The blue sky
The sick bodies
The sound souls
The blue seas
Everything points to you [female]…
Loving you [female] with two loves in not enough

This occurred because Ranya was not aware of the use of intertextuality in the poem by Rabia Al-Adawiyya, "Divine Love" addressed to God.
The change that was made here affected the entire poem. Thus, the lack of tashkeel may lead to a partial or radical shift in meaning. Various interpretations are integral to modern literature, which make the reader an active participant in the process of writing the text. In the paper poem, on the other hand, the author uses vowel marks in such a way that controls the meaning. The absence of vowel marks allows the reader to pick the simplest and closest meaning to him or her; s/he is not bound by one meaning or by the meaning intended by the author. In the paper poem, however, the poet uses the Harakat to polish his/her text in such a way that creates meaning. The absence of Harakat allows the reader to choose the simplest and most appealing meaning.

2.4. Visual and Auditory Poetry. There is a noticeable tendency in Facebook poetry to engage the reader by inserting new elements for the purpose of making it easier to understand. Using shapes in words and letters is not exclusive to Arab poets. In fact, some classical poets used a similar approach known as "Arboreal Poetry."

This kind of poetry depends on the visual formation of the text by employing various techniques, including visual and auditory effects, like images, drawings, colors and music.[8] It has evolved from visual poetry on paper. However, it is different in the sense that the latter depends on visual formation of the written text only, i.e. the way in which words are organized on paper. Digital visual poetry – in addition to what has been mentioned – depends on visual and auditory effects that provide the words with a physical and sensual nature, making them more vivid and alive.[9] Music has become a significant element in the Facebook poem, as in poems by Nizar Qabbani, Enad Jaber and Fouad Azzam. Some of the poems using vowel marks are delivered in the form of clips.

2.5. Binary Oppositions in the Facebook Poem. Facebook poetry is characterized by intense opposition. The entire poem is usually structured based on binary oppositions that rely on dramatism, on the one hand, and dialogue, on the other. This appears to be the result of media influence, especially with one-on-one programs. In addition, the Arab revolutions have further promoted the conventions of a wide spectrum of people engaging in dialogue while they simultaneously deepened sociopolitical conflict. This is demonstrated in literature through posing different perspectives and conflicted ideas. It must be noted that this feature is not limited to the Facebook poem, but is also found in the paper format. The difference is in the degree of intensity.

It is important to emphasize that the Facebook poem is open to all people; as such, binary oppositions ought to be addressed- at least on the surface level. However, there could be more than one level of binary opposition. The following example has two levels: a clear and simple level as well as a concealed and hidden one. This poem is an example of concealed binary oppositions, yet they present no obstacle for the average reader to understand its surface meaning. On the other hand, an expert reader can deconstruct the text and examine its binary oppositions to comprehend a deeper meaning. Thus, the Facebook poem suits all kinds of people, unlike the paper poem, which is exclusive to a small number of educated and elite readers. Let us take, for example, the poem "The Woman is a Moon of Sapphire"[10]:

The woman is not a drawer
You fill with your rubbish.
The woman is not a fur coat
You cover yourself with in your spare time.

[8]ImānYūnis, *Taʾthīr al-IntarnetʿalāAshkāl al-Ibdāʿwal-Talaqqīfī al-Adab al-ʿArabī al-Hadīth*, (KafrQarʿ, Dār al-Hudāwa-Dār al-Amīnlil-Nashr, 2011), 42-43.
[9] Ibid, 42-43.

[10]FuʾādʿAzzām, *Lil-ṢabāḥhiAktubu*, (KafrQāsim, MaṭbaʿatKafrQāsim, 2018), 39-40.

The woman is not a sand clock
You approach during thirst hours.
The woman is feeling, trees from the trees of paradise,
Words from honey and tenderness.
The woman is a garden and Pulicaria that withers
Without the words' neigh. [??]
The woman is pure water.
The woman is a song,
A bottle of perfume, a lamp, a moon,
A bow of rain,
Drops from Paradise's drops,
The horse's defiance.
The woman is a moon of sapphire.

In "The Woman is a Moon of Sapphire", there is binary opposition between the implicit and the explicit. The implicit finds its way to the reader's mind through the letter K (Qaf) – which is Killing (honor killing). These are ideas that reside in the unconscious Arab mind; hence, the poet creates this opposition to express his rejection of the idea. Instead, he uses the same letter K (Qaf in Arabic), to create beautiful images. The K of the woman stands in all its glory in the face of the K of the killing; the forests of Ks are paralleled with the K of killing and the K of Crushing in men. The opposition often depends on repetition. Repetition here begins from the title "The Woman is a Moon of Sapphire," which sends a positive message [?]. It is a clear reporting statement that has the elements of emphasis and positivity.

This poem sends a message to men, encouraging them to detach the negative elements from the image of the woman. The poem begins with a negation in which the poet rejects various preconceptions about women. The word "woman" appears three times in negated images, as opposed to five times in affirmative ones. Thus, quantitatively, positivity is emphasized in women. The poet then uses repetition – repeating the word "woman" eight times. By contrast, the letter K (Qaf, in Arabic) is repeated (a letter pun). If some readers believe that the letter (Qaf) is heavy and rough, it is because it rejects the implicit K (Qaf) in the word "killing". There are more implicit binary oppositions here: "the implicit killing, سقط المتاع, وقت الفراغ (the negative Qaf is repeated twice versus ten positive times (المرأة ماء قراح, قارورة عطر, قنديل, قمر, قوس من قزح, قوس من قزح, قمر من ياقوت)

The positive attitude of the poet towards women appears here on two levels: the quantitative and the structural; the quantitative in terms of number and the structural in terms of where the poem begins (the opening statement and the closing statement: The Woman is a Moon of Sapphire).

Thus, the poem is constructed on the basis of binary oppositions through the repetition of the opening line and of the letter pun as well.

Repetition here has many functions. It is an internal pattern that compensates for the absence of rhyme; it is also a dramatic and psychological recurrence that captures inner feelings and mental states. Through his poem, "The Waste Land", T.S. Eliot had a great influence on modern Arabic poetry.[11]

2.6. Deviation. It should be noted that the elements of the Facebook poem are not entirely distinct from those of the paper poem. They share common features. Deviation is when a word deviates from its literal meaning. Arabs called this "metaphor."The knowledge-field language is markedly different from the poetic one. While the knowledge-field language approximates zero in writing,[12] the poetic language breaks away from the scientific and dictionary language. This distinction caused a poetic war between the modernizers and the conservatives in the Middle Ages. An excellent example of this is in the poetry of Abu Tammam as he focused on modernizing and intensifying deviation:

Do not quench my thirst with the water of the blameworthy,
For I am drunk with love and I enjoy the water of my own tears.

Deviation appears in all of its glory here. Some conservatives mocked him by sending people with buckets to have them filled with the water of the words he claimed to possess. Yet, he confuted them by saying that he would give them what they had asked for on the condition that they bring him a feather from the wing of humbleness mentioned in the Holy Quran. Abu Tammam was famous for using deviation to the extent that one conservative critic – Abu Amr Ibn Alalaa – said about his poetry: "if this were poetry, then all the rhetoric of the

[11]Shmuel Moreh, *Al-Shiʿr al-ʿArabī al-Ḥadīth 1800-1970*, (trans. Shafīʿ al-Sayyid &SaʿdMaṣlūḥ), (Cairo, DārGharīblil-Nashr, 2003), 311-378.

[12] "The Zero Degree in Writing" is a title of the book Written by R. Barthes, see: *Roland* Barthes, *Le Degre Zero de l,ecriture*, (Paris: Seuil, 1953 *(*Paris: Seuil, 1953). This issue has been translated in Arabic, see: Roland Barthes, *Al-Daraja al-Ṣifrlil-Kitāba*, (trans. Muḥammad Barāda), (Beirut, Dār al-Ṭalīʿa, 1980).

Arabs is false."[13] Another example is a line by the French poet Valery: "a calm surface upon which doves wander." The poetic phenomenon begins at the moment we call the sea a "surface" and the ships "doves."[14]

2.7. Counter-Expectation. This element is linked to the concept of deviation since expectation is, literally, that which is expected. Counter-expectation, on the other hand, is a deviation from the expected. This breakaway from the expected creates a gap that takes the reader by surprise. What characterizes the poetry of the 20th century is the notion that it breaks away from the principle of adherence to the rules that prohibit including certain elements and enable connecting dissonant ideas in the text.[15]The Russian researcherLotman gives us an example of this principle from a poem by Tyutchev[16]:

A dark misty evening…
Listen! Is that the sound of a lark?
Is that you, O guest of the fair morning,
At this late, dead hour?
So soft, playful, pure in sound,
At this late, dead hour,
Like terrifying mad laughs,
It shivered the depths
Of my soul

This poem is clearly formed in such a way that it semantically includes groups that cannot be put together: a dark rainy evening and the song of a lark. "A Dark Misty Evening" represents a real situation, followed by the interference (exclamation) "Listen!" This makes us expect that something about sound is about to be stated in the following words. The presence of these two messages compels us to come up with a list of possibilities from which the poet will choose what will follow (for instance: the hooting of an owl, the squeaking of dry woods, moaning, the clatter of bones, the ringing of a bell, etc.). Choosing one of these elements (or what is equivalent to them) allows us to create a field of the possible and the impossible in the messages that will follow. Yet, the poet chooses a group of impossibilities rather than possibilities. Thus, he betrays our expectations as far as "Listen!" predicts a certain sound, where as the poet is, in fact, describing a different kind of sound. The line changes from "Listen! Is that the sound of a lark?" into "Listen! Is that the cry of a bird? "Why interfere with the limitations despite the notion that the "sound of a lark" and the "cry of a bird" could be used interchangeably in a certain context?. Of all the characteristics of a lark, the poet chooses to activate the "morning bird," an expression that cannot be grouped into the image created at the beginning of the poem.

Later, the entire poem is structured according to this notion of grouping that which cannot be grouped together: "guest of the fair morning" and the "dark late hour" (notice the change of the position of words in the repetitions in lines 4 and 6 – and, thus, the probability of prediction lessens).

All this reaches its peak with "terrifying mad laughs." This is how the poet constructs a message he wishes to communicate: non-expectation, the chaos of nature itself, and non-coherence as a universal rule.
When Wafeeq Heiby says:

Embrace me with a warm pinch of rain.[17]

he betrays our expectations because we expect his beloved to embrace him with a pinch of roses. His betrayal of our expectations takes place on two levels: the pinch of rain, on the on hand, and the use of oxymoron, on the other, in a "pinch" of cold rain.

2.8. Intentionality and Print Distribution/Black and White. Poetry depends, basically, on intentionality. In other words, a person intentionally writes poetry. Hence, the poetic text is called Qassida in Arabic because the poet intends (Yaqssed) to communicate an idea, which was once used to praise an emir or a king for financial or moral purposes.[18] Poetry is the kind of language that says more and intensifies more than normal language does. Roman Jakobson argues that every verbal message has six functions. These functions appear in every verbal text to varying degrees. The question is which function is dominant? If we were to focus

[13]Abū Bakr al-Ṣūlī, *AkhbārabīTammām*, (Beirut, al-Maktab al-Tijārī, n.d.), 244; For more information on this subject, see: Adonis, *Al-Thābitwal-Mutaḥawwil: al-ʾUsūl*, (Beirut, Dār al-ʿAwda, 1974), 53.
[14] John Queen, *Binā ʾLughat al-Shiʿr*, (trans. Muḥammad al-Waliy&MubārakḤannūz), (Al-Dār al-Bayḍāʾ, DārTopqāl, 1988), 24.
[15]JurijLotman, *The Structure of the Artistic Text*, (trans. Gail Lehoff& Roland Vroon) (1977), 78-80؛Lotman, Analysis of the Poetic Text 127-128.
[16]KamālabūDīb, "Baḥthfī al-Shiʿriyya", *Mawāqif* 46 (1983), 85-95.

[17] WafīqHībī, Ṭāwilatuki, (KafrQāsim, MatbaʿatKafrQāsim, 2018), 37.
[18] Thomas Arp, Sound and Sense: An Introduction to Poetry (New York: Southern Methodist University, 1997), 3ʾ

on the "message," the dominant function would be the poetic function, referred to by some critics "the aesthetic function" presented in the following structure:[19]

Reference (Context)
Emotional (Sender) Poeticism (Messege) Explanatory (Recipient)
Attentive (Communication)
Metalinguistic (Rules)

In Facebook poetry, the message is rather less significant than the referential function, i.e. the context, while not entirely ignoring the importance of the meaning.

Poems take many shapes and forms, depending on the historical era in which they are produced. Since pre-Islamic times and until the meter-patterned poem, which appeared in 1946 (with some exceptions, such asblank verse), poems used to have lines.Every line was divided into two parts with the first half (Sadr) and the second half (Aajz) separated with a gap. When the meter-patterned poem took over, the white blank of the paper became larger and the poem acquired a title. Some poets experiment with the shape of the poem to express ideas. In "Broken Jugs" by Al-Bayyati, the poet uses this method – drawing in words – to emphasize the outbreak of revolution and the birth of a new life:[20]

A new spring
A flowing spring in the idleness of our lives
A new spring

This form helps the reader imagine the explosive revolution like an arrow penetrating reality. Organizing the words on paper vertically indicates to the readers that they have entered the field of poetry. Thus, the readers deal with the text as poetry regardless of its quality. This technique appears in the Facebook poem with more variations than can be included in the paper poem due to visual effects in the text (such as different images, drawings, and colorsin addition to the dispersion of words and sentences) as well as auditory effects, especially music and recitation. One notices the use of this technique in Fouad Azzam's "A Runaway Cloud,"21 which concludes as follows:

My name breaks down into
F
R
A
G
M
E
N
T
S

In a different poem, titled "The Horse of Memories," the poet uses a different technique: the possibility of reading horizontally or vertically:[22]

Bloom and shine
From the ink of my ways
My eyes

Here is another example of breaking down a word into letters taken from a poem by Nabil Tannous[23]:

The clouds are red
Red red
Red
R

[19] *Jakobson*, *Qaḍāyā al-Shiʿriyya*, 32-33
[20] Reuven Sanīr, *Rakʿtānfī al-ʿIshq: DirāsafīShiʿrʿAbd al-Wahhāb al-Bayyātī*, (Beirut, Dār al-Sāqī, 2002), 69.
[21] Fuʾādʿ Azzām, *Aḥlām al-Sunūnū*, (Ammān, DārFaḍāʾāt, 2015), 166.

[22] Fuʾādʿ Azzām, *Aḥlām al-Sunūnū*, (Ammān, DārFaḍāʾāt, 2015), 166.
[23] NabīlʿTannūs, *Wa-Yaṭūlu al-Intiẓār*, (KafrQāsim, MaṭbaʾatKafrQāsim, 2018), 10.

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Yet, such techniques, i.e. breaking down words and dispersing sentences for semantic and aesthetic purposes, can be seen in the paper poem. The visual and auditory elements such as colors, recitation, images and music cannot be seen on paper; they are limited to the Facebook poem. These new elements have become part of the semantic and aesthetic elements that overlap with previous traditional ones, especially in written texts. As such, the online text has many interrelated elements with the written text.

Conclusion

There is no doubt that a medium like Facebook has had a profound effect on published literature. This effect has imposed new features on the Facebook poem as well as a new status. The current study attempts to tackle the new ingredients of the Facebook poem. These include shortness, departure from the strange, intentionality, the use of music, refraining from the use vowel marks, and experimenting with forms of writing. The traditional ingredients in the paper poem, which had to undergo a process of change, are binary oppositions, deviation, and the betrayal of expectations. These ingredients have turned writing poetry into a more popular act in the sense that it no longer belongs to a small elite group.

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Post-method methodology: Principled eclecticism and its application in teaching writing to EFL exam candidates

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Abstract.
Research has shown that it is impossible to apply a rigid teaching methodology to all learners in heterogeneous classes and principled eclecticism is regarded as a successful alternative to single-method reliance or absolutism (Alharbi, 2017; Yan, Zhou & Dai, 2007; Min, 2009; Al-Jarrah et al., 2019). A principled eclectic approach is based on post-method pedagogy and eclectic teachers review, select, adapt and combine the best characteristics of mainstream methods and approaches. This paper investigates the development of popular traditional methods and approaches in the English language teaching, briefly describes their main characteristics and proposes the implementation of principled eclecticism. It draws upon Kumaravadivelu's (2003) macrostrategic framework along with the three post-method pedagogic parameters - particularity, practicality and possibility to justify how the teaching of EFL writing to exam candidates in an eclectic classroom should be designed. Lastly, it suggests that the post - method era does not imply the end of methods but to know how educators can go beyond the existing established methods and engage in the process of developing their own teaching method including the use of technology.

Keywords: parameters, macrostrategies, post-method pedagogy, principled eclecticism.
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Introduction. History of development of approaches-methods in ELT and main characteristics

It goes beyond the shadow of a doubt that there has been a preponderance of historically successive language teaching methods or a variety-based methodology. The timeline of teaching methodologies is useful as it shows how the multiple language teaching methods have enriched the ELT practices.

First in the timeline comes the *Grammar-Translation Method* (1840s-1940s) which is geared around bilingual word lists used in Latin and Greek teaching using translation. Emphasis is also given to accuracy and grammar rules are taught deductively. The next method is the *Direct Method* (1900) which is opposed to Grammar Translation monolingual reading and neglected writing skills. Other prevalent approaches are the *Oral Approach* (1930) and *Situational Language Teaching* (1960) with the PPP lesson plan (present, practice, and produce). In particular, the oral approach focuses on vocabulary and grammar and situational language teaching highlights real situations. A further method is the *Audiolingual Method* (1950s-1960s) which is centered on teaching listening and speaking before writing and reading. What follows is the *Silent Way* (1963) developed by Gattegno, underpinning the idea that teachers need to remain silent so that learners can produce much language. With the emergence of the *Competency - based Language teaching* (1970s) what is emphasized is the use of standards and ongoing assessment until mastery of the language based on measurable outcomes. Another method is the *Cooperative Language learning* (1960s-1970s) which was developed by J. Dewey and its main focus is on pair and group work, critical thinking skills in cooperative projects, problem solving and teaching of strategies. Next come the *Total Physical Response* (1970), which was developed by Dr. J. Asher, and aims at using physical activity in language teaching and the *Natural Approach* (1977), which was developed by Tracy Terrell and supported by Krashen. The most widely used approach is claimed to be the *Communicative Approach* **(**1980), whose main focus is on communicative competence since it is error tolerant. *Suggestopedia* (1979-1985) is another interesting approach which was developed by Lozanov. Its name is derived from suggestology which is the systematic study of the nonconscious influences. One approach also worth mentioning is the *Whole language approach* (1980s -1990s) which integrates the speaking, listening reading and writing skills in a holistic way. The *Task-Based Learning* (1980s), which was developed by Prabhu, focuses on authentic tasks and on process rather than product completion of pedagogic tasks.

Additionally, two other well known instructions are the *Text - based Instruction* supporting text deconstruction discourse analysis (social & cultural contexts) along with authentic models explicit teaching and the *Content - based Instruction and CLIL* (1989) , developed by Brinton, Snow and Wesche, teaching organized around meaningful content subject material in English. The last theories / approaches to be considered, are the *Lexical Approach* (1990s) that highlights the centrality of multi word units-chunks, use of corpora-based activities, and data-driven learning and the *Multiple Intelligences* theory (1993), developed by

Gardner, which suggests that learners have multiple intelligences, namely the visual - spatial, verbal - linguistic, musical - rhythmic, logical - mathematical, interpersonal, intrapersonal, naturalistic and bodily - kinesthetic.

What is principled eclecticism?

A variety of names has been given to the term "eclecticism" such as *Enlightened eclecticism or Informed eclecticism* (Larsen - Freeman, 2000, as cited in Alharbi, p. 35), *Disciplined eclecticism* (Rodgers, 2001, as cited in Alharbi, 2017, p. 35), names which suggest its popularity and influence. From an etymological perspective, "eclectic" comes from the Greek *eklektikos* (meaning "selective"), from the verb *eklegein*, (meaning "to select") (https://www.merriam-webster.com/dictionary). As for its definition, it is "the blending of methods into the teacher's own method" (Richards & Rodgers, 2014, p. 352). In other words, it is a variety - based methodology since teaching via the eclectic way is a rich combination of multiple activities which shows how the combinations of language teaching methods have enriched the ELT practices.

Application of Principled Eclecticism in writing. Suggested list of the potentially most effective methods/approaches for writing

To help second language learners, the following eight methods / approaches have been selected as potentially the most effective for the implementation of principled eclecticism in the writing class and they are as follows: the communicative language teaching, the content-based instruction the whole language approach, the task - based, the text - based, the multiple intelligences theory, the competency - based and the lexical approach. The rationale of this selection is provided below along with the reference to Kumaravadivelu's (2003) macro and micro strategies in post method pedagogy.

On the contrary, some approaches/methods have been left out on the grounds that they are likely to be the least effective techniques for developing post-method writing such as the Oral / situational approach as the emphasis is on spoken rather than written language, its prescriptive nature and the use of the PPP lesson planning making learners passive recipients of knowledge. The same rationale applies to the audio lingual method because of its emphasis on spoken language and not on grammar accuracy and requirement of avoidance of errors. Similarly, the natural approach focuses on meaning rather than form. Likewise, the Silent way focuses on pronunciation charts and color coded material, suggestopedia on the unconscious state, the use of music, and relaxation prioritization, the grammar translation method on the need for translating rather than paraphrasing and the Direct Method on minimal explanations of writing.

Macro and micro strategies in post method pedagogy

Kumaravadivelou (2003) helped against the adherence to single methods in the ELT field calling for the embrace of postmethod pedagogy. Eclecticists seek the balanced development of all four skills as it is a pluralistic language teaching. The eclectic teachers can draw upon the basic parameters of a post method pedagogy that aims at transcending the limitations and incompleteness of method pedagogy and outline the macrostrategic framework of Kumaravadivelu, the pioneer of post method pedagogy. In this way, teachers may cease to be mere consumers of established methods and their inflexibility and become creators of their principled methodology. It should be accentuated that Kumaravadivelou refers to the use of principled rather than random eclecticism. Reliance on intuitive judgments needs to be sidelined by principled rather than pseudo judgments on the grounds that genuine eclecticism is done within a systematic framework.

Kumaravadivelou (2003) has suggested ten (10) macrostrategies - the what to do - and micro strategies - the how to do (Kumaravadivelou, 2003, pp. 39-40). These strategies are to be viewed as ways upon which teachers can base their choices of methods procedures to embrace post pedagogy and facilitate the implementation of principled eclecticism in the writing class. They are as follows:

Maximize learning opportunities

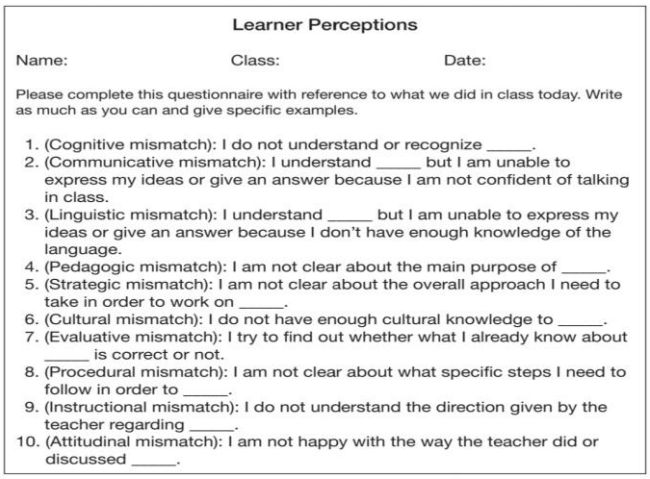
The first macro strategy means to prioritize learners' talk over teachers' talk and the micro strategy is technology in use (i.e., tablets) to download online articles for students to read**.** To achieve principled eclecticism the use of communicative approach is suggested as students are encouraged to discuss the given topic for brainstorming.

Facilitate negotiated interaction

In the second macro strategy pair or group work is to be ensured and the micro strategy is to develop critical thinking. For principled eclecticism the usage of a task-based approach is suggested as students cooperate for task completion.

Minimize perceptual mismatches

The third macro strategy involves avoidance focusing only on usage and prioritizing a meaning - based approach. The micro strategy is the think - aloud strategy teaching students to verbalize aloud what they think and use of learner perceptions questionnaire to identify all the sources of mismatches between teacher intention and learner interpretation at the end of the lesson. For principled eclecticism the lexical approach to contextualize words and data-driven learning for linguistic, syntactic, semantic (literal meaning of words), pragmatic (implied meaning) can be used. Figure 1 below shows the questions that are used to enable teachers to be more aware of the different types of mismatch.



Learner Perceptions

Name: Class: Date:

Please complete this questionnaire with reference to what we did in class today. Write as much as you can and give specific examples.

1. (Cognitive mismatch): I do not understand or recognize _____.
2. (Communicative mismatch): I understand _____ but I am unable to express my ideas or give an answer because I am not confident of talking in class.
3. (Linguistic mismatch): I understand _____ but I am unable to express my ideas or give an answer because I don't have enough knowledge of the language.
4. (Pedagogic mismatch): I am not clear about the main purpose of _____.
5. (Strategic mismatch): I am not clear about the overall approach I need to take in order to work on _____.
6. (Cultural mismatch): I do not have enough cultural knowledge to _____.
7. (Evaluative mismatch): I try to find out whether what I already know about _____ is correct or not.
8. (Procedural mismatch): I am not clear about what specific steps I need to follow in order to _____.
9. (Instructional mismatch): I do not understand the direction given by the teacher regarding _____.
10. (Attitudinal mismatch): I am not happy with the way the teacher did or discussed _____.

Figure 1. Learner Perceptions questionnaire (Kumaravadivelu, 2003, p. 93)

Activate intuitive heuristics (the process of learner's self discovery)

The fourth macro strategy means to provide students with opportunities for language analysis and strategies. The micro strategy is consciousness - raising and learner's attention is caught via inductive learning. For principled eclecticism the task-based approach paired with data-driven activities (i.e., concordances) also help redrafting / revising and noticing syntactic patterns in context.

Foster language awareness

The fifth macro strategy stresses focus on form and meta - language, general and critical sociopolitical awareness. The micro strategy is explicit teaching and critical analysis of texts. Text-based instruction is proposed for principled eclecticism for its focus on text deconstruction and analysis of its organization in conjunction with CDA questions to make learners understand social power and inequalities.

Contextualize linguistic input

The sixth macro strategy refers to the reality of language as it is used in the four contexts: linguistic, extra linguistic, situational, and extra situational. The micro strategy is lexico-grammatical level activities such as prosodic signals, intended meaning and appropriacy of context. To achieve principled eclecticism the text-based instruction is recommended to use and follow the writing conventions.

Integrate language skills

The seventh macro strategy aims at ensuring that learners can react to speaking, reading, listening, and writing material. The micro strategy is to go beyond the limitations of course books that separate language skills and exploit the Internet by reading online articles which can act as prompts for listening and speaking. For principled eclecticism the potentially most effective approach would be the whole-language and task-based approach.

Promote learner autonomy

The eighth macro strategy intends to give students the opportunity to research independently. The micro strategy for teachers is to use a learner profile questionnaire to identify first the class profile. The task-based approach would be suitable for principled eclecticism. Figure 2 shown below explains how the learner profile questionnaire is used based on a Likert scale**.**

LEARNER PROFILE QUESTIONNAIRE

This is a survey to about yourself which will help me understand what you expect to learn in the *writing class*. Please red the following statements carefully and circle 1= I agree, 2= I disagree, 3= uncertain

AIMS

- I want to improve my writing skills 1 2 3
- I want to be able to write accurately 1 2 3
- I want to improve my critical thinking skills 1 2 3
- I want to receive written corrective feedback 1 2 3
- I want to be given assessment benchmarks 1 2 3
- I want to experience writing as a process 1 2 3

STRATEGIES

- I like using strategies that help me write better 1 2 3
- I like using strategies that help me reflect on my progress 1 2 3

LEARNING STYLE

- I like working with a partner in class 1 2 3
- I like participating actively in whole-class discussions 1 2 3
- I learn best when my teacher explains writing conventions 1 2 3
- I like reading online articles to enrich my vocabulary on a topic 1 2 3

Figure 2. Learner profile questionnaire (adapted Kumaravadivelu, 2003, pp. 153-154)

Ensure social relevance

The penultimate macro strategy is to ensure that language must be relevant to learners. Prerequisite critical cultural consciousness does not only focus on the target culture. The micro strategy is to use relevant textbooks sensitive to the learners' needs local and international cultural information and a variety of cultures or cultural richness. There are two approaches to follow for principled eclecticism in this case, namely the content-based instruction with discussion activities stimulating background knowledge and sharing it and communicative language teaching.

Raise cultural consciousness

The last macro strategy suggests exchanging ideas about cultural aspects, and view both teachers and learners as cultural informants. The micro strategy is asking cultural content questions. The content - based instruction along with the theme - based model and communicative language teaching opinion activities such as national holidays, festivals, celebrations across cultures can be used as potentially effective.

The synergistic relationship of the three post method pedagogic parameters

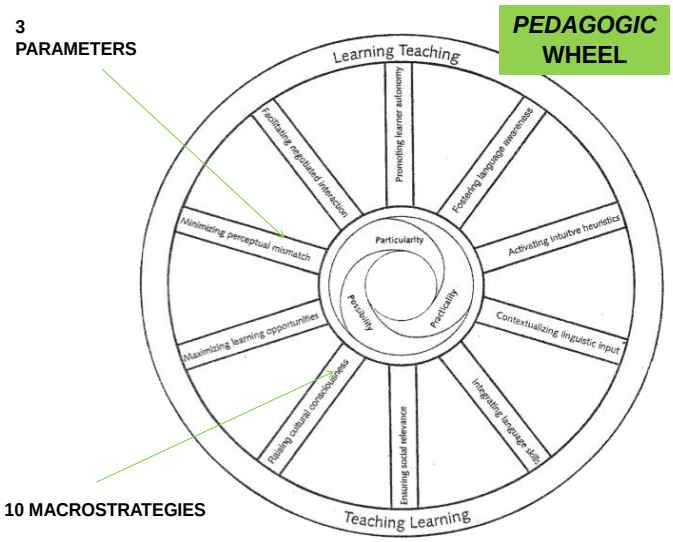


Figure 3. Kumaravadivelu's (2003) pedagogic wheel (p. 41)

The pedagogic wheel shown in Figure 3 shows how the macrostrategies and the pedagogic wheel interrelate by being in a systemic relationship. According to Kumaravadivelou (2003), there are three post method pedagogic parameters which are as follows:

Particularity

Particularity requires teachers to be context-sensitive "to a particular group of learners pursuing a particular set of goals within a particular institutional context" (Kumaravadivelou, 2003, p. 34). It opposes to a generic set of classroom practices and superficial knowledge.

Practicality

Practicality refers to the teacher who needs to produce a personal theory of practice. In other words, it is the teachers who judge the usefulness of theories and produce "a teacher-generated theory of practice" (Kumaravadivelou, 2003, p. 35).

Possibility

This parameter "is concerned with individual identity" and states that language is shaped by the social, economic, political, and cultural context. This means a socially realistic and contextually sensitive language pedagogy (Kumaravadivelou, 2003, pp. 36-37).

Personal practical knowledge (PPK)

The personal practical knowledge could be defined as the phenomenon "when teachers are encouraged to develop their own teaching philosophy, teaching style, and instructional strategies" (Golombek, 2009, as cited in Richards & Rodgers, 2014, p. 353).

The PPK recommended in the present article for developing principled eclecticism in writing classes, combined with the aforementioned selected teaching approaches / methods can be summarized as follows:

Lexical density and percentage- based instruction in writing skills

From a linguistic perspective, the term "lexical density" (how informative and meaningful a text is), is central to producing written texts of high quality. The potential of Web-based learning (WBL) in improving the writing performance of EFL learners in exam writing classes is enormous. Both teachers and students can get statistics and percentages on writing samples using accessible and recommended online writing content analyzers. There are also suggested simple strategies to improve percentages such as usage of combinations of parts of speech (i.e., adjective + noun, verb + adverb), pluralization, usage of gerund, addition of more lexical words in a sentence (i.e., 3 adjectives or 3 nouns one after the other), usage of complex combinations (i.e., adverb + adjective + adjective + noun) and synthesizing changes in a sentence (i.e., using pluralization plus combinations).

Critical discourse analysis questions in developing critical thinking when analyzing writing models

Examples of critical discourse analysis questions (CDA) can be as follows:

1. What is the context (social, economic, political, historical, commercial, and intellectual) in which the text was produced?
2. Who is the intended audience?
3. How true are the facts in the text, or is it purely made-up fiction or fantasy?
4. Does the text glorify the wealthy, the famous and the proud?
5. Does it lift up the powerless and those who have been pressed down?
6. Does this text make you feel contented and satisfied about the way things are right now in the world, or does it make you want to help make the world better?
7. Is this text a pleasure to read? Or, does the author use any annoying or ugly words and expressions where they are not appropriate
8. How much new did you learn from it?

Political correctness in teaching writing

Some examples of politically correct vocabulary are shown in figure 4.

Figure 4. Political Correctness in writing

people with disabilities, a person who has a disability, a person without a disability people who are blind, a person who is deaf, little person	~~the handicapped,~~ ~~the disabled~~ ~~normal, healthy~~ ~~blind, the blind~~ ~~deaf~~ ~~dwarf~~
survivor of (bullying), target of (bullying)	~~victim of,~~ ~~suffers from, bullied~~
seniors, longer living , people of the third age	~~the elderly,~~ ~~old people~~
people living below the poverty line, inactive person, person experiencing homelessness person of material wealth	~~the poor,~~ ~~the unemployed, homeless,~~ ~~the rich~~

Editor's checklist for writing

There is a plethora of questions to be asked when revising in the writing process such as "Is there any unnecessary information?", "Is vocabulary topic-related?", "Is the percentage of lexical density high (55% 65%)?", "Is the information grouped into logical paragraphs?", and "Is there too much repetition?"

Discussion-Conclusion

Considering all the above, the pedagogic implications for language teachers are the following:

a) There can be no single method of teaching writing, the "one size fits all" perspective;

b) Writing instruction should be eclectic, holistic and needs-based;

c) Language teaching has entered a new era, the post-method era and teachers should be familiar with its principles;

d) Teachers need to develop a *healthy skepticism* concerning the claims and controversies of the various methods and approaches since principled eclecticism is not unlimited liberty when mixing methodologies but provision of evidence for pedagogic choices ;

e) PPK is important for a successful exam - oriented writing class;

f) The diversified needs of learners are covered.

Figure 5 below shows a schematic representation of the eclectic writing, which shows how flexible it is.

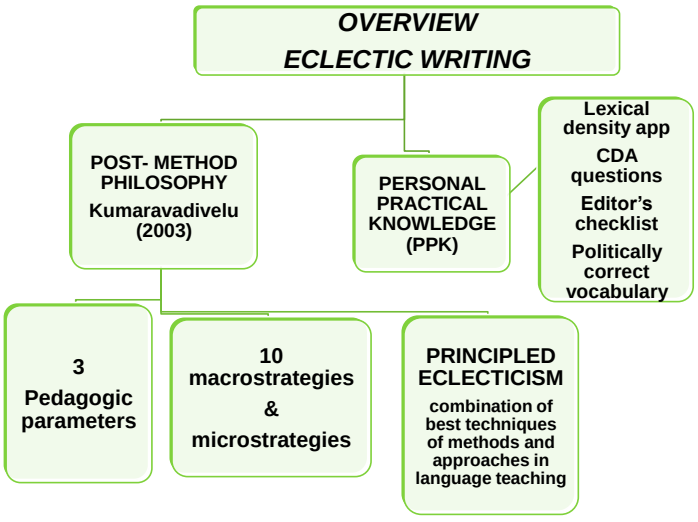


Figure 5. Representation of eclectic writing

In brief, principled eclecticism allows teachers to select what works within their own class. There is no best timeless and universal teaching method given that "the relationship between approaches, methods and teachers is complex, simply because methods do not teach: teachers do" (Richards & Rodgers, 2014, p. 358).

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Did the Cooperation and Verification Mechanism Achieve the Goal Bulgaria and Romania to Achieve Effectiveness with the Judicial Reform and the Fight Against Corruption?

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Abstract.

The membership of Bulgaria and Romania in the European Union was linked to the Cooperation and Verification Mechanism in the Field of the Judiciary and Corruption, and concerning Bulgaria, the fight against organised crime. In 2018, Bulgaria was able to show the political will to tackle organized crime and subsequently dropped out of the monitoring mechanism. After 12 reports full with assessments and recommendations, in its latest report in 2019 Bulgaria is removed from the list of countries for surveillance, but Romania monitoring should continue. The question remains whether the Mechanism has achieved the objective of effective judicial reform and fighting corruption in Bulgaria, and will the European Parliament and the Council approve the EC proposal? Time will tell soon!

Keywords: cooperation and verification mechanism, reforms, judicial system, corruption, EC reports

No country can boast that it has eradicated corruption and created preventative conditions for it not to be reborn. At a press conference on June 6, 2011 Swedish-born EU Commissioner for Home Affairs Cecilia Malmström stated: "There is no country without corruption in the European Union"… and "Four out of five EU citizens believe that corruption is a major problem in their country."

Bulgaria's accession to the European Union in 2007 has been linked to a Cooperation and Verification Mechanism (CVM) which purpose was to assess the country's progress in three areas:

- Reforms in the judiciary;
- Fighting corruption and
- Controlling the organized crime.

The same conditions were imposed on Romania, but with the exception that it would be monitored only for reforms in the judiciary and the fight against corruption, without organized crime. From 1 January 2007, the European Commission (EC) regularly draws up and announces its progress reports on the two sides in the envisaged areas. The committee's findings over the years have found different preferences in one or the other sphere of observation in both countries, but their result has always been insufficient to drop the mechanism.

The Cooperation and Verification Mechanism was established by EC Decision 2006/929 / EC of 13 December 2006 and aims to monitor Bulgaria's progress towards specific objectives in the areas of judicial reform and the fight against corruption and organized crime. The mechanism comes into force after the country's accession to the European Union in 2007. The aim is to help Bulgaria establish an impartial, independent and effective judicial and administrative system, to help overcome some of the shortcomings in the area of judicial reform and the fight against corruption and organized crime.

The initial reports on Bulgaria can definitely be described as objectively critical. The report of July 2009-2010 reflects that serious deficiencies in case law persist, both with regard to the prosecution and the court:

> *"The judicial system in Bulgaria lacks initiative and professional capacity. Complex investigations lack direction and purpose, and the procedures are too formal and lengthy and often fail in court. "*

In its report for the period July 2010-July 2011, the EC stated that the Cooperation and Verification Mechanism had been challenged and criticized, but at present the widespread view is that *"it contributes to promoting change in a positive direction"*.

In 2011, Bulgaria and Romania completed their preparations for the full implementation of the Schengen acquis with a view to regulate the abolishment of border controls at the internal borders. Although the Schengen implementation procedures were followed, the two countries' attempt to join the Schengen area was unsuccessful. Finland and the Netherlands voted against with the motive that Bulgaria and Romania should show better performance in the areas of justice and home affairs, which is a motive to block the vote. They believe that there is no irreversible process in the fight against corruption, there is no specific

evidence that this is happening, backed up by facts and figures, which will ensure that criminals and corruption do not invade the European Union's internal market.

The Schengen area or the Schengen zone is an area of 4 312 099 km² with a population of over 400 million people[24]. The Schengen rules include the provision of a common policy for short-term third-country nationals, coordination of external border controls, police and judicial cooperation.

Issues in the judicial system remain at the forefront of the 2012 interim Cooperation and Verification Mechanism report. In particularly important cases of public resonance, the necessary steps have not been taken to carry out the detailed analysis that underlies the changes that are expected with the amendments to the Judiciary Act. The EC takes note of Bulgaria's progress in the following six indicators set for monitoring:

1. Amend the constitution by removing all ambiguities regarding the **independence and accountability** of the judiciary.

2. Guaranteeing transparency is also an effective litigation. Adoption of a new law on the judiciary and a new Code of Civil Procedure and their impact on the pre-trial phase.

3. Improving professional accountability and efficiency.

4. Achieving professional and impartial investigations into allegations of high-level corruption and publicizing the assets of high-level officials.

5. Taking measures to prevent and combat border corruption and local self-government.

6. Measures in the integrated strategy to target serious crime, money laundering and confiscation of property of criminals.

The recommended six measures in the distant 2012 continue to be a particularly topical problem for civil society for change. On February 1, 2013, the France Press Agency published an article entitled "Euroreport is moving Bulgaria away from Schengen entry", based on information from diplomatic sources in Copenhagen. The agency recalls that "*Sofia and Bucharest must join the Schengen agreement, which practically means that any problems of one country can be transferred to the other*."

Over time, reports and their content have become increasingly routine and have important political implications for Bulgaria and Romania's accession to the Schengen border area.

The January 2017 the Cooperation and Verification Mechanism report reviews the ten year outcome of its implementation. The achievements and the emerging challenges are outlined and formulated in 17 recommendations for Bulgaria, the implementation of which will mean the completion of the implementation of the mechanism. The report further states that the speed of the process will depend on the implementation of the recommendations in an irreversible manner. The first evaluation of the implementation of the seventeen recommendations was given in the November 2017 report, which concluded that the achievements were not sufficiently convincing and that the indicators were satisfactorily fulfilled.

On 13 November 2018, the European Commission announced another progress report on Bulgaria's Cooperation and Verification Mechanism[25]. The report, like previous reports, follows the steps taken by the judiciary and the competent Bulgarian institutions with regard to the commitments made to make progress in the fight against corruption and organized crime. The report assesses the implementation of the 17 recommendations to Bulgaria, with the pledge that, if positive, this will allow the Cooperation and Verification Mechanism process to be completed before the end of the term of this committee chaired by Jean-Claude Juncker. This position is also supported by Frans Timmermans, the Executive Vice President-Designate of the European Commission. The conclusion of the report is that several recommendations have been implemented and a number of others are quite close to the implementation stage. The Commission accepts that three of the six indicators - "the independence of the judiciary, the legislative framework and organized crime - ***can be considered suspended***". This assessment is of a timely nature and the Commission is required to continue the monitoring. Bulgaria needs to continue with concrete results in order to consolidate its progress in providing the necessary guarantees that reforms will continue.

In addition, the Commission report notes a particularly worrying trend - "***the significant deterioration of the media environment in Bulgaria in recent years***". Freedom of expression, transparency and information to society are fundamental values of democracy. Affecting democracy and its principles and values creates a societal risk and a negative impact on the independence of the judiciary. According to the report, the ability of the media and civil society to demand accountability from the authorities in a pluralistic environment without pressure is an important part of the basis for continued reform, the reach of the goals of Cooperation and Verification Mechanism and better governance in general.

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[24] The name of the Schengen Agreement derives from the name of the Schengen village of Luxembourg and was signed on 14 June 1985 on board the Princess Maria-Astrid ship by five of the ten Member States of the then European Economic Community (EEC) - France, West Germany and the Benelux - Belgium, the Netherlands and Luxembourg. The Treaty implementing the Schengen Agreement was signed on 19 June 1990 and its full implementation begins in July 1995.

[25] Bulgaria Progress Report 2018[COM(2018)850]
Technical Report on Bulgaria for 2018 [SWD (2018) 550]

The Commission is convinced that Bulgaria will continue the reforms and will closely monitor progress so that it can further evaluate the results achieved before the end of its current term. The mechanism verifies the extent to which Bulgaria and Romania are taking the necessary measures to comply with the minimum European standards in the field of rule of law and the fight against corruption.

The President of the European Commission, Jean-Claude Juncker, has fulfilled his promise to propose the removal of the monitoring by the end of his term. It chose to announce the report on the Cooperation and Verification Mechanism just days before the 2019 local elections in Bulgaria. The report concludes that "progress is sufficient to fulfil the commitments" the country made in 2006 when it joined the European Union.

Unlike Bulgaria, the report on Romania is not positive, saying that "there is no such progress". The EC decision to suspend monitoring for Bulgaria and to continue the monitoring for Romania raises the need for some objective reasoning on the following indisputable facts:

1. Both countries are admitted at the same time as EU member states.

2. Both countries are under the same scrutiny - Cooperation and Verification Mechanism for judicial reform, the fight against corruption and, concerning Bulgaria, and the fight against organised crime.

3. During these 12 years of observation, the two countries are in a one-way competition to eliminate monitoring, which was not acceptable to Member States.

These three strong Member States' positions over the years suggest that monitoring can only be cancelled at the same time for both countries. The latest 2019 report from the European Commission raises one crucial question:

Why did the EC not announce itself the termination of the monitoring of Bulgaria, what right it has, and prefer to give the last word to the Member States?

As Jean-Claude Juncker said when presenting the report: "*We will carefully hear the views of Parliament and the Council before taking a decision*." For now, France and Germany's positions are expected to be against the failure of the mechanism. Other parties are expected to accede to this negative opinion, ie.to block the fall of EC monitoring.



A number of media channels have emphasized in their publications that the chief of law and EC Vice-President Frans Timmermans, did not want to present the end of the surveillance over Bulgaria, as did Justice Commissioner Vera Yourova. The presentation was announced by Migration Commissioner Dimitris Avramopoulos, who is not directly involved in the surveillance.

Although the report proposes to abolish the mechanism, the European Commission acknowledges that:

- Very little has been achieved in the fight against corruption and in the judicial reform;

- The termination of the Mechanism and the transfer of control in the hands of Bulgarian government will also remove the last impetus for meaningful change;

- The proposed new monitoring mechanisms for the rule of law call into question the level of effectiveness and duration of monitoring.

Unlike the 2018 report, which explicitly noted that "progress is sufficient to fulfil commitments" under three of the recommendations, the 2019 report notes more than ten times that the Bulgarian government has committed itself to certain problem solving measures. There have always been measures, it remains for the EC to note that they have achieved the intended design with efficiency, that there is public accountability, transparency and accountability to the public.



Reforms in the judiciary and the fight against corruption continue to take the lead in the latest Euro report. *"Achieving strong stable results in terms of final convictions in corruption cases at the highest levels of government is* ***still pending****"…* "Citizens should be able to have full confidence that such institutions [Agency for Combating Corruption and the prosecution] act impartially, in full respect of due process and fundamental rights, including the presumption of innocence." The cited

text of the report gives the most comprehensive and accurate assessment of Bulgaria's progress in this field.

The report notes the high level of distrust of the procedure for the election of a new Attorney General, the ongoing reform of the prosecutor's office, changes to the law, the continuing problems with the implementation of the decisions of the European Court of Human Rights (ECtHR) and the lack of a guarantee for an effective investigation by the Attorney General.

The Cooperation and Verification Mechanism is not only a stumbling block to the accession of the country in Schengen zone, but it is also binding the entry of Bulgaria into the Banking Union and the porch of the Eurozone. The report is full of facts and recommendations that have been highlighted as problems for the last 12 years. Even the high hope that the Commission to Combat Corruption and Seize Illegal Acquisition (CCCSIA) will run at high speed is not justified, as there are no high-level convictions yet, and property declarations have proven patent for a new failure at the highest levels of government.

In several places, the report on Bulgaria stresses that monitoring will continue from 2020, when a new Rule of Law Review Cycle, the media situation and the proper functioning of the authorities in order to safeguard will come into force of the European Budget under the control of the newly elected European Prosecutor. It is recommended that Bulgaria set up a Council to monitor the implementation of the commitments made to the European Commission and, in the future, to conduct a dialogue on the new comprehensive rule of law monitoring mechanism with all 27 EU Member States.

Is there a link between the visit of the Attorney General Sotir Tsatsarov and the candidate for new Attorney General Ivan Geshev to the White House and the fact that only couple of days later the European Commission announced that it will remove the monitoring of Bulgaria's progress in reforming the judiciary and fighting corruption. It is undoubted that the reform of the prosecutor's office will not be imposed by Brussels and the fight against corruption will not start from Washington.[26]

Will the Cooperation and Verification Mechanism go in the history of Bulgaria and Romania after the creation of a new monitoring tool for Member States on compliance with the rule of law from 2020? We will receive the answer by the end of the year, and we will evaluate the effectiveness of the new mechanism at the end of next year.

The positive for Bulgaria and Romania will be that the problems with corruption have extended to other EU Member States, compared to the 2014 EC reports, when a similar initiative is taken every two years to monitor all European countries in their fight against corruption. For some unknown reason, this mechanism existed only for a year and was silently dropped.

The expectation is that the new European Parliament will adopt a more sustainable and effective tool that not only identifies but also regulates these processes in the search for accountability and sanctions of Member State governments for the rule of law, transparency and accountability of the judiciary and control over the use of EU funds, and last but not least, the fight against corruption and the return to democratic values.

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Neural Networks for Intrusion Detection

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Reported also at the International Conference on High Technology for Sustainable Development - HiTECH-2019, 10-12 October 2019, Sofia, National Science and Technical Centre

Abstract.

This paper presents Intrusion Detection Systems (IDS), Intrusion Detection and Prevention Systems (IDPS) and their classification emphasizing on the use of neural networks in IDS.

Contemporary IDS usually include both signature verification and anomaly detection approaches realized by rule-based expert system and statistical module correspondingly. Neural networks may be used mainly as additional module to the statistical module to better recognize the user behavior. User behavior may be represented as frequency pattern of users command history. The paper presents an example of user profile vector for Unix-based platforms.

Key words: Neural Networks, Intrusion Detection Systems (IDS), Intrusion Detection and Prevention Systems (IDPS)

Intrusion Detection Systems and their classification

Intrusion Detection Systems (IDS) are IT security systems for detecting hostile activity. When these systems also prevent the hostile activity, they are called Intrusion Detection and Prevention Systems (IDPS). They can be divided into two groups:

1. Host-based – for detecting hostile activity on host systems. They analyze information from operation systems and application files captured by software agents.

2. Network based – for detecting hostile activity on networks. They evaluate information from network communication, analyzing the stream of packets captured by sensors.

A typical IDPS consists of information capturing devices (sensors and agents), management server, database server and management console (Scarfone and Mell, 2007).

Sensors and scanners monitor the activity, capture and analyze security relevant information. The term sensor is typically used for network-based IDPS. The term agent is used in host-based IDPS.

A management server receives and analyzes the information gathered by agents and sensors (Trifonov et al., 2017).

IDPS perform data collection, data manipulation (feature selection and analysis) and preventive actions (Trifonov et al., 2017).

There are many IT security systems, which are not IDPS. Here are named some of them (Trifonov et al., 2017):

1. Cryptographic systems, mainly related to data and application security, like VPN, SSL, S/MIME, Kerberos, Radius etc.

2. Vulnerability assessment tools, related to application security, checking for vulnerabilities in operating systems and network services, for example Cybercop from Network Associates (NAI, 2019).

3. Network traffic monitoring systems, related to network security, used to detect Denial of Service (DoS) attacks.

4. Anti-virus systems, mainly related to host and network security, designed to detect malicious software, are very similar to IDPS, as viruses can be considered as simple, single, non-persistent intrusion.

The models for intrusion detection can be divided into two groups:

1. Signature verification. In this case, the system detects previously registered intrusion signature.

2. Anomaly detection. In this case, The system looks for abnormal behavior.

Most IDS commercial tools follow the signature verification detection system. However, they have some drawbacks (false alarms, signature of the attack can't be easily discovered, IDS should be periodically updated with new signatures).

Anomaly detection IDS are mainly in research stage today. Approaches for anomaly detection are: using statistical measures and suitable thresholds - predictive pattern generation (Teng et al. 1990) or state transition analysis (Porras et al. 1995); using rule-based expert systems (Garvey and Lunt, 1991); using soft computing Artificial Intelligence (AI) algorithms (neural networks, genetic algorithms etc.). The most common approach is the using of statistical measures combined with thresholds, but one serious limitation is to find the correct thresholds.

Contemporary IDS usually include both signature verification and anomaly detection realized by rule-based expert system and statistical module correspondingly.

Neural Networks for Intrusion Detection

The Artificial Neural networks (ANN) are information systems composed of multiple simple processing units (neurons) sharing their outputs with other neurons through weighted connections (Trifonov et al., 2017).

Recently, neural networks (Anderson, 1995) are applied to IDS (Fox et al. 1990; Debar et. al., 1992). They are commonly used in anomaly detection as alternative of the statistical and expert-system methods.

In anomaly detection technique, the main goal is to match an agent's observed behavior to his past behavior. The task is not easy, as agent's behavior can be very complex.

When statistical methods are used, false alarms can be generated due to invalid assumption about distribution of the audit data or missed detections can result from inability to distinguish intrusive from normal behavior on statistical basis.

To fix some gaps in statistical approach, an additional rule-based expert system is often used. With this expert system, an event can trigger a rule independently of the statistical classification of the event as normal or intrusive. But maintaining a complex rule-based system can be a challenge.

To fix the gaps of both statistical and expert-system approaches, the neural networks are considered as another component in anomaly-based IDS. The use of neural networks can overcome the following problems:

1. Neural networks don't require any accurate assumptions for statistical distribution of the subject behavior.

2. Neural networks may be used to evaluate the effectiveness of different sets of detection measures.

3. Neural networks are easier to modify than statistical or expert-system algorithms.

4. Neural networks can easy classify large number of users into groups based on their behavior, helping to overcome the difficulties with scaling.

The neural network itself however can't completely replace the IDS statistical component as the statistical approach explains which measures contribute to an event being considered anomalous. Currently it is not easy to find explanatory information from neural networks. Because of this neural networks are used in parallel with statistical and expert-system modules of IDS.

Two kinds of ANN are mainly applied in IDS: Multi-Level Feed-Forward ANN and Kohonen's Self-Organizing Maps (Vesely and Brechlerova, 2004).

Examples of use of Multi-Level Feed-Forward ANN and mainly Multi-Level Perceptrons (MLP) are the MLP used by Cannady and Mahaffey (1998) of Georgia Technical Research Institute for misuse detection, and MLP used by Cunningham and Lippmann (2000a, 2000b) of the MIT Lincoln Laboratory for searching attack-specific keywords in the network traffic.

Examples of use of SOM are the combinations MLP/SOM used by Cannady and Mahaffey (1998) and the SOM used by Girardin and Brodbeck (1998) and Girardin (1999) of the UBILAB laboratory to perform clustering of network traffic and detect attacks.

Many anomaly detection IDS are based on the general model proposed by Denning (1987). The model maintains a set of historical behavior profiles for users, matches an audit record with the appropriate profile, updates the profile whenever necessary, and reports normal behavior or anomalies detected.

Following this model Ryan et al. (1998) consider an anomaly based IDS that characterizes a legitimate user by the distribution of commands the user executes.

Building Neural network IDS module (NNIDS) for a particular computer system consists of the following three phases (Ryan et al., 1998):

1. Collecting training data. Obtain the audit logs for each user for a period of several days. For each day and user, form a vector that represents how often the user executed each of a set of commands. The number of times the user executed each of these commands during the day is recorded, mapped into a nonlinear scale, and concatenated into an input vector, representing the usage pattern for that user for that day.

2. Training. Train the neural network to identify the user based on these command distribution vectors.

3. Performance. Let the network identify the user for each new command distribution vector. If the network's suggestion is different from the actual user, or if the network does not have a clear suggestion, signal an anomaly.

Ryan et al. (1998) built a NNID system and tested it on a machine that serves a particular research group at the Department of Electrical and Computer Engineering at the University of Texas at Austin. The machine has an operating system NetBSD which provides audit trail logging for accounting pur-poses and this option had been enabled on this system. The input layer consisted of 100 units, one for each command; the hidden layer had 30 units and the output layer 10 units, one for each user. The network was implemented in the PlaNet Neural Network simulator (Miyata, 1991).

An example of user profile vector for Unix-based platforms

In this article we propose design of a NNIDS which is modification of the design proposed by Ryan et al. (1998). The proposed design of NNIDS has the following features:

1. A user's profile vector with reduced dimension of 50 coordinates corresponding to 50 typical Unix commands is proposed. Ryan et al. (1998) propose similar vector of 100 coordinates. The list of selected here Unix commands is presented in Appendix 1.

2. To map the number of times the user executed a command during a day (24 hours) to user's profile coordinates, a non-liner scale of 5 intervals is used as in the Table 1. Ryan et al. (1998) use a non-linear scale of 11 intervals.

Table 1. Mapping of the number of times the user executed a command during a day

Number of use of a command per day	Mapped value
0-3	1
4-7	2
8-20	3
21-54	4
>55	5

3. One possible design of the ANN uses MLP and consists of 3 layers: input layer, hidden layer and output layer. Input layer contains 50 neurons (corresponding to the dimension of the user's profile). The hidden layer consists of 15 neurons and the output layer consists of 10 neurons (the number of the users). The time window is considered to be 20 days. Ryan et al. (1998) use a neural network with consisting of 3 layers with input and output layers having numbers of neurons equal to user vector dimension and number of users correspondingly, but 30 neurons in the hidden layer. Also or aim is to apply other ANN to select the best performers.

4. Another possible design of the ANN uses SOM based on Kohonen neural network (Kohonen, 2001). Here the task is to apply mapping of the user's profile to a SOM which is a grid with number of neurons equal to the number of users. A profile vector (called in SOM terminology also codebook vector) is assigned to every neuron, that will play the role of a typical user's profile. At the beginning, a subset of the data is randomly assigned to the neurons. During training, profiles are repeatedly presented – in random order – to the map. The neuron which is most similar to the current training profile, will be updated to become even more similar; a weighted average is used. Ryan et al. (1998) don't use Kohonen neural network.

5. The design is planned to be realized using R platform (Chambers, 1998). For MLP, the package *neuralnet* will be used and for SOM the package *kohonen* will be used. Ryan et al. (1998) realized their MLP model by PlaNet (Miyata, 1991) and don't apply SOM model.

Comparing generally the proposed here model and the model used by Ryan et al. (1998), we may say that the proposed model is more simplified and easy to apply (dimension of the user's profile vector is decreased two times, the number of the hidden neurons in the ANN is reduced two time). The proposed model uses a second option for the ANN – the Kohonen neural network.

Also, R platform offers more freedom for experimenting with different types of neural networks.

Summary

Contemporary IDS usually include both signature verification and anomaly detection approaches. ANN can be used mainly as additional module to the statistical and rule-based modules in anomaly detection part of the IDS.

User behavior may be represented as frequency pattern of users command history. Based on this idea, different models of NNIDS modules can be proposed, similarly to the proposed one in this article.

The study can be further developed in different directions:

1. Gathering data about user's profiles from different platforms.
2. Realizing the proposed ANN by R platform.
3. Training of the ANN and its use for user's profile mapping.
4. Building other NNIDS modules and using other applications of Artificial Intelligence to IDS to compare and select optimal variants.

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Appendix 1
50 Unix commands used in user's profile vector
(Explanation of commands is taken from the Help system of Unix)

1. as - a generic name for an assembler on Unix. On many systems the standard or pre-tor installed assembler is the GNU Assembler, commonly called GAS, whose executable is simply named as.

2. cat - cat (short for "concatenate") command is one of the most frequently used command in Linux/Unix like operating systems. cat command allows us to create single or multiple files, view contain of file, concatenate files and redirect output in terminal or files.

3. cp - cp is a command in various Unix and Unix-like operating systems for copying files and directories.

4 . cpp - the C preprocessor, often known as cpp, is a macro processor that is used automatically by the C compiler to transform your program before compilation. It is called a macro processor because it allows you to define macros, which are brief abbreviations for longer constructs.

5. cvs - Concurrent Versions System command - a tool for version control.

6. df - shows information about the file system on which each FILE resides, or all file systems by default.

7. du - summarizes disk usage of each FILE, recursively for directories.

8. egrep - grep or Global Regular Expression Print is the main search program on Unix-like systems which can search for any type of string on any file or list of files or even output of any command. It uses Basic Regular Expressions apart from normal strings as a search pattern. egrep is same as 'grep -E' or 'grep –extended-regex', which uses extended regular expression.

9. elm - elm is a text-based email client commonly found on Unix systems. First released in 1986, it became popular as one of the first email clients to use a text user interface, and as a utility with freely available source code. The name elm originated from the phrase ELectronic Mail.

10. ftp - ftp is the user interface to the Internet standard File Transfer Protocol. FTP is the simplest file transfer protocol to exchange files to and from a remote computer or network.

11. gcc - the GNU Compiler Collection (GCC) is a compiler system produced by the GNU Project supporting various programming languages. GCC is a key component of the GNU tool chain and the standard compiler for most Unix-like operating systems. The Unix command for compiling C code is gcc. This is a compiler from Gnu for Linux. GCC was originally written as the compiler for the GNU operating system. Suppose you have a file hello.c which you want to compile (or use hello.c.) Type the following on the command line: gcc hello.c.

12. gdb - gdb is a debugger for C (and C++). It allows you to do things like run the program up to a certain point then stop and print out the values of certain variables at that point, or step through the program one line at a time and print out the values of each variable after executing each line.

13. ghostview - Ghostscript, Ghostview and GSview. This was the home page for Ghostscript, an interpreter for the PostScript language and for PDF. Ghostscript is a suite of software based on an interpreter for Adobe Systems' PostScript. Ghostscript has been ported to many operating systems, including Unix-like systems, classic Mac OS, OpenVMS, Microsoft Windows.

14. gmake -gmake is the FSF's implementation of make. GNU Make has many powerful macro features for use in makefiles, beyond what other Make versions have/

15. grep – searches for patterns in files or standard input. Pattern is, by default, a basic regular expression (BRE). Example: grep -i 'hello world' menu.h main.c

16. gzip - Gzip(GNU zip) is a compress tool which is available in most of the Linux/Unix based operating systems. Until recent years gzip and bzip2 are most commonly used data compression tools in Linux/Unix. Though gzip compress ratios are not good when compared to bzip2 but it is popular among masses.

17. hostname -hostname is used to display the system's DNS name, and to display or set its hostname or NIS (Network Information Services) domain name. The host name is usually set once at system startup in the script /etc/init.d/hostname.sh normally by reading the contents of a file which contains the host.

18. id - id command is one of the basic Unix commands, confirming the identity of a specified Unix user. Unix-like operating systems identify a user within the kernel by a value called a user identifier, often abbreviated to user ID or UID. The UID, along with the group identifier (GID) and other access control criteria, is used to determine which system resources a user can access.

19. ld - the ld command, also called the linkage editor or binder, combines object files, archives, and import files into one output object file, resolving external references. It produces an executable object file that can be run.

20. lpq - lpq shows the current print queue status on the named printer. Jobs queued on the default destination will be shown if no printer or class is specified.

21. ls - ls command in Linux/Unix. ls is a Linux shell command that lists directory contents of files and directories.

22. mail - the Mail command in unix or linux system is used to send emails to the users, to read the received emails, to delete the emails etc.

23. make - the purpose of the make utility is to determine automatically which pieces of a large program need to be recompiled, and issue the commands to recompile them. In fact, make is not limited to programs.

24. man - with the man command, you can retrieve the information in the manual and display it as text output on your screen.

25. mkdir - create directories, if they do not already exist.

26. more - more is a command to view (but not modify) the contents of a text file one screen at a time. It is available on Unix and Unix-like systems, DOS, FlexOS, OS/2, Microsoft Windows and ReactOS. Exit with 'q'.

27. mv - the mv command is a command line utility that moves files or directories from one place to another. It supports moving single files, multiple files and directories.

27. netstat (network statistics) – it is a command line tool for monitoring network connections both incoming and outgoing as well as viewing routing tables, interface statistics etc. It is available on all Unix-like Operating Systems and also available on Windows OS as well. It is very useful in terms of network troubleshooting and performance measurement and it is one of the most basic network service debugging tools, telling you what ports are open and whether any programs are listening on ports.

28. ping - the ping command sends ICMP ECHO_REQUEST packets to network hosts and reports on the response from the remote server, outputting to standard output. It can be used to check if a remote host is up, or that network interfaces can be reached.

29. ps - in most Unix-like operating systems, the ps program (short for "process status") displays the currently-running processes. A related Unix utility named top provides a real-time view of the running processes.

30. pwd - the pwd command is a command line utility for printing the current working directory. It will print the full system path of the current working directory to standard output. The pwd command is normally a shell builtin meaning it is part of the code that runs the shell rather than an external executable.

31. rcp - the rcp command is used to copy files between different computers without starting an FTP session or logging into the remote system explicitly. To use the rcp command, you must have every system you intend to use as a source or destination in your .rhosts file

32. rm - rm (Unix) In computing, rm (short for remove) is a basic command on Unix and Unix-like operating systems used to remove objects such as computer files, directories and symbolic links from file systems and also special files such as device nodes, pipes and sockets.

33. rsh - rsh is used to execute commands on a remote machine. The rsh command executes the command or a program in another host from current working machine without having to login into that remote machine by entering a password as in ssh. You can run any unix command, or a shell script of a remote host.

34. sed - this command in UNIX is stands for stream editor and it can perform lot's of function on file like, searching, find and replace, insertion or deletion. Though most common use of SED command in UNIX is for substitution or for find and replace.

35. sendmail - a general purpose internetwork email routing facility that supports many kinds of mail-transfer and delivery methods, including the Simple Mail Transfer Protocol (SMTP) used for email transport over the Internet.

36. sh - sh is a command language interpreter that executes commands read from a command line string, the standard input, or a specified file. The Bourne shell was developed in 1977 by Stephen Bourne at AT&T's Bell Labs in 1977. It was the default shell of Unix Version 7.

37. sort - sorts the contents of a text file, line by line. It is a standard command line program that prints the lines of its input or concatenation of all files listed in its argument list in sorted order.The sort command is a command line utility for sorting lines of text files.

38. strip - In Unix and Unix-like operating systems, the strip program removes inessential information from executable binary programs and object files, thus potentially resulting in better performance and sometimes significantly less disk space usage ('inessential information' means information that is not required for correct functioning of the binary in normal execution).

39. stty - stty command is used to manipulate the terminal settings. You can view and modify the terminal settings using this command.

40. tail - tail has two special command line option -f and -F (follow) that allows a file to be monitored. Instead of just displaying the last few lines and exiting, tail displays the lines and then monitors the file. As new lines are added to the file by another process, tail updates the display.

41. tar - in Unix, the name of the tar command is short for tape archiving, the storing of entire file systems onto magnetic tape, which is one use for the command. However, a more common use for tar is to simply combine a few files into a single file, for easy storage and distribution.

42. tcsh - a Unix shell based on and compatible with the C shell (csh). It is essentially the C shell with programmable command-line completion, command-line editing, and a few other features.

43. top - top command displays processor activity of your Linux box and also displays tasks managed by kernel in real-time. It'll show processor and memory are being used and other information like running processes. This may help you to take correct action. Exit with 'q'.

44. tput - in computing, tput is a standard Unix operating system command which makes use of terminal capabilities.Depending on the system, tput uses the terminfo or termcap database, as well as looking into the environment for the terminal type. Tput was provided in UNIX System V in the early 1980s.

45. tr - the tr command in UNIX is a command line utility for translating or deleting characters. It supports a range of transformations including uppercase to lowercase, squeezing repeating characters, deleting specific characters and basic find and replace. It can be used with UNIX pipes to support more complex translation.

46. tty - "tty" originally meant "teletype" and "pty" means "pseudo-teletype". In UNIX, /dev/tty* is any device that acts like a "teletype", i.e., a terminal. Called teletype because that's what we had for terminals in those benighted days.

47. vi - the vi editor (short for visual editor) is a screen editor which is available on almost all Unix systems.

48. w - the command w on many Unix-like operating systems provides a quick summary of every user logged into a computer, what each user is currently doing, and what load all the activity is imposing on the computer itself. The command is a one-command combination of several other Unix programs: who, uptime, and ps -a.

49. wc - wc (short for word count) is a command in Unix-like operating systems. The program reads either standard input or a list of files and generates one or more of the following statistics: newline count, word count, and byte count. Newer versions of wc can differentiate between byte and character count.

50. whereis - finds the binary, source code and man page for specified program or command.

The length n and the content of the user profile vector may be modified according to the specific Unix versions and specific host activities. Another important parameter is the size of the observing window m. It is the length of the observations vector for determining the frequencies of the used commands. The network receives the m most recent commands as its input. In the case when network is recurrent, part of the output is fed back as the input for the next step; thus, the network is constantly observing the new trend and “forgets” old behavior over time. If m is too small, there will be many false positives; if it is too big, the network may not generalize well to novel sequences.

From Globalization to Planetization – is the Time of Colonization of the Solar System Approaching?

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Abstract.

It can be said that the globalization of the society is ongoing. Now, the main concern for the society is whether it will succeed to jump to other planets before the Earth resources become completely exhausted. The technologies now are developing rapidly but still the level allowing colonization of other planets is not achieved. Economies could assure fast development of the advanced technologies. Another important issues are the regional struggles between multi-polar political powers which spends resources for unnecessary political competition. Solving economic, technological and political issues are the key for speed-up of preparation for colonizing the near planets.

Also presented at the 11th International Conference "The Economies of the Balkan and the Eastern European Countries in the Changing World" - EBEEC-2019, Bucharest, Romania

Keywords: globalization, planetization, technologies, economy, policy

JEL CLASSIFICATION CODES O33, O57, N40

Introducation

Humanity today faces global challenges related to the overpopulation of the planet and its exhausted resources. To meet successfully these challenges, people must make effort to strengthen and concentrate the economical, political and technological potential of mankind in order to speed up planetization and further exploration of the space.

The term planetization is used so far with different meanings. In this article, it is used with two meanings:

1. Building sustainable human society and symbiosis between mankind and the Earth.
2. Human colonization of the other planets of the Solar system.

The planetization in the first sense is called inner planetization. Respectively, it is suitable to denote the first prospective stage of human penetration in space – the colonization of the planets of the Solar system – outer planetization.

1. From inner to outer planetization

Because of the fast growing of the human population and the decrease of natural resources on Earth, it is clear that at some stage the leave of Earth should be matter of surviving. Staying on Earth at some time would lead to extinction.

So, outer planetization and following penetration in deep space are necessary and humanity must perform intensive space exploration to finalize the outer planetization. Stephen Hawking, renowned British theoretical physicist, said: "I don't think the human race will survive the next thousand years, unless we spread into space. There are too many accidents that can befall life on a single planet. But I'm an optimist. We will reach out to the stars." (Highfield, 2001).

The potential objects of outer planetizations are the planets of the Solar system and their natural satellites.

The Moon is the closest object of interest. So it is explainable why it became the first celestial body to be the object of space exploration. It was the first outer planetization object to be flown by, orbited, and landed upon by spacecraft, and the only outer planetization object ever to be visited by humans.

In 1959 USSR obtained the first images of the far side of the Moon. In 1966 the Soviets started deploying landers to the Moon which were able to obtain data directly from the Moon's surface, closely followed by landers of USA. In the early 1970s, first uncrewed rovers of Lunokhod program were deployed by USSR and lunar soil samples were brought to Earth for study. This marked the first (and to date the only) automated return of extraterrestrial soil samples to Earth.

Crewed exploration of the Moon began in 1968 with the Apollo 8 mission that successfully orbited the Moon. In 1969, the Apollo 11 mission marked the first time humans set foot upon another world. The Apollo 17

mission in 1972 marked the sixth landing and the most recent human visit there, and the next, Exploration Mission 2, is expected to orbit the Moon in 2023.

The exploration of Mars has been an important part of the space exploration programs of the Soviet Union (later Russia), the United States, and later of EU, Japan and India. Dozens of robotic spacecraft have been launched toward Mars since the 1960s. These missions gathered data about current conditions and history of Mars.

In contrast to overall high failure rates in the exploration of Mars, India has become the first country to achieve success since the first trial. India's Mars Orbiter Mission (MOM) (Harris, 2014) is one of the least expensive interplanetary missions ever undertaken with an approximate total cost of US $73 million.

The first mission to Mars by any Arab country has been taken up by the United Arab Emirates. Called the Emirates Mars Mission, it is scheduled for launch in 2020.

The exploration of Jupiter has consisted solely of a number of automated NASA spacecraft visiting the planet since 1973. A large majority of the missions, like Pioneer and Voyager programs, were detailed observations without the probe landing or entering orbit. The Galileo and Juno spacecraft are the only spacecrafts to have entered the planet's orbit. As Jupiter is believed to have only a relatively small rocky core and no real solid surface, a landing mission is precluded.

Saturn has been explored only through automated spacecraft launched by NASA, including one mission (Cassini–Huygens) planned and executed in cooperation with other space agencies. These missions consist of flybys in 1979 by Pioneer 11, in 1980 by Voyager 1, in 1982 by Voyager 2 and an orbital mission by the Cassini spacecraft, which lasted from 2004 until 2017.

Saturn has at least 62 known. The largest of the moons is Titan, which is the only moon in the Solar System with an atmosphere denser and thicker than that of Earth. Titan is also the only object in the Outer Solar System that has been explored with a lander, the Huygens probe deployed by the Cassini spacecraft.

The exploration of Uranus has been entirely through the Voyager 2 spacecraft, with no other visits currently planned. The closest approach to Uranus occurred on 24 January 1986. Voyager 2 studied the planet's unique atmosphere and magnetosphere, examined its ring system and the moons of Uranus including all five of the previously known moons, while discovering an additional ten previously unknown moons.

Images of Uranus proved to have a very uniform appearance, with no evidence of the dramatic storms or atmospheric banding evident on Jupiter and Saturn. Great effort was required to even identify a few clouds in the images of the planet. The magnetosphere of Uranus, however, proved to be unique, being profoundly affected by the planet's unusual axial tilt. In contrast to the bland appearance of Uranus itself, striking images were obtained of the Moons of Uranus, including evidence that Miranda had been unusually geologically active.

The exploration of Neptune began with the 25 August 1989 Voyager 2 flyby. The possibility of a Neptune Orbiter has been discussed, but no other missions have been given serious thought.

Exploration of Neptune had obvious banding, visible clouds, auroras, and even a conspicuous anticyclone storm system rivaled in size only by Jupiter's small Spot. Neptune also proved to have the fastest winds of any planet in the Solar System, measured as high as 2,100 km/h (Suomi, Limaye, Johnson, 1991). Voyager 2 also examined Neptune's ring and moon system. It discovered 900 complete rings and additional partial ring "arcs" around Neptune. In addition to examining Neptune's three previously known moons, Voyager 2 also discovered five previously unknown moons, one of which, Proteus, proved to be the last largest moon in the system.

The dwarf planet Pluto presents significant challenges for spacecraft because of its great distance from Earth and small mass, making capture into orbit very difficult. Voyager 1 could have visited Pluto, but controllers opted instead for a close flyby of Saturn's moon Titan, resulting in a trajectory incompatible with a Pluto flyby. Voyager 2 never had a plausible trajectory for reaching Pluto (Harwood, 2013).

Pluto continues to be of great interest, despite its reclassification as the lead and nearest member of a new and growing class of distant icy bodies of intermediate size (and also the first member of the important subclass, defined by orbit and known as "plutinos"). After an intense political battle, a mission to Pluto dubbed New Horizons was granted funding from the United States government in 2003.New Horizons was launched successfully on 19 January 2006. In early 2007 the craft made use of a gravity assist from Jupiter. Its closest approach to Pluto was on 14 July 2015. The observations of Pluto began five months prior to closest approach and continued for 16 days after the encounter.

3. Planetization and economy

The space exploration is costly. USA can afford the largest spending for that purpose, but space exploration is a relatively minor line item in the U.S. budget. NASA’s spending peaked at almost 4,5% of the federal budget in fiscal year 1966, declined to 1% by 1975, and has gradually fallen to about 0,5% in recent years.

If the research and development budgets in the Obama administration's federal budget proposal is considered as an example, for fiscal year 2011 NASA would receive $11 billion, out of a total research and development budget of $148.1 billion. Other space activities are funded out of the research and development budget of the Department of Defense, and from the budgets of the other regulatory agencies involved with space issues.

The 2015 budget proposal for NASA is $17,5 billion, just below the $17,7 billion appropriated for 2014. Major expenditures include science missions ($5 billion), space operations such as the ISS ($3,9 billion), and new commercial and public exploration development ($4 billion).

Historically, 85-90% of NASA's budget went to private contractors—largely to design and manufacture rockets and spacecraft—while NASA maintained close oversight and operated the equipment. But now NASA is beginning to privatize operations as well through the Commercial Orbital Transportation Services program initiated in 2006.

Advocates believe private firms such as SpaceX and Orbital Sciences—both of which won contracts to ferry ISS cargo—can provide routine LEO access at a lower cost, eventually even for manned flight. Proponents of this shift say NASA could then focus more on missions that push scientific and exploration frontiers. Some go further in suggesting that NASA become more like the Defense Advanced Research Projects Agency or the National Science Foundation by setting objectives—such as capturing an asteroid—and then giving grants to private firms.

Entering of private companies in space industry in USA and in other countries show that the time of refunding of huge space exploration costs is coming. Revenues can be obtained from space travels or mining asteroids and planets.

Developments in late 2014 demonstrated the continuing challenge of pursuing safe and reliable space travel. Virgin Galactic had collected more than seven hundred deposits for planned suborbital flights, priced at $250 000 per seat, before a fatal crash during an October 31 test flight.

Some entrepreneurs see a commercial future in space beyond NASA contracts and satellite launches, although many ventures are still on the drawing board. Space Adventures offers customers the opportunity to orbit Earth and experience spectacular views and weightlessness.

Planetary Resources and Deep Space Industries are pursuing asteroid mining, which supporters believe could supply future space colonies and provide a new abundance of precious metals and rare earth elements.

4. Planetization and policy

This section considers the key policy-makers in the area of space exploration – the countries having enough human, economical and technological resources to participate in space exploration currently. The past achievements, the current state and the future of the space exploration are briefly presented.

The launch of Sputnik in October 1957, of the first human in space - Yuri Gagarin – in 1961 and the subsequent USSR achievements were the beginning of the space exploration era. Now, Russia is successor of USSR in space exploration.

The second major player in this more than 60-year-lasting process are USA. President John Kennedy committed the United States to a lunar landing. After six successful lunar missions, NASA's manned program pulled back to Earth, while robotic missions such as Voyager and Viking continued to explore the Solar System. NASA focused on sending astronauts into low earth orbit (LEO) with the 1973 launch of Skylab, the first U.S. space station, and the Space Shuttle.

The Space Shuttle served NASA for thirty years (1981–2011) and helped build the International Space Station (ISS), an orbiting laboratory that has been continuously occupied by humans since 2000.

NASA proposes to move forward with the development of the Space Launch System (SLS), which will be designed to carry people, as well as important cargo, equipment, and science experiments to Earth's orbit and destinations beyond.

The George W. Bush administration pushed for a return to the moon and a trip to Mars, but President Barack Obama favored an asteroid mission. The project has evolved into a plan to capture an asteroid twenty to thirty feet in diameter and redirect it into a lunar orbit for astronauts to visit early in the next decade. The Obama administration also set a goal of a manned mission to orbit Mars by the mid-2030s, which would require the commitment of subsequent presidents.

China became the third nation to independently launch a human into orbit in 2003. Launching before that 79 satellites since 1970. Chinese space program is also planning to reach the moon and to build 60-ton multi-module space station in near future.

Meanwhile, India launched its first unmanned mission to Mars in late 2013, and its probe entered Mars's orbit in September 2014. The Indian Space Research Organization has since reached an agreement with NASA on subsequent explorations of Mars.

Another international mission, the dramatic landing of a European Space Agency probe on a comet, attracted widespread interest in November 2014. Though a landing mishap failed to anchor the probe properly, it was still able to send a large amount of valuable data to scientists.

Space can also inspire international cooperation. The 1975 Apollo-Soyuz Test Project, where U.S. and Russian spacecraft docked for the first time, as well as today's ISS project unites leading fourteen nations in perhaps humanity's most expensive project.

The space agencies of Europe, Russia, and Japan were also important partners on robotic missions such as the Mars rovers Spirit and Opportunity. The ISS will likely deorbit in the 2020s, but many say deeper space missions will likely need to be international ventures.

Unfortunately the rivalry between the great power still limits the efforts for a complete collaboration. Each power has its own military space program.

At the beginning of 2019 the Pentagon issued a new document – Review of the anti-missile defense (2019) in which militarization of the close Earth orbit is considered. There will be a layer of cosmic sensors around the globe which will register early any ballistic missile launch from any point of the world. This will ensure more time for calculation of the missile trajectory and for eventual destroy of the missile. The prototype of such a sensor will be ready about 2020. There will be also deployment in orbit of laser systems to destroy the missiles of the enemy in the cosmos. A six-month test period is considered for military before to finally decide if the project will start. There are some alternative of the space defense system. For example, the missiles of the enemy can be destroyed by aircrafts F-35 or by drones equipped by laser weapon.

There are five space law treaties ratified by the United Nations Committee on the Peaceful Uses of Outer Space (OOSA Treaty Database, 2011) covering "non-appropriation of outer space by any one country, arms control, the freedom of exploration, liability for damage caused by space objects, the safety and rescue of spacecraft and astronauts, the prevention of harmful interference with space activities and the environment, the notification and registration of space activities, scientific investigation and the exploitation of natural resources in outer space and the settlement of disputes" (United Nations Treaties and Principles on Space Law, 2011).

Since October 1967 satellite based weapons systems have been limited by international treaty to conventional weapons only. Art.IV of the Outer Space Treaty (1967) specifically prohibits signatories from installing weapons of mass destruction in Earth orbit. The treaty became effective on 10 October 1967 and, as of May 2013, 102 countries are parties to the treaty with a further 27 pending full ratification.

The United Nations General Assembly adopted five declarations and legal principles which encourage exercising the international laws, as well as unified communication between countries with, among them:

- The Principles Governing the Use by States of Artificial Earth Satellites for International Direct Television Broadcasting (1982)
- The Principles Relating to Remote Sensing of the Earth from Outer Space (1986)
- The Principles Relevant to the Use of Nuclear Power Sources in Outer Space (1992)
- The Declaration on International Cooperation in the Exploration and Use of Outer Space for the Benefit and in the Interest of All States, Taking into Particular Account the Needs of Developing Countries (1996).

All space exploration will be done with good intentions and is equally open to all States that comply with international law. No one nation may claim ownership of outer space or any celestial body. Activities carried out in space must abide by the international law and the nations undergoing these said activities must accept responsibility for the governmental or non-governmental agency involved. Objects launched into space are subject to their nation of belonging, including people. Objects, parts, and components discovered outside the jurisdiction of a nation will be returned upon identification. If a nation launches an object into space, they are responsible for any damages that occur internationally.

As the nation-state model fails to meet the global changes in the most adequate way, many researchers consider alternative types of human organization.

One proposal is the creation of a cosmic supra-state based on peace, justice and sustainable human progress.

But to reach this end the society has long way to pass. The opposition East-West from the cold war era was changed by the uni-polar world where USA hegemony took center stage. But recently the Islam challenged the Western cultural paradigm of modernity in the field of religion. The global terrorism challenged USA in the field of brute force. And a multi-polar world has emerged with China, India, Russia and EU challenged the USA in politics and economy.

The integration at national and other levels is one way to achieve inner planetization in the globalized world.

5. Planetization and technology

Space technology is technology for use in space exploration.

The main types of space technologies are: satellite technology, space exploration technology and space flight technology.

Satellite technology is related to development of satellites. The main types of satellites are: communications satellite, direct-broadcast satellite, earth observation satellite, geosynchronous satellite, military satellite, reconnaissance satellite, navigation satellite, tracking and data relay satellite, weather satellite.

Examples of space exploration technologies include are the space stations.,

Examples of Space flight technologies are rockets and space shuttles.

A booster rocket (or engine) is either the first stage of a multistage launch vehicle, or else a shorter-burning rocket used in parallel with longer-burning sustainer rockets to augment the space vehicle's takeoff thrust and payload capability.

NASA's Space Shuttle was the first manned vehicle to use solid-fueled boosters as strap-ons. The solid boosters consisted of stacked segments, and were recovered and reused multiple times.

In a new development program initiated in 2011, SpaceX developed reusable first stages of their Falcon 9 rocket. After launching the second stage and the payload, the booster returns to launch site or flies to a drone ship and lands vertically. (Wikipedia, 2019). The program is intended to reduce launch prices significantly.

Many common everyday services such as weather forecasting, remote sensing, GPS systems, satellite television, and some long distance communications systems critically rely on space infrastructure. Of the sciences, astronomy and Earth science (via remote sensing) benefit from space technology. Also, space technologies lead to transferring technologies and innovations in other industry sectors.

NASA catalogues some 1 800 spinoffs in which technologies originally developed for space exploration were transferred to the private sector. Some are obvious, such as communications satellites, but other transfers are less well known. Many medical advances derived from space technologies, from refinements in artificial hearts to improved mammograms and laser eye surgery. Space exploration drove the development of new materials and industrial techniques, including thermoelectric coolers for microchips, high temperature lubricants, and a means of mass-producing carbon nanotubes, a material with significant engineering potential. Even household products such as memory-foam mattresses, programmable ovens, vacuums, and ski apparel trace their origins to NASA.

Some of the best candidates for future deep space engine technologies include anti-matter, nuclear power and beamed propulsion. The latter, beamed propulsion, appears to be the best candidate for deep space exploration presently available, since it uses known physics and known technology that is being developed for other purposes.

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The Anthropocene Age and the Challenges of Global Warming for the Evolution of Human Civilization

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Abstract.
For centuries, humanity has evolved following the ideals of the Renaissance. The pursuit of knowledge and science, the views of the esthetically beautiful as a value, the belief in the possibilities of creative potential have placed at the center in the subsequent events and their manifestations. The industrial revolutions and the technological advances that have taken place, as a higher skill in adapting to nature, are a feature that subsequently gives it a decisive role in the appearance of the surrounding world. The subsequent socio-economic and chemical changes inevitably lead to the new era Anthropocene - "Age of humans". It is no coincidence that the term "Anthropocene" emerges as a term for the geological epoch. According to scientists, the end of the preceding Holocene era, which lasted 11 700 years and the beginning of the new era, was 1950, due to indisputable evidence of an unprecedented rate and global scale of human impact on the Earth system. Increasing the concentration of global carbon dioxide after 2000 is about 20 parts per million per decade, which is 10 times more than any steady increase over the last 800 000 years.

Biodiversity is one of the key indicators for the vitality of our ecosystem. This process has began before more than 2.5 billion years during the Proterozoic period with the development of prokaryotes in eukaryotes and the first multicellular life forms. Biosphere is notable with its independence in terms of matter, because of the complete biochemical circulation of substances. The concept of the Anthropocene, in which man and his needs are with fundamental meaning, should confirm the nature of contemporary processes and their consequences. Wildlife habitat fragmentation, as result of human activity has been much more noticeable in the last century, in part because of the rising demographics –the population has increased fourfold to 7 billion. "The pattern of the human population growth in the 20th century was more bacterial than primate" writes biologist Edward Wilson. He estimated that human biomass is already about 100 times larger than any other large animal ever inhabited Earth. The invasion and impact on habitats of almost all known species, whether directly or indirectly, is caused by the basic processes in the development of human civilization.

Keywords: global warming, climate, anthropogenic activity, greenhouse gases

„A man's home is his castle "

Climate change public activity

This sentence is increasingly expressed and confirmed by eco-activists in their fight against global warming. The last Unated Nation leaders meeting in New York in September 2019, which coincided with the 51st IPCC[27] meeting in Monaco, was accompanied by the most numerous and widespread protest against climate change. Six million people have taken to the streets, uniting across timezones, cultures and generations to demand urgent action on the escalating ecological emergency. German police have reported that over 100 000 people have been demonstrated in Berlin. Approximately 1.4 million people gathered in a number of cities across Germany against governments inactivity on climate change. Australia had the biggest protests since the start of the war in Iraq from 2003, bringing together around 300 000 people in 110 cities. Greta Thunberg's words "Change is coming, whether you like it or not" has become emblematic of global strikes.After just one month at the 25th United Nations Climate Change Conference in Madrid, she notice that "our voices" had been heard but had not yet been placed in action.

[27] IPCC - Intergovernmental Panel on Climate Change is an intergovernmental body of the United Nations that is dedicated to providing objective, scientific information relevant to understanding the risk of human-induced climate change

Greenhouse gases caused by anthropogenic activity

The first legally binding global document to engage developed countries with a specific quantitative reduction in their greenhouse gas emissions is the Kyoto Protocol, adopted in December 1997. For the first time it officially defines the 6 major greenhouse gases:

- **Carbon dioxide (CO2);**
- **Methane (CH4)**
- **Nitrous oxide (N2O)**
- **Hydrofluorocarbons (HFCs)**
- **Perfluorocarbons (PFCs)**
- **Sulfur hexafluoride (SF6)**

According to the report on the United Nations Environment Program (UNEP), despite the advances in climate policies of many of the related countries, the trend in global GHG emissions continues to grow at a steady growth rate of 1.6 percent each year from 2008 to 2017, when it reaches 53.5 gigatons of carbon dioxide. In 2018 continues to rise and break the record from 2017. CO2 levels at the end of 2019 are almost as much as they were expected to reach in 2020. The implications of climate policy have not had a significant impact on key indicators, like the main methods for economic growth. The findings of the same report conclude that efforts to achieve the objectives of the Paris Agreement must be tripled in order to achieve global warming restriction of up to 1.5 ° C. The period from 1970 to 2011 is the largest increase by nearly 90%. CO2 emissions observed.

The largest share of GHG in 2019 is due to carbon dioxide, exceeded 414.7 ppm and represented 65% of total greenhouse gas emissions. For a period of 115 years, from 1900 to the present day the value has increased from 2 billion tonnes to 36 billion tonnes, with levels progressively increasing.

CO2 emitted by economic sectors and countries

- By shares of economic sector, the highest percentage of CO2 is emitted from **electricity and heating** – 25 percents. Fossil fuel use is the primary source of CO2. CO2 can also be emitted from direct human-induced impacts on forestry and other land use, such as through deforestation, land clearing for agriculture, and degradation of soils.

-Agriculture,forestry and other land uses account for 24% of total emissions.Greenhouse gas emissions from this sector come mostly from agriculture cultivation of crops, livestock and deforestation.

- The industrial sector emits 21% of the global share**.** Greenhouse gas emissions from industry primarily involve fossil fuels burned on site at facilities for energy. This sector also includes emissions from chemical, metallurgical, and mineral transformation processes not associated with energy consumption and emissions from waste management activities.

- Transport has a share of 14% of global GHG**.** Greenhouse gas emissions from this sector primarily involve fossil fuels burned for road, rail, air, and marine transportation. Almost all (95%) of the world's transportation energy comes from petroleum-based fuels, largely gasoline and diesel..

- Buildings produce 6% of these emissions. Greenhouse gas emissions from this sector arise from onsite energy generation and burning fuels for heat in buildings or cooking in homes.

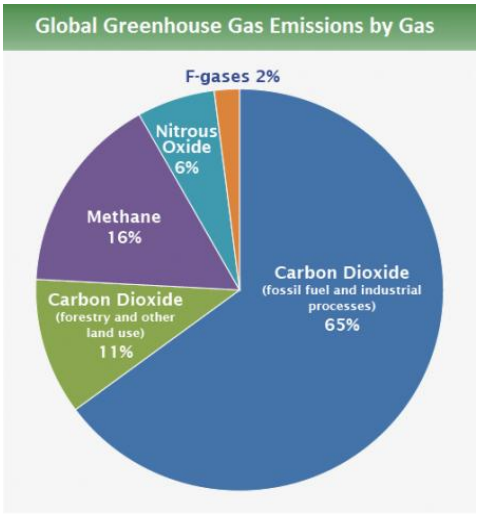


Figure 1. Global Greenhouse Gas Emissions by Gas

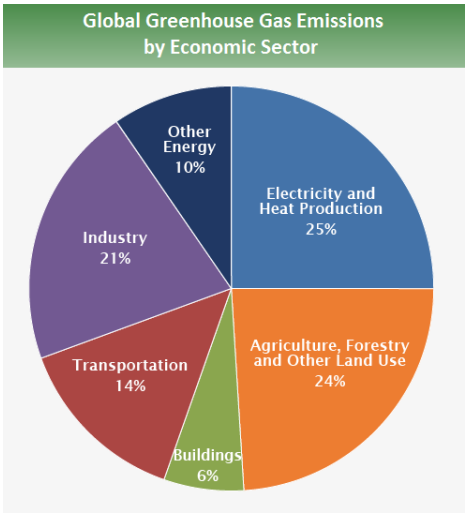


Figure 2. Global Greenhouse Gas Emissions by economic sector
source: IPCC Fifth Assessment Report

About 2/3 amount of CO2 is emitted by the 6 most developed economies, with the following shares: China 30% (10 billion tonnes a year); USA 15%; EU 9%; India 7%; Russia 5%; Japan 4%. The remaining 30% are issued by the rest of the world. The interesting thing about this statistic is that in 2017, for example, countries in Africa and Latin America produce only 3.7% (1.3 billion tonnes) and 3.2% (1.1 billion tonnes) respectively, which means to a large extent, that these countries have a chance to start investing in alternative energy sources directly without having destabilization in the transition to low carbon economies. As the United Nation Climate Change Conference(UNCCC) from December held in Madrid, bulgarian Prime Minister Boyko Borisov announced that 46% of the country's energy production comes from coal burning, reaching 60% in winter.

Without policies to further reduce emissions, the average global temperature is expected to increase between 3.2 ° C and 3.9 ° C over the end of this century. Human activities such as burning fossil fuels, deforestation and agriculture lead to excessive release of carbon dioxide, methane, nitrous oxide and hydrofluorocarbons. These greenhouse gases capture the heat emitted from the Earth's surface and do not allow it to be released into space, thus causing global warming.

Temperature changes

The summarized calculations data from the average measured temperatures at meteorological stations around the world point that the global temperature is rising by 1,1°C since the preindustrial levels.

According to data by the European Outdoor Conservation Association (EAOC) the average tempe on the European continent has risen 1.3°C during the past decade (2002-2011). For the decade of 2009-2019 the increase is 1.6-1.7°C. This is twice as much of the average global temperature. The warmest years in Europe so far are 2014, 2015, and 2018 with anomalies of approx 2°C higher, then during the pre-industiral period. The Summer of 2018 is the hottest to date, Especially strong heating up is observed above the Iberian peninsula, Central and Northeastern Europe, especially in the mounatineous regions and Southern Scandinavia. The winter temperatures have risen the most in Northern Europe, while in Southern Europe the yearly increase is higher in the Summer.

The climate changes in Bulgaria have been proven by the method of calculating the increase of tropical nights – time intervals that have above 20°C across every region of the country. All regions in Europe are at risk from the climate changes, but some will face more negative effects than others. The forecasts are that Southern and Southeastern Europe will be strongly affected by these changes, as they will face the most negative effects. These regions will observe a significant increase in maximum temperatures and reduction of rainfall, and river volume, which leads increases the risk of extended drought, weaker harvest, loss of biodiversity and forest firs. The weaker river stream, due to limited rainfall will lead to higher concentration of pollution due to the decreased water volume that dissolves pollutants.

The global warming leads to more extreme meteorological, forest fires, loss of glaciers and increase of water level, food and water shortage and migration of people. The science shows that the risks irreversible and catastrophic changes will greatly increase if the global warming reaches more than 2°C above the levels of the pre-industiral period.

"The sea,the great unifier is man's only hope.Now as never before, the old phrase has literal meaning: we are all in the same boat"
Jacques-Yves Cousteau – French oceanographer and explorer

The effects of the global warming on the oceans

Special Report on the Ocean and Cryosphere in a Changing Climate(SROCC) of IPCC The Intergovernmental Panel on Climate Change is major institution dealing with the problems of global warming. Founded in 1988 by the World Meteorological Organization (WMO) and the United Nation Environmental Program. Its main goal is to present a complete, objective and transparent evaluation of the scientific, technical and socioeconomic information, which is of importance to understanding of the climate changes caused by people, its potential effects, as well as adaptation and possibilities of mitigating these effects.The latest reports by IPCC is dated on September 24th 2019, and its entirely focused on the scientific research on the changes in the oceans and the cryosphere[28]. The data shows, that the speed of which the oceans warm up is 2 to 3 times higher compared to the atmosphere, due to the higher density of water and its slower cooling process. Some of the main conclusions of the report are as follows:

- The loss of ice covering the arctic territories has tripled during the decade of 2007-2016, and doubled in Greenland compared to previous century.
- The strength of The Atlantic Meridional Overturning Circulation (AMOC) has weakened by almost 15% - an important ocean stream, regulating the climate in the Atlantic ocean, part of which is know as Gulfstream. A major weakening effect has the melting of fresh water deposits in Greenland.
- The pace ocean level rising is 3.6mm every year.
- Increase of the frequency and strength of some extreme meteorological events, such as tropical storms.
- Migration of sea species in the direction of polar zones since 1950 by a distance of 29 to 59 km per decade, following the structural and functional changes of the ecosystem.
- Loss of polar ice cover narrows the habitats of the birds and mammals depending on it, decreasing their survivability, due to lower abundance of feeding grounds.
- Increase of growth in the Tundra and a decrease in the northern forests.
- The Arctic spring phytoplankton bloom begins considerably earlier and spreads into waters without an ice cover.
- The Ocean warming contributes to the reduction of maximum fishing quantities and creates a risk of over-fishing

Arctic Ocean

According to the data from The US National Snow and Ice Data Center (NSIDC), sponsored by NASA the average size of the Arctic sea ice in October of 2019 is 5.66M sq. km – the lowest recorded in 41 years of continuous satellite measuring. This is 230 000 sq. km. lower than the previous lowest level of 2012 and 2.69 sq. km. under the average level for the period of 1981–2010.The global shrinkage of the total ice covered area results in considerably less reflection of Sun energy back into space, which contributes to even stronger warming effects.

Greenland

Researches at the Irvine University of California and NASA have summarized the past 46 years of data on the glaciers of Greenland, measuring the amounts of ice lost on the island for every decade. The research has been conducted through an integrated approach, measuring the height of the surface, speed, the mass of surface balance of 260 glaciers from 1972 to 2018. According their estimates, the glaciers of Greenland had an average yearly loss of 51B tonnes of ice (1980 – 1990), and a 286B tonnes loss for 2010-2018. This amounts to a sea level increase of 0.7mm/year. The loss of ice in Greenland caused 25% of the global sea level increase in 2014, compared to just 5% in 1993.

[28] Cryosphere - an all-encompassing term for those portions of Earth's surface where water is in solid form, including sea ice, lake ice, river ice, snow cover, glaciers, ice caps, ice sheets, and frozen ground.

Glaiciers melting

The melting of glaciers worldwide is strongly correlated to the quantities of fresh drinking water. The reduction of **Himalayan** ice caps will likely have a negative effect over the sustenance of the people living beneath them. The highest mountain range on the planet is supplying fresh water to the Ind river, which has hundreds of millions of people living next to it. The largest mountain range in Europe is losing vast amounts of ice mass each year, as well. Many of the glaciers are already extinct, and its highest peak **Monblanc** is melting with increasing speed, now moving by approximately 60cm a day. These processes create an enduring danger of landslide and avalanches for the population living in the proximity. The ice cap of **Kilimanjaro** is the only area in Africa that has snow all year round. It had shrunk by 80% in the past century. By 2035 the cap could disappear entirely.

Siberia

The vast Siberian taiga is also facing a serious climate modification as a result of the increasing temperatures. Its permafrost territories carry a potential environmental risk. There are enormous quantities of methane under the Siberian fields that transform into gaseous state when the soil melts, creating craters in the process. This speeds up greenhouse effects in the atmosphere. Ice melting in the region of the Russian Arctic coastline creates another substantial risk by revealing the old graveyards for animals that perished by Pustula Maligna. Russia has 400 registered zones of infection just in the Arctic region. The spores of the Pustula Maligna disease (Anthrax) can remain active in the soil for 50 years. This could lead to highly resistant infection zones, and a real threat of epidemics affecting wild and domestic animals, and people alike.

The rise in temperatures has a favorable effect on the spread on infectious diseases as a whole, since the carriers become active during warmer periods. This also causes to the migration of breeding territories for ticks and mosquitoes and increase in frequency of people being infected with Lyme disease and tick encephalitis.

Negative effects of the raise in temperatures in the world ocean

It is still a difficult task to describe the full extent of its effect on the climate cycles and in the context specific of environmental events, but it's a scientifically established fact, that the ocean temperatures are a main moving part of the global climate.

Natural events caused by the imbalance in Atlantic meridional overturning circulation. Environmental anomalies such asHurricane Xavier sweeping over Northern Europe with wind speeds of 225 km/h in 2013, Hurricane Leslie that reached the coastline of Portugal with winds of 180 km/h in 2018, and the Level 5 Hurricane Lorrenzo of October 2019, that spanned in an 800 km area with wind speeds of 252 km/h are becoming the norm in the European continent. Another example of such phenomenons is the Zorba cyclone in the Mediterranean sea which is highly unusual for this region. The correlation between the hurricanes and the global warming is complex, but there is a consensus, that the climate changes caused by people makes the hurricanes more intensive. The warmer waters exude higher energy which makes for stronger storms, and the rise of sea levels contributes to larger floods. Recent studies also show that climate changes make the hurricanes to be of higher humidity and slower movement. The latter is especially dangerous as the storms cause increased damage passing over the affected regions.

Floods. Floods are another characteristic of the changing climate, which seems to become more frequent during seasonal cycles, not only in Europe, but in all regions that have higher concentration of evaporating waters. Following the torrential rains in November 2019 Venice has been flooded by the largest tidal wave in the past 50 years and 90% of the city has been flooded, with damages estimated to nearly €1Billion. Floods have affected 5.5M people and have had caused € 90B in damages, between the period of 1980 and 2011.

Coral reefs. The water temperature is one of the most active regulators in the biological processes of the sea organisms. The warming of the oceans has a direct effect over the vital characteristics and properties of their inhabitants. An increase in frequency of the so called coral bleaching is being observed in the past two decades. Coral reefs constitute 3% of the total ocean area, but they amount for 1/4 of all ocean species. The Grand Barrier Reef illustrates the severity of the damage caused: 30% of the corals have perished in 2016, with another 20% in 2017. The reefs are the natural habitat of many ocean species. Their survival is of the essence for the biodiversity and the strength of populations. Nearly 800 million people sustain themselves by fishing, which can lead to a food crisis.

Rate of desertification and wildfires. With the increase of global temperatures and human population, more regions become vulnerable to drought. The interpretation of the term 'drought' varies, but it consists of land degradation, caused by people in regions with low or volatile rainfalls, known as dry zones. They represent about

40% of the earth's surface. While land degradation has been occurring throughout history, today's pace has accelerated, reaching 30 to 35 times the historical rate. This degradation tends to be driven by a number of factors, including urbanization, mining, agriculture and deforestation. During these activities, trees and other vegetation are removed, with some regions having excessive animal grazing, and crops depleting the nutrients in the soil. All this contributes to soil erosion and the inability of the earth to retain water to restore landscaping levels. In China, a method of sowing in dry areas around the Gobi Desert is used with the help of biodegradable granules that retain moisture in the soil. "Great Green Wall" in Africa is the largest afforestation project. 8 billion dollars have been mobilized for this purpose. in landscaping at the southern border of the Sahara for 8000 km. in more than 20 countries.

Wildfires in the Amazonian rainforest. The Amazon is the largest tropical forest on Earth. When healthy, it absorbs billions of tons of carbon dioxide a year through photosynthesis. By removing CO2 from the atmosphere, Amazon rainforest helps maintain temperatures and regulate the climate. It is a delicate system that is highly sensitive to drying and warming trends. Additionally, NOAA reported that, regionally, the temperatures in the January–July 2019 period were the second warmest year-to-date on record, followed by year-to-year increase of 88% in wildfire occurrences in June 2019. When a forest burns, it releases particles called aerosols into the atmosphere - among them, black carbon, commonly referred to as soot. When the black carbon absorbs heat from the sun, it causes the atmosphere to warm; it can also interfere with cloud formation and, consequently, rainfall.. The clouds produce rain that replenishes the water in the soil,needed to allow the cycle to continue. Rainforests generate as much as 80 percent of their own rain, especially during the dry season. Scientists observed that the most significant and systematic drying of the atmosphere is in the southeast region, where the bulk of deforestation and agricultural expansion is happening. In addition to collecting timber, many trees in the Amazon are being cut down to plant soybeans or make more lucrative livestock pastures.

Global warming prevention and containment measures

Objectives and policy of the European Union. The EU Emissions Trading System (ETS) is the first major carbon market in the world to operate on a cap and trade basis. A limitation on the total amount of certain greenhouse gases has been set, that can be separated from installations covered by the system. The maximum threshold decreases over time so that total emissions fall. The projections for 2020 are that of emissions sectors covered by the system to be 21% lower than in 2005. The ETS operates in all EU countries, limiting emissions from more than 11,000 heavy-duty installations (power plants and industrial facilities) and airlines operating between those countries. It covers approx. 45% of EU greenhouse gas emissions. The targets set by the EU for 2030 are: a reduction of at least 40% of GHG emissions compared to 1990; at least 32% of total energy consumption to be from renewable energy sources; an increase of at least 32% in energy efficiency. Long term, the EU aims to significantly reduce its emissions by 80-95% by 2050, compared to 1990 levels. Building a highly efficient and low-carbon European economy will create jobs and increase Europe's competitiveness .

Financial mechanisms. At least 20% of the EU budget for 2014-2020, approx. € 180 billion, must be spent on climate protection. This will be complemented by funding from individual EU countries. Global investment in low-carbon energy development is expected to reach an average of $ 1.6-3.8 trillion by 2050.

Another global platform with a financial mechanism is the Green Climate Fund (GCF)

To date, GCF has committed $ 5.6 billion to 124 climate action initiatives around the globe. So far, $ 3.38 billion has been spent to an anticipated reduction of 1.6 billion tonnes of carbon dioxide.

Renewable energy sources (RES). Solar energy is characterized as an inexhaustible source of energy, but its application depends on weather conditions. It is used in two basic forms: as a mean to heat water, air, oil, or other fluid that gives off heat in a facility or building; as a generation of electricity through photovoltaic modules. Wind energy uses kinetic energy when moving aerial forces to power electric generators. Hydroelectric power plants are artificially created systems for the use of energy from water masses. This method effects the ecosystem of the water basins. Geothermal energy is environmentally friendly and permanent. Almost anywhere at a depth of 3 meters , the temperature is between 10 and 16 degrees. It is widely used in residential and commercial heating, and electrical production. High hopes for limiting global greenhouse gas levels are put in the development of the electromobile industry. In the fall of 2019. German Chancellor Angela Merkel has allocated 1bn. Euro towards green transportation in India.

An optimistic view of the natural development of the human species, in coexistence with the surrounding biosphere, consists in the specific research on climate responses to every aspect of human activity and adequate measures to maintain balance in our ecosystem.

The positive outcome of such efforts to curb global warming would contribute to the favorable development of socio-political relations, and to a better understanding of human-ecosystem interaction.

Successful adaptation to the changing environment and the ability to balance the natural environment will bring about a fundamental change in the development of a democratic society from a consumeristic to a

technological, biocentric one - a much-needed step towards consolidating a planetary society capable of colonizing and terraforming Mars.

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Appendix: some abbreviations

GHG – Green house Gases
CO2 – Carbon Dioxide
EEA - European Environment Agency
IPCC - Intergovernmental Panel on Climate Change
AMOC - Atlantic meridional overturning circulation
WMO - World Meteorological Organization
UNEP - United Nations Environment Programme
ETS – Emissions Trading System
GFC - Green climate fund
NSIDC - National snow and ice data center
ppm – parts per million

Geopolitics - greate powers and China

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Abstract.
Geopolitics is the study of the effects of Earth's geography on politics and international relations. The article considers the geopolitics schools of some of the great powers (United Kingdom, USA, Germany, France, Russia). The articles states some new realities in geopolitics in XXI century and analyses briefly the strategic aim of Road and Belt initiative of China.
Key words: geopolitics; great powers; China

Introduction

Geopolitics is the study of the effects of Earth's geography on politics and international relations (Devetak et al., 2012). At the level of international relations, geopolitics is a method of studying foreign policy to understand, explain and predict international political behavior through geographical variables. These include area studies, climate, topography, demography, natural resources, and applied science of the region being evaluated (Evans and Newnham, 1998).

Geopolitics focuses on political power linked to geographic space. In particular, territorial waters and land territory in correlation with diplomatic history. Topics of geopolitics include relations between the interests of international political actors and interests focused within an area, a space, or a geographical element; relations which create a geopolitical system (Toncea, 2006).

The term is currently being used to describe a broad spectrum of concepts, in a general sense used as "a synonym for international political relations", but more specifically "to imply the global structure of such relations", which builds on "early-twentieth-century term for a pseudoscience of political geography" and other pseudoscientific theories of historical and geographic determinis (Gogwilt, 2000; Jason and Shar, 2014).

Geopolitics and great powers

United Kingdom. Halford Mackinder's Heartland Theory was set out in his article entitled "The Geographical Pivot of History", published in England in 1904. Mackinder's doctrine of geopolitics involved concepts diametrically opposed to the notion of Alfred Thayer Mahan about the significance of navies (he coined the term sea power) in world conflict. He saw navy as a basis of Colombian era empire (roughly from 1492 to the 19th century), and predicted the 20th century to be domain of land power. The Heartland theory hypothesized a huge empire being brought into existence in the Heartland—which wouldn't need to use coastal or transoceanic transport to remain coherent. The basic notions of Mackinder's doctrine involve considering the geography of the Earth as being divided into two sections: the World Island or Core, comprising Eurasia and Africa; and the Peripheral "islands", including the Americas, Australia, Japan, the British Isles, and Oceania. Not only was the Periphery noticeably smaller than the World Island, it necessarily required much sea transport to function at the technological level of the World Island—which contained sufficient natural resources for a developed economy (Sloan, 1999).

Mackinder posited that the industrial centers of the Periphery were necessarily located in widely separated locations. The World Island could send its navy to destroy each one of them in turn, and could locate its own industries in a region further inland than the Periphery (so they would have a longer struggle reaching them, and would face a well-stocked industrial bastion). Mackinder called this region the Heartland. It essentially comprised Central and Eastern Europe: Ukraine, Western Russia. The Heartland contained the grain reserves of Ukraine, and many other natural resources. Mackinder's notion of geopolitics was summed up when he said:

Who rules Central and Eastern Europe commands the Heartland. Who rules the Heartland commands the World-Island. Who rules the World-Island commands the World (Sloan, 1999).

Nicholas J. Spykman was both a follower and critic of geostrategists Alfred Mahan, and Halford Mackinder. His work was based on assumptions similar to Mackinder's, including the unity of world politics and

the world sea. He extends this to include the unity of the air. Spykman adopts Mackinder's divisions of the world, renaming some:

1. The Heartland;

2. The Rimland (analogous to Mackinder's "inner or marginal crescent" also an intermediate region, lying between the Heartland and the marginal sea powers); and

3. The Offshore Islands & Continents (Mackinder's "outer or insular crescent") (Okur, 2014).

Under Spykman's theory, a Rimland separates the Heartland from ports that are usable throughout the year (that is, not frozen up during winter). Spykman suggested this required that attempts by Heartland nations (particularly Russia) to conquer ports in the Rimland must be prevented. Spykman modified Mackinder's formula on the relationship between the Heartland and the Rimland (or the inner crescent), claiming that "Who controls the Rimland rules Eurasia. Who rules Eurasia controls the destinies of the world." This theory can be traced in the origins of Containment, a U.S. policy on preventing the spread of Soviet influence after World War II.

Another famous follower of Mackinder was Karl Haushofer who called Mackinder's Geographical Pivot of History a "genius' scientific tractate" (Haushofer, 2004). He commented on it: "Never have I seen anything greater than those few pages of geopolitical masterwork" (Haushofer, 2004). Haushofer adopted both Mackinder's Heartland thesis and his view of the Russian-German alliance – powers that Mackinder saw as the major contenders for control of Eurasia in the twentieth century. Following Mackinder he suggested an alliance with the Soviet Union and, advancing a step beyond Mackinder, added Japan to his design of the Eurasian Bloc (Haushofer, 2004).

USA. Alfred Thayer Mahan (1840–1914), a frequent commentator on world naval strategic and diplomatic affairs, believed that national greatness was associated with the sea—and particularly with its commercial use in peace and its control in war. Mahan's theoretical framework came from Antoine-Henri Jomini, and emphasized that strategic locations (such as chokepoints, canals, and coaling stations), as well as quantifiable levels of fighting power in a fleet, were conducive to control over the sea. He proposed six conditions required for a nation to have sea power:

1. Advantageous geographical position;

2. Serviceable coastlines, abundant natural resources, and favorable climate;

3. Extent of territory

4. Population large enough to defend its territory;

5. Society with an aptitude for the sea and commercial enterprise;

6. Government with the influence and inclination to dominate the sea.

Mahan distinguished a key region of the world in the Eurasian context, namely, the Central Zone of Asia lying between 30° and 40° north and stretching from Asia Minor to Japan (Mahan, 1920a). In this zone independent countries still survived – Turkey, Persia, Afghanistan, China, and Japan. Mahan regarded those countries, located between Britain and Russia, as if between "Scylla and Charybdis". Of the two monsters – Britain and Russia – it was the latter that Mahan considered more threatening to the fate of Central Asia. Mahan was impressed by Russia's transcontinental size and strategically favorable position for southward expansion. Therefore, he found it necessary for the Anglo-Saxon "sea power" to resist Russia (Mahan, 1920b).

Lea (1912) described that the entire Anglo-Saxon race faced a threat from German (Teuton), Russian (Slav), and Japanese expansionism: The "fatal" relationship of Russia, Japan, and Germany "has now assumed through the urgency of natural forces a coalition directed against the survival of Saxon supremacy." Lea believed that while Japan moved against Far East and Russia against India, the Germans would strike at England, the center of the British Empire.

Two famous Security Advisors from the cold war period, Henry Kissinger and Zbigniew Brzezinski, argued to continue the United States geopolitical focus on Eurasia and, particularly on Russia, despite the dissolution of the USSR and the end of the Cold War.

Kissinger argued against the belief that with the dissolution of the USSR, hostile intentions had come to an end and traditional foreign policy considerations no longer applied. "They would argue…that Russia, regardless of who govern it, sits astride the territory Halford Mackinder called the geopolitical heartland, and is the heir to one of the most potent imperial traditions." Therefore the United States must "maintain the global balance of power vis-a-vis the country with a long history of expansionism" (Kissinger, 1994).

After Russia, the second geopolitical threat remained was Germany and, as Mackinder had feared ninety years ago, its partnership with Russia. During the Cold War, Kissinger argues, both sides of the Atlantic recognized that, "unless America is organically involved in Europe, it would be obliged to involve itself later under circumstances far less favorable to both sides of the Atlantic. That is even more true today. Germany has become so strong that existing European institutions cannot by themselves strike a balance between Germany and its European partners. Nor can Europe, even with Germany, manage by itself…Russia." Thus Kissinger belied it is in no country's interest that Germany and Russia should fixate on each other as a principal partner.

Without America, Britain and France cannot cope with Germany and Russia; and "without Europe, America could turn…into an island off the shores of Eurasia" (Kissinger, 1994).

Spykman's vision of Eurasia was strongly confirmed: "Geopolitically, America is an island off the shores of the large landmass of Eurasia, whose resources and population far exceed those of the United States. The domination by a single power of either of Eurasia's two principal spheres—Europe and Asia—remains a good definition of strategic danger for America. Cold War or no Cold War. For such a grouping would have the capacity to outstrip America economically and, in the end, militarily. The main interest of the American leaders is maintaining the balance of power in Eurasia (Kissinger, 1994).

Zbigniew Brzezinski described the American triumph in the Cold War in terms of control over Eurasia: for the first time ever, a "non-Eurasian" power had emerged as a key arbiter of "Eurasian" power relations and integrated Eurasian geostrategy (Brzezinski, 1997). Although the power configuration underwent a revolutionary change, Brzezinski confirmed three years later, Eurasia was still a megacontinent (Brzezinski, 2000). Like Spykman, Brzezinski acknowledges that: "Cumulatively, Eurasia's power vastly overshadows America's" (Brzezinski, 1997).

"Europe and Asia are politically and economically powerful…. It follows that… American foreign policy must…employ its influence in Eurasia in a manner that creates a stable continental equilibrium, with the United States as the political arbiter.… Eurasia is thus the chessboard on which the struggle for global primacy continues to be played, and that struggle involves geo-strategy – the strategic management of geopolitical interests…. But in the meantime it is imperative that no Eurasian challenger emerges, capable of dominating Eurasia and thus also of challenging America… For America the chief geopolitical prize is Eurasia…and America's global primacy is directly dependent on how long and how effectively its preponderance on the Eurasian continent is sustained" (Brzezinski, 1997).

Germany. Friedrich Ratzel (1844–1904), influenced by thinkers such as Darwin and zoologist Ernst Heinrich Haeckel, published several papers, among which was the essay "Lebensraum" (1901) concerning biogeography. Ratzel created a foundation for the German variant of geopolitics, geopolitik. Influenced by the American geostrategist Alfred Thayer Mahan, Ratzel wrote of aspirations for German naval reach, agreeing that sea power was self-sustaining, as the profit from trade would pay for the merchant marine, unlike land power.

The geopolitical theory of Ratzel has been criticized as being too sweeping, and his interpretation of human history and geography being too simple and mechanistic. Critically, he also underestimated the importance of social organization in the development of power (Tuathail, 2006).

France. French geographer and geopolitician Jacques Ancel is considered to be the first theoretician of geopolitics in France, and gave a notable series of lectures at the European Center of the Carnegie Endowment for International Peace in Paris.

In the mid-1970s, Yves Lacoste, a French geographer who was directly inspired by Ancel, creates a new school of geopolitics (if not so far the first French school of geopolitics as Ancel was very isolated in the 1930s–40s). While rejecting the generalizations and broad abstractions employed by the German and Anglo-American traditions (and the new geographers), this school does focus on spatial dimension of geopolitics affairs on different levels of analysis. This approach emphazises the importance of multi-level (or multi-scales) analysis and maps at the opposite of critical geopolitics which avoid such tools. Lacoste proposed that every conflict (both local or global) can be considered from a perspective grounded in three assumptions:

1. Representation: Each group or individuals is the product of an education and is characterized by specific representations of the world or others groups or individuals. Thus, basic societal beliefs are grounded in their ethnicity or specific location. The study of representation is a common point with the more contemporary critical geopolitics. Both are connected with the work of Henri Lefebvre (La production de l'espace, first published in 1974)

2. Diachronie. Conducting an historical analysis confronting "long periods" and short periods as the prominent French historian Fernand Braudel suggested.

3. Diatopie: Conducting a cartographic survey through a multiscale mapping.

Connected with this stream, the French geographer Michel Foucher developed a long term analysis of international borders.

More or less connected with this school, Stephane Rosiere can be quoted as the editor in Chief of the online journal L'Espace politique (Devetak et al., 2012). This journal created in 2007 became the most prominent French journal of political geography and Geopolitics with Hйrodote.

A much more conservative stream is personified by Francois Thual. Thual was a French expert in geopolitics, and a former official of the Ministry of Civil Defence. Thual taught geopolitics of the religions at the French War College, and has written thirty books devoted mainly to geopolitical method and its application to various parts of the world. He is particularly interested in the Orthodox, Shiite, and Buddhist religions, and in troubled regions like the Caucasus. Connected with Thual, Aymeric Chauprade, former professor of geopolitics at the French War College and now member of the extreme-right party "Front national", subscribes to a supposed "new" French school of geopolitics which advocates above all a return to realpolitik and "clash of civilization"

(Huntington). Chauprade is a supporter of a Europe of nations, he advocates a European Union excluding Turkey, and a policy of compromise with Russia and supports the idea of a multipolar world—including a balanced relationship between China and the U.S.

Russia. In the 1990s a senior researcher at the Institute of Philosophy, Russian Academy of Sciences of the Russian Academy of Sciences, Vadim Tsymbursky (1957-2009), coined the term "island-Russia" and developed the "Great Limitrophe" concept.

Colonel-General Leonid Ivashov (retired), a Russian geopolitics specialist of the early XXI century, headed the Academy of Geopolitical Problems which analyzes the international and domestic situations and develops geopolitical doctrine. Earlier, Colonel-General Leonid Ivashov headed the Main Directorate for International Military Cooperation of the Ministry of Defence of the Russian Federation.

Vladimir Karyakin, leading researcher at the Russian Institute for Strategic Studies, has proposed the term "geopolitics of the third wave" (Kariakin, 2013).

Geopolitics today

The author considers that the geopolitcs paradighms today are quite different than in XIX and XX century. The most important factors today are: the new economic reality related mainly to the technology development, the new environmental reality related mainly to climate change, diminishing natural resources and over-population, and the new political reality – multi-polar world.

What still remains unchanged is that Eurasia is, as always has been, the geopolitical center of the world and in order USA to keep its world political leadership, it should not allow any Eurasian power to rise. In this scope, USA should always prevent Russia and China the two greatest Eurasian powers from getting too strong. To do this USA rely on its allies and mainly on UK, Japan and EU.

Geopolitics and China – Belt and Road Initiative

China’s Belt and Road Initiative (BRI) is a leading indicator of the scale of China’s global ambitions. The intent behind the initiative is economic and political and raised significant concern in Japan and United States.

In the context of the classical geopolitics paradigms of XX century, China’s initiative is a trial to gain influence in the direction East Asia-Central Asia-Middle East-Eastern Europe/Africa – which is of great importance for controlling Eurasia. This is an area where Russian influence diminished after the collapse of Soviet Union. In this sense, BRI can be consider a geopolitical strategy of China – to increase influence in Central Asia after withdrawal of Russia in direct rivalry with USA and western powers.

Originally conceptualized as a “going out” strategy to develop productive outlets for domestic overcapacity and to diversify China’s foreign asset holdings, Beijing later branded the effort as its “Belt and Road Initiative.” While the initiative began with a predominantly economic focus, it has taken on a greater security profile over time.

China’s initiative has attracted interest from over 150 countries and international organizations in Asia, Europe, the Middle East, and Africa. This is due, in part, to the fact that the initiative is meeting a need and filling a void left by international financial institutions (IFI) as they shifted away from hard infrastructure development. But there is a real possibility that the BRI will follow in the footsteps of the IFIs, encounter the same problems, and falter.

The initiative has a blend of economic, political, and strategic agendas that play out differently in different countries, which is illustrated by China’s approach to resolving debt, accepting payment in cash, commodities, or the lease of assets. The strategic objectives are particularly apparent when it comes to countries where the investment aligns with China’s strategy of developing its access to ports that abut key waterways.

Japan has long played a quiet but leading role in providing alternative options for recipient countries in need of capital-intensive infrastructure investment. Recently, Tokyo has undertaken significant reforms to elevate its ability to both compete with and complement BRI projects.

China’s investments in strategically sensitive ports and its development of an overseas military base in Djibouti are of great concern to the United States. U.S. policymakers should adapt American strategy to respond to BRI. Some scholars believe that the right strategy is to multilaterize efforts, while others argue that it is to promote a race-to-the-top dynamic vis-à-vis China.

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