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FORESIGHT AND MULTIDISCIPLINARITY

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Abstract. *Starting from the mere finding that foresight and retrospective coexist in space and time, the content of present article scenarizes a number of the meditative and interrogatory moments, or astral moments, of the future. The correlation with multidisciplinarity is inherent in the nature of foresight and its mirror image, defined by opposition as a retrospective. In its central part, the article lists a set of twelve significant generative moments of foresight with meditative, and also explanatory intentions for the most part, which moments demonstrate the multidimensional association between foresight or prospective and multidisciplinarity. Some final remarks are placed in the space-time which is perpetually suspended between the present and the future, but also in the essential sense of foresight, already exemplified, typical of the councilors in the decisions for the future*.

Keywords: *foresight, prospective, retrospective, multidisciplinarity, complexity, simplexity.*

1. INTRODUCTION

"For, in a certain manner, all that is present is the seed of that which shall come forth out of it" (Epictetus)

There is no special area, nor a distinctive time of foresight (and/or prospective), but, instead, space and time interweave or even harmonize prospective and retrospective. The complex spatial-temporal multiverse of the future carries, in its meditative and interrogatory moments, or in its astral prospective and retrospective moments, an increasing number of potential universes, which that to surpass the finite sphere, which are hard to scenarize, in the present, still not highly absorbant of technology, education, cultures and civilizations apparently only intelligible and translatable, from a growing and more intense distance, from which any attempt is positioned to scientifically intuit future. Both prospective and retrospective unimaginable symmetries and asymmetries are placed in key space- times. Such an example, located in the regional timeline, is represented by a cultural edifice such as the Princely Church in Curtea de Argeș, where the retrospective pictorially presented on the right wall is identified and authenticated through the uniqueness the declarative moment of the identity of Jesus Christ in accordance with the Beloch census (AD 14), and, on the walls of the stoup, prospective appears through the faces of saints and priests, and anticipates a pictorial portrait perspective more than one hundred years before the mature schools of the European Renaissance, being kept as relevant forward-looking images at the Vatican to this day. The reminder of the present paper includes, subsequent to the introductory section, arguments of an intense correlation of foresight with multidisciplinarity, an association that pertains to the very nature of foresight (and/or prospective) and its mirror image, defined by opposition as retrospective, then, in the central section, it places a set of mainly rhetorical questions in order to validate the indestructibility of a mechanism of connections between foresight (and/or prospective) and multidisciplinarity. A final remark suspends the time-space variable, which is specific to foresight (prospective), perpetually lying between the present and the future.

2. MEDITATIVE MOMENTS COVERING TWELVE INTERROGATION DIMENSIONS IN THE FORESIGHT – MULTIDISCIPLINARITY RELATIONSHIP

As a structural and synthesis science of the future, forseight postulates a multidisciplinary vision or approach, and focusses on the problems to come, facing the futures researches in a systemic way of thinking. The system structure of the forsight research is outlined at several subystems or levels: a) the first foresight structure is placed at the level of the reality or natural system because of the integrated scientific research, technological investigation, economic development and social or educational understanding factors; b) the second system structure is apparent at the level of the method and model, as the researchers deal with an integrated methodology approach with modelling way of simplyfing reality, generating a cohesive methodological and modelling structure, rather than an isolated one; c) the third system structure is an average level of the foresight reality - method – model relationship: the method and the model create together the foresight structure and the equilibrium of foresight reality and thus determinates the specific methodological and modelling structure; d) the final foresight system structure is also apparent in the relationship between the theory and the application, involving elements of scenario foresight evaluation, foresight probabilities and foresight management.

The law of large numbers confers the balance and realism necessary for foresight, by simultaneously appealing to the opinions of optimistic and pessimistic futurologists, provided in the flimsy and almost invisible temporal-space seam of the present, placed between the mirrors of the retrospective and the prospective. The etymological or notional dimension of the multi-significant becoming and progress of foresight is set in its first meditative and investigative moment. Foresight is thus placed in a complex reunion of visible circular meanings (Figure 1), and also pluri-lingually, starting from the multi-millennium-old Greek term *prognosis*, and going up to the complex Anglo-American notion of constructing scenarios of the future, without however including relative paradoxical conceptions, which constantly nuance it (*black swan*, *wild cards*, *weak signals*, etc.).

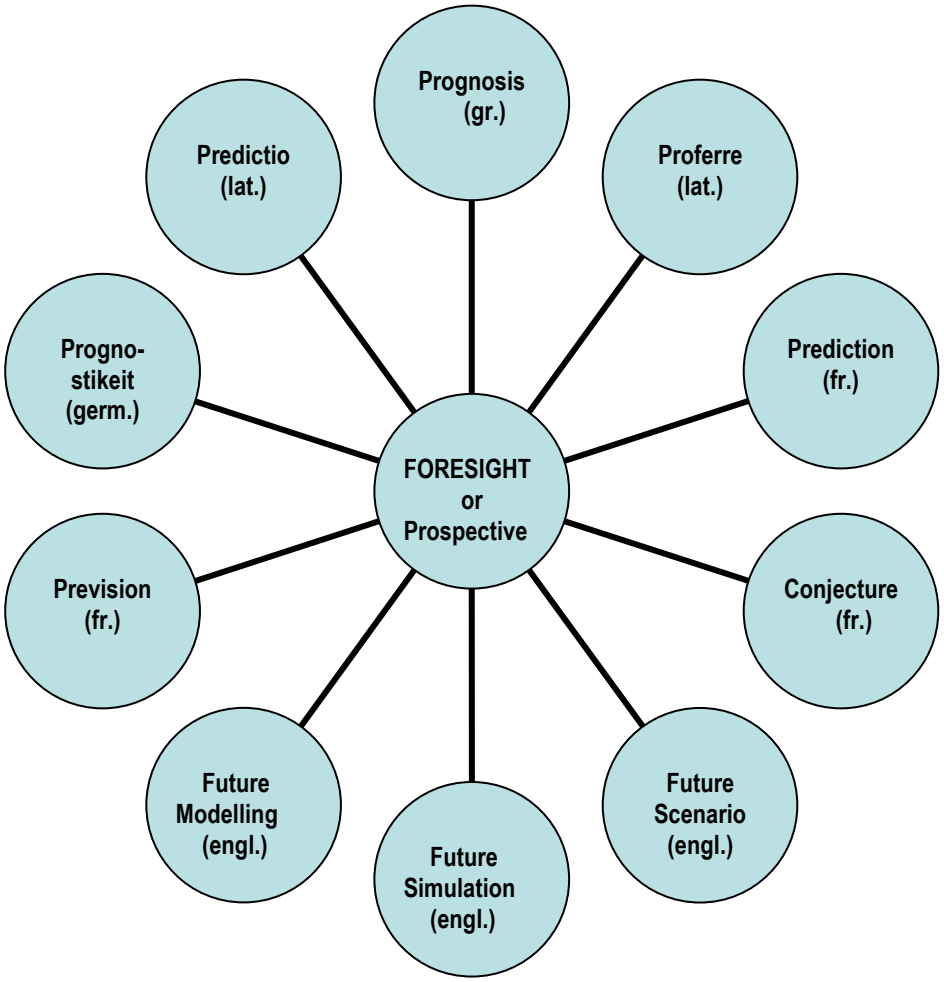

Fig. 1. Foresight or prospective: plural meaning and plethoric etymology

The multidisciplinary coverage of foresight or prospective represents another moment of reflection, and is evidenced by the broad spectrum of the disciplines and objects it simultaneously covers, which find expression in the concern for the future and the multiple aspects derived from that (the future as a multidisciplinary study object): from *futurology*, as a generic trans-disciplinary domain, or by definition, to *proference* as a particularisation of futurology in narrower studies of the future, from *prognosis*, as an expression of the future in economic sciences, to *sociological prediction* or demographic *projection*, from social *prediction* in general to *conjecture studies* with multiple or different interdisciplinary implications, from *predictive* approaches or cross-disciplinary *prognosis* of major events, to forecasting natural disasters and *mitigation* aimed at survival, scenarization of the future, etc.

All these specific approaches of a qualitative and quantitative nature to the future are to be found in the prospective step, which is more complex, more structured, more strictly hierarchical and scenarized than any of them considered individually. In the third meditative moment, foresight also addresses language as an argument of a future anticipated accurately and honestly with regard to trans-, inter-, cross-, and multidisciplinary scientific significance.

Contemporary software reveals a certain tendency in the language of the future towards English terminology, demographic developments add linguistic hypotheses of ideogram-based language, religion and religiously based birth-rates make them get closer to Arabic, and the indicial signs of the new technologies radically complicate the prospective of the scientific language of the future. The scenarization of communication generates a fourth, fastest anticipating moment in foresight, starting from the complexity of the Internet, the new meanings of information, the fake news phenomena, the manipulation of information, the achievement of a critical mass in communication, the ever more rapid change of communication support, freedom and democracy in general.

The prospective of communicating by cancelling the face-to-face ancient dialogue, with a Socratic role in forming an honest kind of thinking, has surpassed Warren Weaver and Claude Shannon's information mathematics, going beyond the anticipated space of excess communication focused on *tautism* (i.e. autism and tautology – with Lucian Sfez), redundant and even obsessive, but especially apparently chaotic or confused, often compared to the course of the billiard ball…

A fifth argument of foresight multi-disciplinarity arises from meditation on timeline, not at all tamed and brought to the mere linearity specific to the beginnings of prospective, maximally condensing the present in a tiny seam between the past and the future, and becoming practically more explicit in the analysis of the variable space-time over the last millennia. The correct anticipation of the future has extended the cohabitation space and the demographics of the human species, covering the Earth and preparing the possibility for man's exodus in the expanded space of the Universe. Jacques Attali links the space-time evolution of mankind, or the timeline of any prospective of human society, to port cities as a pragmatic multi-disciplinarity of language, information, economic and technological openness… In foresight port-cities have become new planets, and soon they will be new universes.

The cross-disciplinarity of prospective describes another important meditative moment. Foresight unites dozens and dozens of methods from all sciences concerned with evolutionary variants, from biology to physics, from econometrics to finance econometrics, from sociophysics to bioeconomics, etc.

Foresight means simultaneously extrapolation and intrapolation, experiment and simulation, scenario and modelling, probability and possibility, fuzzy and neutrosophic logic, etc. Prospective also develops a seventh broad interval of reflection on the trans-, inter- and multidisciplinarity of models, sometimes even without their being supported by a fully mature theory – which is however scientifically validated by the evolution of reality.

Indeed, what characterizes the prospective model is in fact the successive and implicit multi-modelling caused by the very large number of endogenous and exogenous variables, the residual variables appropriate to the stages or phases of foresight, the scenarized steps and the argumentation of simulation or experimentation.

Knowing the truth of successive approximations and validations, graphically and ironically expressed by Voltaire in his *Candide or the Optimist*, by the now famous saying that we do not live at all in the best of the possible worlds, and admitting the Shakespearian solution according to which there is nothing bad in this world that thinking cannot turn into something good, we come to the conclusion represented by successive and alternative modelling, successive multi-modelling having low thresholds of error.

Prospective is also born from a meditative moment when humans are totally sincere towards nature, which gives them realism, as Epictetus says: "For nature only leads to virtue, and evil is brought by men…", but also an expectative or reflexivity according to the same ancient sage, as "nature gave humans one tongue but two ears, so that we would listen twice as much as… we talk".

A pro-nature perspective is open to the maintenance of the balances of the human external environment, centered on human destructive or unbalanced non-intervention, which is to be inferenced in the universe.

A ninth meditative moment of foresight favours the natural imagining of the limits and error thresholds of prospective and the specific extensions of multi-disciplinarity.

The test of normal data series distribution represents the first strictly Gaussian example of validating or invalidating the bases of a future born in the seam of the present from the information and behaviour of the past, and the multitude of the possible theoretical and practical distributions invariably expands the solutions of prospective.

A more attentive systemic thinking has enabled prospective to systemically structure reality under the pressure of aggregation, which adds relational quality elements between subsystems, thus generating a tenth significant moment of foresight scanning in a multidisciplinary context.

The last two moments described in this paper, and relating to foresight evolution, refer to the introspection into the simplexity of prospective, in response to the growing complexity of the amplified realities (the simultaneous meditative approach to the increased complexity of reality in parallel with the simplicity of the investigation and the solutions, *simplexity* designating, simultaneously, simplifying complexity) and the overlapping contexts of investigation stratified as foresight, and the example the criterion-based overlaps of the EU, NATO, globalization, etc. type is eloquent as far as the practical difficulties of the prospective are concerned.

3. SOME FINAL REMARKS

There is a logical course of the complex prospective that overlaps several deductive chains, describing a multiverse of universed prospected in a distinct and aggregative manner, within the context of a set of survival or harmonization thresholds. It is stage-directed, being initiated in the foresight by the emergence of the hypothesis, testing and final validation / invalidation of the hypothesis, followed by the anticipated reality-model-prognosis of evolution/involution, extended by the step of the scenarios and anticipated constants, as well as by the selected variants of the prospective, and ending in the assessment of balances and imbalances, as well as future acceptable thresholds. Zak and his moral molecule describe foresight potentialities that are opened even in the area of constantly changing ethics or morality…

The specific approaches devoted to the future by Alvin Tofler, Francis Fukuyama, Jacques Attali and Yuval Noah Harari are a few complex examples of amply scenarized multi-disciplinary prospective, focused on decision-making counseling in macropolitics of major powers or economies like the US, France or Israel.

In all of the above, time is multidimensional, and the primacy of scenarios and soft power dominates the classical military, economic, cultural, etc. vision.

4.REFERENCES

[1] Attali, J. (2016). *Scurtă istorie a viitorului.* Iași: Editura Polirom.

[2] Botez, M. (coord). (2000). *Curs de prognoză*, București: Editura CIDSP

[3] Fukuyama, F. (1992). *The end of History and the Last Man*, New York: Macmillan

[4] Harari, Y. N. (2018). *Homo Deus. Scurtă istorie a viitorului*. Iași: Editura Polirom.

[5] Lauster, M., Hansen-Casteel, S., 2018. On some fundamental methodological aspects in foresight processes,

European journal of futures research, Vol. 6 (1), Article Number: UNSP 11.

[6] Nicolae, V., Constantin, L., D., Grădinaru, I., (1998). *Previziune și orientare economică*, București: Editura Economică.

[7] Nye, J. S. (1990). *Bound to Lead: The Changing Nature of American Power*. New York: Basic Books.

[8] Nye, J. S. (2002). *The Paradox of American Power*. New York: Oxford University Press.

[9] Nye, J. S. (2004). *Soft Power*. New York: Publicaffairs

[10] Săvoiu, G. (2011). *Econometrie*, Bucureşti: Editura Universitară.

[11] Săvoiu, G., (2013). *Modelarea economică - financiară*, Bucureşti: Editura Universitară**.**

[12] Săvoiu, G., Burtescu, E., Dinu, V., Tudoroiu, L. (2017). A Monte Carlo Method Simulation of the European Funds that Can Be Accessed by Romania in 2014-2020, *E & M Ekonomie A Management*, vol. 20 (3), pp. 19-35.

[13] Tofler, A. (1973). *Șocul viitorului*, Bucureşti: Editura Politică.

WHY FORESIGHT?

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Human being is eminently an anticipatory being.
Mircea Malița

Abstract. *The future is not predictable, but that does not mean we should not plan for it. The concept of strategic foresight helps to think, in the long term, about the core issues in order to find good answers and to have realistic goals using the resources efficiently.*

Keywords: *security, defense, strategic analyze, prognosis, prospective (foresight)*

1. INTRODUCTION

The future is the domain of uncertain, and that was, and still is, rather frightening. Fear is worse than real risks. The great problem is what will happen? The answer was never satisfactory for the individuals, peoples or deciders. Future is the continually unsolved problem, answers are being sought again and again. Mankind tries to solve it through a lot of ways, from the shamans, the Delphi oracle, astrologists, to modern methods of prognosis or foresight.

"Why" started the way to understanding, the way to seeking answers, a way to thinking the future deeply and longer than we usually think.

"Why foresight?"

"Why" is the question that deals with the unknown, its goal is to understand the subject whom the question is adressed to. "Why" can generate a complex, deep and comprehensive process of research. The need to understand the future, the need to anticipate is greater than ever, in this unpredictable, dynamic and accelerated world.

Foresight can help to avoid strategic surprise, in politics, state security and defence, economic, financial or social domains, it can also help to discover the main drivers, tendencies, to build paths and indicate the good directions, to act on long-term, on a large strategic scale.

Foresight cannot predict, foresight is the domain of analysis and reflection, foresight is not a science, but using scientific methodology.

"Why foresight?"

This question its not new, it is an obsolete question for a lot of foresight classical authors/schoolars, and it was a starting question for fundamental researches. Authors like Hugues de Jouvenel, Richard A Slaughter or Scott Yorkowitch started analyses with this question. One article by Ciprian Turturean has the same question as title [16].

For example, Slaughter said in 1997: "Strategic foresight is needed for a number of reasons. At the broadest, or „macro" level, strategic foresight provides a number of ways of coming to grips with what I have called the „civilisational challenge". That is, the exhaustion of aspects of the Western worldview and the industrial ideology that went with it.

Though essentially superseded, this ideology remains strong. It is comprised of elements such as: the denial of limits, the single-minded pursuit of material (economic) growth, the commodification of human needs, the reduction of natural entities to the status of mere „resources", exploitive trade practices and future-discouting. Such elements have contributed to what has been termed the industrial „flatland" wich in essence, is an overly empirical, hence „thin" and eventually self-defeating, view of the world." [17]

In fact, all the question lies with foresight are important for the definition of the domain, the goals and objectives and also for the methods, and many studies are built around essential questions as why, how, etc.

In this one accelerated world it is difficult to understand the future in the long term, the decision-makers are confronted with the pressing, immediate problems and they act and think in the short-term, they have no time to reflect and to think on long-term. The tyranny of the present puta very hard pressure on decisions. Political cycles, economic cycles, social cycles, even life cycles are against the toughts in the long term.

Every domain claims the necessity to have strategies and this is the paradox of our times, on the one hand, to solve the usual problems, and on the other hand, the necessity of long-term strategies.

To understand this question, "why foresight", it is necessary to understand the balance between the present and the future at short-term (three-four years – domain of prognosis) and the future at long-term (ten, twenty, thirty, fifty years and beyond).

The most difficult is to think in the long term at the strategic level, try to respond to the question whether the preparation of the future is possible using the methods of strategic prospective (or foresight).

2. ABOUT THE FUTURE

The term future does not exist in some archaic societies and languages, according to Mircea Eliade. That concept is not present in their minds. Only the past is, designed as an infinite come-back to life of a god or hero who founded that society. The same is also in our mind: the past is often present in our life, more developed. Humans have the need of the past, for his emotional stability. The past is secure, the future is not clear, misty or dark. But we need to know what will be. We can see easily in all languages grammars a lot of past tense verbs comparative with the future tense of verbs. The conflict is between our needs and desires and the empty space behind us.

Rituals, oracles, sacrifices for the gods to be merciful, is a long story of the humanity to obtain the desired future. In fact, everyone knows the end of life – death. But the moment

is unknown, and the future can come with the end. It is an ancestral fear. The monotheist religions solved this by the other life, after death, but the fear remains with a strong desire to survive, which is written in our DNA.

For society and states, the mechanism is the same. The risk of disappearing, the need to survive. A prayer said: Oh, God, protect us from the invasion of other peoples and from the hate and struggle between us, from the seen and unseen enemies. A short definition of risks and threats, above all security and defence strategies.

How to protect the state from the outside and inside risks? The answer is known, by good economy and finances, laws, a defense system, which are more and more complex. A strong army, intelligence services, an active diplomacy, and alliances. But is it enough? One can always find a weakness, an Achilles' heel, even with the strongest state.

What kind of guns, how many soldiers, airplanes, or tanks, for what, how long, and against who? One must adapt all the system to the most probable enemy, for the most dangerous risk or threat. The need to know is the greatest pressure for the deciders. Where is it necessary to start? From the past? From the present moment, or from the future?

"The general who loses a battle makes but few calculations beforehand. Thus making many calculations leads to victory, and few calculations to defeat: and all the more so no calculation at all! It is with respect to this point that I can foresee who is likely to win or lose." [2]

Sun Tzu combined calculations with strategy from the beginnings! Not only in the mathematic sense, but also in the logic one. And nowadays all domains need strategies. The victory, or the achievement of goals at the strategic level is more closely to the thinker than the field hero. Make calculations, then!

3. THE FORESIGHT APPROACH

After the Second World War, in both sides of the Iron curtain the planned economies aris vigorously. The "Comissariat Général du Plan" in France, "Development and Planning Ministers" in Romania, or "The Planning Agency" in Japan, the economies are all the same philosophy – planning. For few decades it worked, and this was easy to translate for defense systems. And prognosis methods started to rule.

Meanwhile, the studies about the future go to the needs of the economy or the Cold War demands.

A strategy needs a good analysis first. Michel Godet said that there are four attitudes to the future: passive – no interrogations for the future, reactive – fireman action style action without anticipation, preactive – preparing for the changes, and proactive – action to provoke the changes, and in that frame the analysis can be started or not.

This effort needs specific methods and foresight have that in plenty. The domain of foresight is not a science because foresight sweeps the future where theoretically everything is possible, unlike in experimental science where more experiments give the same result.

Foresight deals with multiple futures, it is a domain of multi-disciplinary and trans-disciplinary even if it is an very young domain.

The military domain is in fact the main root of the strategic foresight.

Used for military purposes in the beginning, the foresight methods are spread quickly to all domains (economic, financial, technological) in fact today when we speak about progress many people think about technological progress, but that it is only a branch.

US Rand Corporation, the independent and respected non-profit institution that helps to improve policy and decision-making through research and analysis, personalities as Hermann Kahn and George Friedmann or Kaplan, the popular Alvin Toffler, the Club of Rome activity, Johann Galtung and many others opened the way for future studies.

Foresight has some phases, first, in the sixties we can speak about fundaments of this domain by the works inside Rand project and Rand Corporation, the French school and nordic school as some cores of gravity. Secondly, the foresight entered the core institutions of the states, until the oil shock in the seventies. After that foresight spread and had a free evolution, it is used in state institutions and also had a private way.

In France the term "Prospective" is defined by the philosopher Gaston Berger - "See far, see large, see deep, take risks and centered to the human being" and is used for the studies of the future by Bertrand de Jouvenel, Pierre Masse, Michel Godet and others. "Futuribles" (Futur+possibles) is the key concept of the multiple futures launched by Bertrand de Jouvenel.

Prospective, foresight, futurology, futures research, forecasting – the mix of terms, the difficulty to translate the terms and the domains of these terms can often cause confusions. There are numerous differences, but essentially "foresight lacks of pro-activity, an integral aspect of prospective" [5] .

Despite the apparent paradox of "Strategic foresight" linked with the fact that a strategic decision forces one to an irreversible decision, and an foresight approach deals with the uncertain, with multiple futures, the term is used to understand how the future shapes the main decisions.

In the seventh decade Bucharest was on the map of the prospective studies, where the Third Congress of Sciences of the Future was organized, and the idea appeared of a "World Federation of Future Science" was born here. The elite of thinkers was also here: Herman Kahn, Bertrand de Jouvenel, Johann Galtung or Alvin Toffler, Mircea Malița, Solomon Marcus, Mihai Botez, Pavel Apostol, Sergiu Tamas and others had great contributions to development of prospective and of futures studies in Romania.

Currently, classifications (taxonomies) are different on prospective/foresight methods, one of the earliest classifications was proposed by Erich Jantsch, who grouped them into the subsequent classes:

-*intuitive methods* are focused on expert knowledge and experience, techniques such as "brainstorming" or Delphi, which is the most popular.

-*explorative methods* are used to detect included virtuosities in reality (technical, social-political, economic, cultural). It allows open a large scale of "possible future": contextual representation, extrapolations, morphological research, scenario method, the method of probabilistic analysis

(Bayesian statistics, Monte-Carlo method), methods of economic analysis, game theory.

-*normative methods* pave the road to go for achieving an objective. Unlike the explorative methods, which go forward to a future of increasingly uncertain path, the normative methods regress tracing the path from the possible future to present. In this class we meet operational research methods (linear or dynamic programming) theory of decision method, analysis system.

-*cybernetic-system methods*-mechanism models can be developed feed-back, which is allowing subsequent simulation operations of behavior in time.

"After a explosive stage now witnessing on a process of implosion which is manifested in merging or combining different research predict methods."[10]

It is possible to unify the various methods of prospective analysis, from the analysis of the past with the present conditions and normative type methods that starts form future to present. This approach is possible because of the informational society explosion in this analysis specialists and experts around the world can be engaged on specialized sites such as http://www.shapingtomorrow.com.

Such a new theory as the theory of complexity, the web theory or neutropsychic change the paradigns of the analysis.

The growth of non-state actors, of web-like structures is the real challenge of the moment, especially because the governments are not yet prepared to have an adequate reaction. The almost instant financial transactions, data exchanges and information leakage represent a progress factor and a tremendous risk. It is said that a cybernetic attack that targets the electric grid of a city, causing a blackout is more dangerous and causes more damage than an aerial bombardment of the same city.

The strategic surprise from the future can come. Also known as strategic break, the strategic surprise can be considered as a threat that cannot be foreseen, as the one on 9/11 in US. One CIA analyst asked about Strategic Warning: If Surprise is Inevitable, What Role for Analysis? "Strategic warning analysis, is a branch of "alternative analysis," in that its tradecraft places emphasis on disciplined and value-added assessments of threats that, for the most part, are seen as unlikely or indeterminate. Related forms of alternative analysis-including High Impact-Low Probability Analysis, What-If Analysis, Gaps in Information Analysis, and Devil's Advocacy – share the requirement with warning analysis to marshal all-source information, expert insight, and specialized tradecraft to illuminate developments that analysts judge to be potentially damaging but unlikely." [9]

There are ways of analyzing "weak signals", leading to a possible alarm of phenomena that right now is either embryonary phase or insignificant. The experts talk about the so-called strategic surprise, which is actually leaves negligible traces, usually unnoticed by decision factors. In an over-saturated world of information, such signals are usually drowned in chatter.

Data-mining and Information Fusion techniques which use mathematical theories like the Dezert-Smarandache one, are particular useful in detecting cybernetic strikes and analyzing intelligence.

In 2008-2009, among the NATO countries there was a project called "Multiple Futures" taking place, a project that brought together military and civil specialists with a view to probing the future and finding the most adequate answers.

"The multiple futures are only the means, nor the end, of this project. They tell a story about plausible worlds in 2030. The future is not predictable, but that does not mean we should not plan for it. From that perspective, the four futures provide common ground for structured discussion and debate regarding the risks and vulnerabilities that endanger the populations of the Alliance. Constructed from a series of relevant drivers, each of the futures provides a backdrop for conceptual analysis – a canvas on which to assess the potential risks, threats, strategic surprises, implications, and, of course, opportunities. The study yields a comprehensive set of risk conditions from which security and military implications can be deduced. From implications, we gain strategic insight and better understanding of the potential choices the Alliance faces as it addresses the challenges and opportunities of the coming decades." [8]

4. THE STRATEGIC SURPRISE CAN BE AVOIDED?

The tendencies are unpredictable, the future is misty, it is a complicated thing to understand this accelerated type society (even if the trend was described by Toffler in 1970), the speed of social, economical and social life cannot be followed by analysts or experts – is one of theories often used to describe the international environment. The amount of information available cannot be managed. But under those "boiling" movements, almost "Brownian", there are the great trends, like the oceanic currents. For example seeing the presentations of Hans Rosling, on his website http://www.gapminder.org/ the main conclusion is one convergent world which incline to same directions of developement.

To prepare the future by foresight is not to make prophesies, that is religion, and, even a prophet was not often believed! To prepare the future for states means to have several ways of evolutions at strategic levels, avoid strategic surprise, have a foresight approach, and pro-active actions. The future can be provoked, for keeping the initiative.

It needs long-term analysis to use the foresight methods. It is necessary for the decision-makers to understand that the good immediate measures can often be wrong on long-term range, and develop making decision process having solutions for this conflict.

"In sum, I don't believe that the free market, regulation, political leadership, or public education will solve the climate problem in time. Capitalism is unable to handle this long term challenge, and democratic society is unwilling to modify the market. In my point of view, we need something stronger, something that can counter the root problem: Man's short-term nature. His tendency to disregard the long term consequences of current action."[6]

5. CONCLUSIONS

The question "Why foresight?" is new for us because paradoxically this domain is almost unknown in Romania, even if a good start was in the seventy. Terms like foresight or prospective are not in use. In a very respectable sociological review, which devotes a whole number to the

topic of future, in more of nearly two hundred pages, the authors never mention the word prospective or foresight.

Buddha said: ”All that we are is the result of what we have thought. The mind is everything. What we think, we become.”

The future is the domain of uncertainty. The need to have answers beyond the line of present is in the nature of humanity. The decisions are taken under the pressure of the short-term vision, but long-term vision is necessary, and this conflict in the decision making process at strategic levels can be solved by an foresight approach: “See far, see large, see deep”. A large variety of methods can be used, the trend is to combine several of them, and that can be an art.

The concept of strategic foresight helps to think, in the long term, about the core issues of states and people, to find good answers and to have realistic goals using the resources efficiently.

Slaughter said: ”The forward view is not an abstraction. Rather, it tells us that there are a number of very real dangers to avoid and an equally impressive number of opportunities to be taken up and developed. This pattern of dangers and opportunities is highly relevant to everything that an organisation attempts to do – even in the short-term present. Organisations that attempt to move into this turbulent, challenging future without strategic foresight will find themselves overwhelmed by forces that were indeed visible for some time, but which were overlooked. On the other hand, while no futures method can imitate history and foresee all eventualities, organisations that routinely employ strategic foresight will find that they are better equipped to negotiate the turbulent conditions ahead. They will prosper and develop because they have understood the structure of the near-future context. In essence, a well-crafted forward view reduces uncertainty and reveals the ground of otherwise-unavaible strategic options.”

The future shock can be tamed.

BIBLIOGRAPHY

[1] *** Strategic Concept For the Defence and Security of The Members of the North Atlantic Treaty Organization 2010, http://www.nato.int/lisbon2010/strategic-concept-2010-eng.pdf

[2] Sun Tzu “*The art of war*” http://suntzusaid.com/book/1

[3] Alvin Toffler, *Future shock* Random House, 1970, New York

[4] Michel Godet, *Manuel de prospective strategique*, Dunod, 2004, Paris

[5] Michel Godet, *Strategic foresight – la prospective*, Cahiers du LIPSOR, Paris 2008

[6] Jorgen Randers, *Systematic Short-termism: Capitalism and Democracy*, Version August 27th 2012

[7] Jorgen Randers - *2052 - A Global Forecast for the Next Forty Years*

[8] *** *Multiple Futures Project* – Final Report 2009, http://www.iris-france.org/docs/pdf/up_docs_bdd/20090511-112315.pdf

[9] Jack Davis, *Strategic Warning: If Surprise is Inevitable, What Role for Analysis?, 2007*, https://www.cia.gov/library/kent-center-occasional-papers/vol2no1.htm

[10] Sergiu Tamas, *Prospectiva socială*, editura Victor, 1999, București

[11] G. Filip, H. Dragomirescu, Rolanda Predescu, and R. Ilie EU-US Seminar: *New Technology Foresight, Forecasting & Assessment Methods-Seville Paper 2 : IT Tools for Future-oriented Technology Analysis*, 13-14 May 2004

[12] Florentin Smarandache Jean Dezert, *Advances and Applications of DSmT for Information Fusion*, American Research Press, 2004, Rehoboth

[13] www.nato.int

[14] www.act.nato.int

[15] http://ipts.jrc.ec.europa.eu/

[16] Ciprian Turturean https://www.researchgate.net/publication/227349365_Why_foresight_The_impact_of_resource_consumption_and_technology_on_the_ability_to_foresee_the_future

[17]https://pdfs.semanticscholar.org/b5f9/80009dcb5ba0e3f6920ff947c9878d164d3b.pdf

THE IMPACT OF FORESIGHT ON THE FUTURE (1-ST PART)

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Abstract: *From the beginning of this article, we accept the hypothesis that the future, according to quantum physics, even then we look at it can undergo major and unexpected changes.*

By virtue of this hypothesis, when performing foresight exercises, we must bear in mind that any incursion or attempt to anticipate the future can imprint a more or less favorable trajectory, more or less visible!

At the same time, we must bear in mind that in the past-future interaction, specific to the theory of chaos, it is subject to the butterfly effect, in which little detail in the past and present can generate major changes in the future.

Keywords: *Foresight, Futures Space static approach of the future, dynamic approach of the future*

1. INTRODUCTION

Bezold & Hankock, 1994 [3] presents and develops in the paper names *Posibble Futures*, *Preferable Futures*, a classification of the future, proposed by Canadian futurist, Norman Henchey 1978 [4], whose interaction is represented graphically in figure 1[9]:

1. *The Possible Furtures* – which represents *what may happen*, including events with a very low probability of occurrence, but which cause major changes. These futures are visible from the probabilistic point of view.
2. *The Plausible Futures* - it is the one *that could happen* as a natural consequence of what we know today is the multitude of future prospects to achieve. Plausible Futures Possible Futures.
3. *Probable Futures* - represents *what will likely* happen. They are usually futures assumed as a result of forecasts and often called *descriptive forecasting*. Probable Future Plausible Futures
4. *Preferred Futures* - is what *we want to have happen*. Sometimes they are referred to as *normative forecasting*. These are the imposed futures that did not exist until the foresight exercise started. These can come from any future spaces and are *optimal future*.
5. *The Alternative Futures* - are futures that are probabilistically invisible and remain invisible after the foresight exercise. The area of alternative futures is where the Black Swans come [6].

2. THE ANALYSES OF RELATION BETWEEN FORESIGHT AND THE FUTURES SPACES

Assuming that there is a *space of possible future*s, fig.2, foresight exercises are, by their nature, intended to excite forces that influence the possibility of futures production, in the sense of increasing the likelihood of producing preferable futures and diminishing the chances of producing the other kind of futures.

Any attempt to interact with the future will change the parameters of its space.

In a *static approach*, named prevision [7], the main philosophical question of this paper is: How do we look/ interact in/with the future, without disturb its evolution?

In a static approach, in which we accept that the future is predestined, specific to *foreknowledge* [7], our main concern is not to interact directly with the future, which is why, in most situations, persons endowed with such powers do not regard the future by their own eyes but they are possessed by spirits who most often describe, through a parable, what will happen, leaving the mystery of the future untouched by human gaze and understanding. If we accept that the future is subject to the laws of quantum physics, and that it may be influenced by any observation/ measurement process, this interaction through messengers with the future is as normal as possible, and even more so, the revelation of the future through parables, hermetic approaches, making it often inaccessible, the meaning of the parable revealing itself only as far as the future occurs, the interaction with it being minimized to the maximum. This approach eliminates the possible *butterfly effects*.

In a dynamic approach, specific to foresight [7], the main concern is that, through a collaborative, collaborative effort bringing together the main stakeholders, it is to reach a *Preferred Future*.

Such an approach has important effects on the futures space for all intermediate horizons from the target horizon, from T + 1 to T + k, where T is the current moment and k represents the horizon for which the foresight exercise is performed.

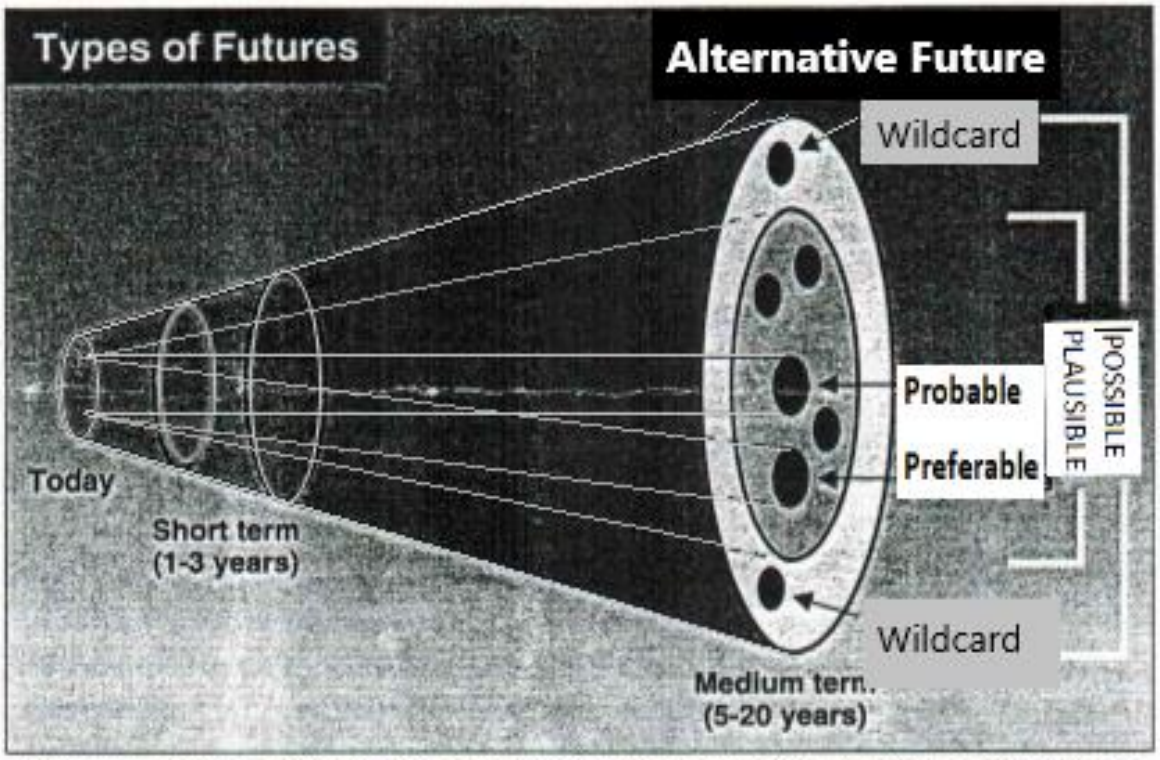
If initially *the space of the possible futures* for T+ k momentum, which corresponds to a k horizon, had a specific distribution, when we focus our attention, through a foresight exercise, on a number of preferable futures, the shape of the future space distribution will change the moment T + k in the sense of increasing the likelihood of producing future prospects and diminishing the likelihood of the other future occurring.

Even more, so since the achievement of a *preferred future* at the time of T + k supposes the passage of the k spaces of the *possible future*s, disturbing their distributions.

The dynamic approach to the future raises a number of technical issues, such as choosing and controlling the route to reach the future at the k horizon.

The *static approach to the future*, although not specific to foresight exercises, has the role of drawing attention to the

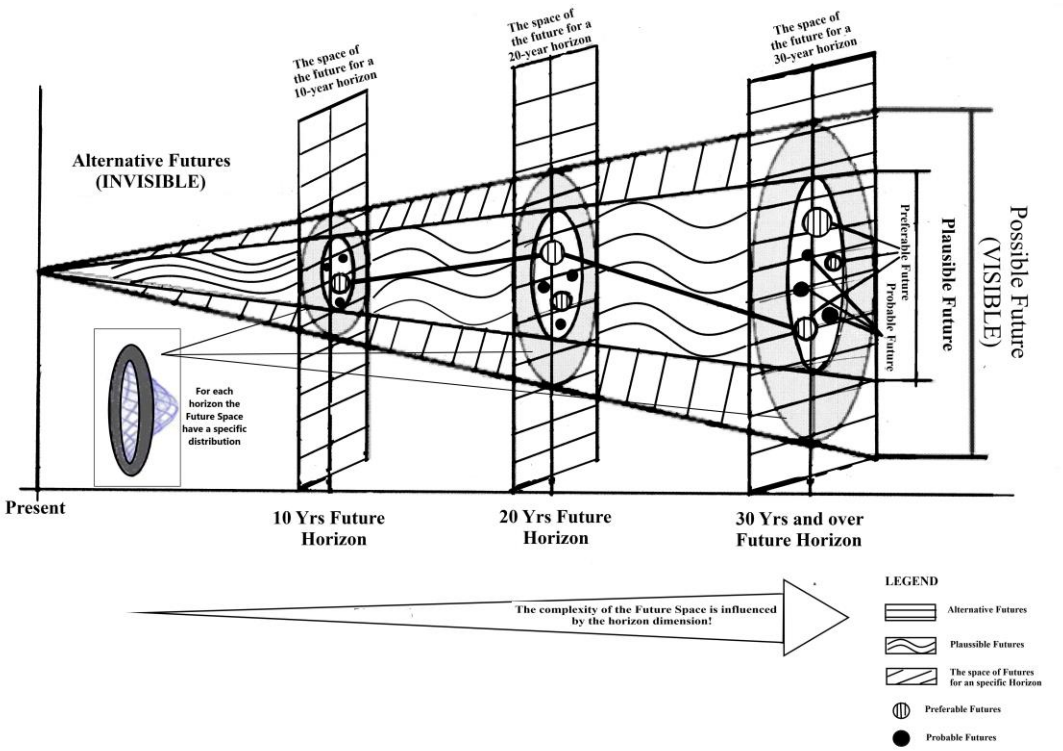
ethical aspect of interaction with the future and to the possibility of occurring *butterfly effects* that can throw us out of the Space of Possible Futures, visible, on the Space of Alternative Futures, invisible from a probabilistic point of view [2], [3].



Source: *Hancock T. & Bezold C., March/ April 1994*
Fig.1: *Types of Futures*

The *complexity of possible futures spaces* increases *as the horizon* of the foresight exercise increases, so the diversity of possible future increases increases almost exponentially with every year added to the foresight horizon.

The variety of foresight methods and methodologies [5] is intended to create a stable, controllable environment that guarantees, even partially, the achievement of the *preferred futures* in a carcassed space of complexity and high uncertainty. Even when the achievement of the preferred future does not carry out, the foresight exercise is not considered a failure. This is due to the high resistance to advance through the intermediate *spaces of possible future*. Achieving the intermediate futures that lead to the preferred future for a set horizon are themselves the success stories of the foresight process.



Source: *Bezold & Hanckock (1994) augmented by Turturean*

Fig. 2: *Augmented Types of Futures*

3. CONCLUSIONS

The interaction of foresight exercises with the *space of the future* is the complex one and almost impossible to control.

The choices we make in future developments are likely to irremediably alter our *possible futures Spaces*, and perhaps we need to place more emphasis on the ethical component.

In the following article, we aim to correlate Foresight, *prospective* or *normative* types [5], [7] and its corresponding methods with the steps to reach the preferred future shown schematically in Figure 2.

4. REFERENCES

[1] Brier D. J. (2005), *Making the Future: a review of time horizon*, Furtures 37, 833-848

[2] Hancock T. & Bezold C., *Possible futures, preferable futures*, Healthcare Forum Journal, March/ April 1994

[3] Hancock T. & Bezold C., *An Overview of the Health Futures Field*, Backgroun papper for The WHO Health Furtures Consultation, Geneva, July 1993

[4] Henchey N., *Making Sense of Future Studies*, Alternatives 7, 1978, 104-111.

[5] Keenan M., (2006), *Overview of Foresight Methods*, Technology Foresight for Organizers, Gebze Turkey, 20-24 Nov. 2006.

[6] Thaleb N., (2007), *The Swan Black*,

[7] Turturean C. et al. (2011). *Conceptual delimitations regarding the terminology used in the methods of investigating the future*, Analele Institutului de Cercetari Economice "Gh. Zane", Tom 20, Issue I, IAȘI, 2011, 13-20

[8] Turturean C., *Classifications of foresight methods*, Analele Instituttului de Cercetări Economice „Gh. Zane", TOM 20, Issue II, Iași, 2011, 113-123

[9] Voros J. (2003), *A generic foresight process framework*, Foresight, Vol 5, Issue 3, 10-21

FAKE NEWS: IS THERE A PATHWAY FOR MINIMIZIG THEIR EFFECTS?

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Abstract. *The digital age and rapid expansion of social media have provided a fertile ground for dissemination of fake news or misleading information. Fake news has become an urgent matter and discussion topic among both academics and practitioners, as it has sparked a concern about the effects it can have on both business and society. On the basis of recent researches and reports, this paper discusses effects of fake news and possible pathways for their minimizing. Thus, it aims to draw the attention of public and organizations to the need of being better equipped to identify fake news.*

Keywords: *fake news, misinformation, social media*

1. INTRODUCTION

Fake news refers to inaccurate information, which is presented as news media content in form, but not in organizational process or intent [1] and it is created to be spread on social media. Fake news attracted a lot of attention during the presidential election in USA in 2016, when it was related to the phenomenon of post-truth, that Oxford English Dictionary announced as the word of that year [2]. As it is often used in political context, Cambridge dictionary explains fake news as false stories that appear to be news, spread on the internet or using other media usually created to influence political views or as a joke [3]. Fake news is a matter of concern in business as well. The latest European Communication Monitor reported that 22.5% of European organizations and their reputation have been affected by fake news within the last months, mostly on social media [4].

A phenomenon of fake news is not new. However with the use of the internet and social media, the scope of information is much larger and information sharing is substantially facilitated, and consequently fake news has became an important issue, and a topic of interest of recent researches [1, 5, 6, 7, 8, 9]. It is more difficult today to identify if news is fake or real due to the extensive amount of information that can be found online. The goal of the paper is to present and explain fake news, the reasons for their spreading, the effects it can have, together with possible pathways for minimizing the effects. The paper is based on analysis of the most recent researches and reports in order to get better understanding of the phenomenon.

The paper is organized as follows. Section 2 analyzes the spread of fake news, whilst Section 3 discusses possible effects it can have on both business and society. Forth section identifies possible pathways that can lead to decreasing the effects misinformation can have. The final section provides concluding remarks, together with directions for future research.

2. THE REASONS FOR SPREADING OF FAKE NEWS

Having in mind the reach and effects of social media and networks regarding the potential of spreading news, false information can make an impact on both society and business, easily and quickly [10]. Thus, social media contributes to the dissemination of fake news at large extent.

By researching academic articles that used the term “fake news” and were released between 2003 and 2017, Tandoc et al. categorized fake news, according to their content as follows [11]: satire and parody news, which purpose is not to mislead but to be satirical and funny; fabricated news, that is completely fictitious with purpose to mislead the reader into believing something that is not true; manipulated news that is based on true information but the conclusions are fake with the purpose to direct the reader into perceiving the information in a certain way; propaganda news that presents news as credible, but the source of it or the motivation behind it are lacking, and advertising news, that presents misleading or even false information in order to attract consumers to buy a product/service.

Fake news stories are commonly used in politics, and their evident increase can be noticed during the US presidential election, when a number of fake stories supporting elected candidate’s campaign circulated all over Facebook and were read by millions of people [12]. According to Silverman et al. [13] even Facebook engagement, through likes, comments and shares, was greater for the top 20 fake than 20 real news stories in last three months of the campaign. Even though the exact effect of fake stories still cannot be clearly determined, many argue that they had an influence on the election result.

Apart from politics, the spread of fake news is apparent when there is a high interest for information about certain issue, such as crisis situation, or health concerns [9].

Both academics and practitioners explored the reasons why people tend to believe false news. Allcott and Gentzkow have analyzed the reasons why someone would spread false information and try to deceive the public and they reported two main, financial and ideological. Financial reason means that websites post news articles that go viral in order to raise ad revenue with each time their article is clicked by online users. On the other side, ideological reason means that people post false stories not after money but they want to support a cause, a person or an organization [8].

Similarly, after interviewing scientists, psychologists and experts in the field of digital journalism, Marshal identified

that mainly the reasons are related to algorithms, human psychology and money [14]. Algorithms are identified to be used by social media in order to filter stories one is likely to agree with, from like-minded groups, and thus inaccurate information can be spread more easily and quickly [9, 24].

A research conducted in MIT about the spread of false news in Twitter revealed that false news was 70% more likely to be retweeted than real news [15]. The research showed that generally people, and not bots (automated accounts that impersonate real users), are the reason why false news spreads faster. Accordingly, the characteristics of our psychology make a fertile ground for dissemination of misinformation. For instance, we tend to believe a piece of information we read is true if it is aligned with our personal beliefs and opinions, and this is the case when fake news publishers rely on the fact that people trust in online opinions if these opinions match their own. Thus, spam opinions or spam reviews about people or organizations can be made and disseminated [16].

Additionally, fake news can be shared as rumors, an important form of human communication, which might quickly spread through various channels [17]. The authors reported that people can have different roles in the process of rumor spreading, depending on their attitudes towards rumors, but even they hesitate to spread rumors, people have a positive effect on their spreading. The very recent example of rumors and its effects appeared during the lunar eclipse on July 27 2018, when amongst other news, it was said that we should turn off our mobile phones during a certain time because of the cosmic rays passing very close to Earth. This news went viral and was believed by many even though there were websites reporting this news as fake [18].

Studies have also shown that the reason why people tend to believe fake news comes from their laziness to think and not because they think in a motivated way [7]. This means that when we hear some information we are more likely to accept it the way it is rather than relying on our intuition and question it.

Jang & Kim have also found a strong tendency to third person perception. This means that people believe in their ability to successfully indentify fake news and believe that other people are more vulnerable to fake news than they are [9].

To make fake news even more believable their creators make websites with similar names to real news websites. This way the reader will think that they are reading the news from a credible website. For instance, in July 2015 Twitter stock jumped nearly 8 percent because of news of a $31 billion bid for the company. The news was posted by http://bloomberg.market, that was made to look like http://bloomberg.com which is a credible news portal [19]. Thus, we can trace a path for recognizing the way for combating fake news and minimizing their effects.

3. THE EFFECTS OF FAKE NEWS

Misinformation has already become an issue that affects both business and society [10].

For businesses and organizations fake news can severely damage their reputation, and cause significant financial loss, as the consumer can stop buying the products/services if they believe fake news about either company or its products [16]. For instance, Buzzfeed posted an untrue story about a jewelry shop using fake diamonds which caused their stock to drop 3.7% and cause reputation damage [20].

Furthermore, as online opinions sharing have an impact on consumer purchase decisions, increase of fake (or spam) reviews can damage the reputation of brands and influence users' perceptions about products and companies [16].

One of the main concerns of fake news is how they affect the society. Fake news can influence public opinion, especially in political context. The 2016 presidential election in the US, as well as the Brexit vote in the United Kingdom, demonstrated how news had been affected, changed and used in the digital age [21].

Misleading information is found to be a risk for public health as well, as it might have an impact on health literacy and the spread of conspiracy theories, for instance regarding vaccines, or cardiovascular diseases [22]. The authors found that lack of education in healthcare context can result in behavioral changes, and thus it is a severe threat to the public health. Their research in Poland showed that 40% of the most frequently shared links contained text they classified as fake news.

As the spread of fake news cannot be controlled and can have a powerful impact on beliefs and attitudes of individuals, and consequently the intentions and behaviors of these individuals [23], it is crucial to identify possible pathways for minimizing these effects.

4. MINIMIZING THE EFFECTS OF FAKE NEWS

Jang et al. [24] identified several pathways for combating fake news, from media literacy education, over enhancing fact-checking procedures available to users, which give warnings that particular stories can be fake news, to detection of fake news sources and filtering out the information from those sources. Each of identified pathways has particular issues and flaws. Figuiera & Oliviera categorized the approach into human intervention and using algorithms [10].

Media literacy in terms of ability to critically understand, evaluate and interpret media content [25] is important, but it still depends on one's cognitive ability. De keersmaecker & Roets argued that individuals with lower levels of cognitive abilities changed their attitudes less than people with higher levels of cognitive abilities, and concluded that the effect of inaccurate information cannot simply be undone by explaining that the information was incorrect, in particular among individuals with lower cognitive ability [6], Here, it is important to point out that there is a difference between facts and opinions. A fact is a truth that accurately reports something that has happened whilst an opinion is an interpretation of something that has happened usually from one person's perspective [26]. Nevertheless, educational efforts about information and digital media can help in minimizing the effects of fake news [27].

As there is apparent need that the public should be better informed and educated to distinguish fake news from real [5], the International Federation of Library Associations and Institutions (IFLA) suggested a procedure with 8 steps to educate the readers on how to identify fake news [28]. We used it as a framework and elaborated it as follows.

As a first step, the suggestion is to consider the source. When we read something online we should always check where this information came from. There are a number of websites dedicated to disseminating fake news only. As mentioned before publishers of fake news also create websites with a very similar URL to real news websites in order to deceive the reader. A study of Jang et al. explored 307,738 tweets about 30 fake and 30 real news stories during the 2016 presidential election in USA, and the findings revealed that the fake stories were originated by accounts from ordinary users (users with no experience in journalism) and they often included a link to a non credible source [24]. Therefore, considering the source can help us identify if the information we are receiving is true or not.

The second step refers to reading beyond headlines. Headlines are designed to attract the attention of the reader therefore very often the information from the headline is very different from the content of the article. Usually interesting headlines attract the users to click in the article which gives ad revenue to the website owner. So the reader is advised not just to believe the headline but to read the article behind to find out if the headline is misleading or not.

The third step is checking the author. Similar to checking the source of the information the readers should also check the author and make sure they are real and credible. Not everyone has real knowledge of what they post so before accepting the information as real people ought to make sure the author is credible and has actual knowledge of what they wrote.

The fourth suggestion in decreasing the effect of fake news is to check supporting sources. Good and credible news articles provide the readers with supporting sources that back the information published in the article. So to make sure the news we are receiving is not fake we should check the supporting sources and see if they agree with the information we are receiving.

Furthermore, it is important to check the date. For information to be true and not misleading it should also be up to date and related to current events.

Additionally, we should check if the information is a joke. As mentioned before there are several types of fake news that comprise satires and parodies. They are meant to be funny and not mislead the reader into believing false information. So we need to check the author or website to see whether the content of the article has a satirical content or it is actual fake news with the intent to mislead the readers.

On the other side, everyone should check their own biases, as well. Before believing any sort of information we first need to make sure we are being objective and that we are not judging based on our personal beliefs. As it is mentioned earlier, people often tend to believe what they agree with regardless if that information is true or not.

The final suggestion is to ask the experts and check whether the information is true or false. If we lack solid knowledge about the content we are reading and we are not sure whether to believe it or not, we should consult with someone who has expert knowledge on the matter.

Social media context is specific in the sense that, unlike traditional media, the identity of authors is often unknown, the citation of sources is not a norm, and the content is usually changed through the process of spreading. To overcome the effects of fake news, Jang et al. [24] explored not only the origins, in terms of root content and producers of original source, but also evolution patterns of false information. The authors found that tweets about real and fake news had different evolution patterns.

For minimizing the effects of misinformation it is relevant to identify and analyze how the fake news is initiated and evolved in digital environment. The use of algorithms has a limited impact as this method is still not able to fully identify which content is true or false [10]. Nevertheless, by identifying sources and related bots and cyborgs, algorithms can be created in order to reduce the visibility of such information [24].

5. CONCLUSION

Having in mind the reach and effects of social media and networks regarding potential of spreading the news, false information can affect both society and business. As social media contribute dissemination of fake news at large extent, fake news phenomenon has attracted the attention of both academics and practitioners.

Fake news stories are commonly used in politics, but it is apparent also in situations when there is an interest for information about certain issue, such as health issue, or crisis situation. From business perspective, fake news can affect companies and their reputation, but still, according to European Communication Monitor 2018 report, there is a large number of organizations that do not have established routines to identify fake news.

As the spread of fake news cannot be controlled and can have a powerful impact on beliefs and attitudes of individuals, and consequently the intentions and behaviors of these individuals, it is crucial to identify possible pathways for minimizing effects.

On the basis of existing literature and reports, we summarized several directions for identifying and monitoring fake news. One of the directions is enhancing digital literacy, but not only in terms of technology using, but also the ability to critically understand and interpret content on social media, and distinguish fake news from real, as well as to detect fake news sources and filter out the information from those sources. In addition to better education, algorithms can be created in order to reduce the visibility of misinformation, as well.

In business context, fake news has to be treated as a permanent potential risk and a situation that need to be monitored constantly. Companies should invest in procedures that can help in identifying and minimizing the effects of misinformation.

As this paper summarizes recently published researches and reports on the topic, further direction of our research will include collecting empirical data on types of fake news affecting the companies, and strategies that companies apply for minimizing its effects.

6. REFERENCES

[1] Lazer, D., Baum, M., Benkler, J., Berinsky, A., Greenhill, K., Metzger, M., & Zittrain, J. (2018). *The science of fake news*. Science 9, 1094–1096.

[2] Marmot, M. (2017). *Post-truth and science*. Lancet 389, 497–498.

[3] https://dictionary.cambridge.org/dictionary/english/fake-news

[4] http://www.communicationmonitor.eu/2018/06/13/ecm-european-communication-monitor-2018

[5] Redekop,W.K. (2018) Fake news, big data, and the opportunities and threats of targeted actions. Health Policy and Technology 7. 113-114

[6] De keersmaecker, J., & Roets, A. (2017). *Fake news: Incorrect but hard to correct. The role of cognitive ability on the impact of false information on social impressions*. Intelligence 65, 107-110.

[7] Pennycook, G. & Rand, D.G. (2018). *Lazy not biased: Susceptibility to partisan fake news is better explained by lack of reasoning than by motivated reasoning.* Cognition, article in press

[8] Allcott, H. & Gentzkow, M. (2017). *Social Media and Fake News in the 2016 Election*. Journal of Economic Perspectives 31 (2), 211-236.

[9] Jang, S.M., & Kim, J. K. (2018). *Third person effects of fake news: Fake news regulation and media literacy interventions*. Computers in Human Behavior 80, 295-302.

[10] Figuiera, A. & Oliviera, L. (2017). *The current state of fake news: challenges and opportunities*. Procedia Computer Science 121, 817-825.

[11] Tandoc, E.C., Lim, Z.W., Ling, R. (2017). *Defining "Fake News"*. Digital Journalism 6(2), 137–153.

[12] Fake News - Statistics & Facts https://www.statista.com/topics/3251/fake-news

[13] Silverman, C., Strapagiel, L., Shaban, H., & Hall, E. (2016). *Hyperpartisan Facebook pages are publishing false and misleading information at an alarming rate.* Buzzfeed News, retrieved from https://www.buzzfeed.com/craigsilverman/partisan-fb-pagesanalysis

[14] Marshall, N. (November 2nd 2017). *7 reasons why fake news goes viral, according to experts* https://www.independent.ie/world-news/and-finally/7-reasons-why-fake-news-goes-viral-according-to-experts-36283450.html

[15] Norton, A. (March 8th 2018). *Why false news spreads faster than truth* https://www.medicinenet.com/script/main/art.asp?articlekey=210692

[16] Cardoso, E.F., Silva,R.M. & Almeida, T.A. (2018). *Toward automatic filtering of fake reviews*. Neurocomputing 309, 106-116.

[17] Hu, Y., Pan, Q., Hou, W., & He, M. (2018). *Rumor spreading model with the different attitudes towards rumors*. Physica A: Statistical Mechanics and its Applications 502, 331-344.

[18] Jadhav, R. (July 27th 2018). *Cosmic Rays to Pass Close From Earth During Tonight's Lunar Eclipse to Affect Mobile Phones? Don't Believe in Rumours and Hoax WhatsApp Messages*

[19] Brigida, M. & Pratt, W.R. (2017). *Fake News.* North American Journal of Economics and Finance 42, 564-573.

[20] Matsa, E. (June 23rd 2017). *The Impact of Fake News: Society* https://www.kingsleynapley.co.uk/insights/blogs/criminal-law-blog/the-impact-of-fake-news-society

[21]Anderson, J. & Rainie, L. (November 1st 2017). *The future of fake news, according to experts*, https://www.weforum.org/agenda/2017/11/this-is-what-experts-think-will-happen-to-fake-news

[22] Waszak, P.M., Kasprzycka-Waszak, W., & Kubanek, A. (2018). T*he spread of medical fake news in social media – The pilot quantitative study*. Health Policy and Technology 7(2), 115–118.

[23] Fishbein, M. & Ajzen, I. (1975). *Belief, Attitude, Intention and Behavior: An Introduction to Theory and Research*. Addison-Wesley Publishing Company, Massachusetts

[24] Jang, S.M, Geng,T., Queenie Li, J.Y., Xia,R., Huang ,C.T., Kim,H., & Tang, J. (2018). *A computational approach for examining the roots and spreading patterns of fake news: Evolution tree analysis*. Computers in Human Behavior 84, 103-113.

[25] Karaduman, S. (2015). The Role of Critical Media Literacy in Further Development of Consciousness of Citizenship. Procedia - Social and Behavioral Sciences 174, 3039-3043.

[26] Gallagher, K. & Magid,L. (2017). Media literacy and fake news, https://www.connectsafely.org/wp-content/uploads/Media-Literacy-Fake-News.pdf

[27] Mele, N., Lazer, D., Baum, M., Grinberg, N., Friedland, L., Joseph, K., et al. (2017). Combating fake news: An agenda for research and action. https:// shorensteincenter.org/wp-content/uploads/2017/05/Combating-FakeNewsAgenda-for-Research-1.pdf

[28] How to spot fake news https://www.ifla.org/publications/node/11174

TECHNOLOGY FORECASTING FOR DEVELOPING SMART INNOVATION AND ENTREPRENEURSHIP POLICY

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Abstract. *Competitive Innovation and Entrepreneurship Ecosystem (IEE) is recognized as the crucial force boosting development of a country. Governments are involved in developing smart policy with a balance of measures and instruments aimed at enhancing IEE competitive performance. Governments are oriented at developing evidence and data based management of IEE. Theoretical and practical focus on IEE metrics is vivid in the past decade. There is evidence of a steep rise in new approaches, models, methods and indices aimed at fulfilling the goal of creating influential government policies, and implementing, measuring and controlling their impact, adjusting them dynamically to be better attuned to the uncertainties and risks present in the IEE domains. Technology forecasting methods can be used and are argued to be appropriate in the process of planning and prioritizing the smart policy mix. We present a general framework for using a combination of the technology forecasting models and methods in the process of developing smart policy measures and instruments for reaching the development goals effectively.*

Keywords: *innovation and entrepreneurship ecosystem, smart policy mix, technology forecasting, framework*
PACS numbers: 89.65.Gh, 01.78.+p, 89.20.Bb

1. INTRODUCTION

Innovation and Entrepreneurship Ecosystem (IEE) development is achieved by introducing policy measures and instruments that will target the set of social and economic objectives and goals to be reached in the given time period. The specific nature of the Ecosystem Approach (EA) and its main strengths lie in its comprehensive, holistic perspective. Governments need support in creating a smart policy mix best suited to the development goals and the concrete ecosystem characteristics of a country. The Ecosystem is identified by recognizing the relevant actors, their activities, relations, strategy and their influences affecting future overall results and achievements. The IEE comprises innovation and entrepreneurship chains and activities in the economy and society [1, 2, 3]. Methodological support for Governments intervention by means of IEE Development Smart Policy Mix is based on the results of the previous research of the Competitive Innovation and Entrepreneurship Ecosystem Framework performed by the authors [3]. The third phase in the Framework is defined by smart policy mix considerations and this paper deals with these issues.

The basic steps for developing a Smart Policy mix of instruments and measures to upgrade the IEE are presented as:

1. Generating a set of policy levers, measures and instruments that address the different domains of the EII. The Framework [3] points to the Global Innovation and Entrepreneurship Indices, e.g. European Innovation Scoreboard (EIS), Global Innovation Index (GII), Global Competitiveness Index (GCI), Global Entrepreneurship Index (GEI), to be used in IEE metrics indicating the domains for government intervention with a set of policy measures and instruments.
2. Developing methodological support for Governments Smart Policy mix decision making. Based on the Framework results [3], in this paper the second step is in focus with the Integrated Technological Forecasting Model presented as the methodological support to smart innovation and entrepreneurship policy mix development.

The term Policy mix is used to refer to "the balance of and interactions among policies" [4, 5]. In this paper the policy mix refers to a set of policy measures and instruments to be used as means of government interventions aimed at the achievement IEE development policy goals.

It is noted that "For the policy mix concept to be useful in policy making and analysis, individual policy instruments and interactions among them need to be defined" [4, pp. 152]. In this paper Technological forecasting is deployed to assess individual policy measures and instruments contribution to the overall IEE development goals. The development of the Technological forecasting integrated methodological support and investigating its relevance in developing the smart policy mix is the main research question under consideration.

The relevance of the subject is found in the rising necessity to provide support for effective and smart government interventions, on the one hand, and the lack of methodological support, on the other. The situation is best described in the statement of the [4] emphasizing that "the field of interactions between policy instruments is still not investigated enough and one of the paths of future research of the Smart Policy mix would encompass the interactions between the policy instruments which has high impact on the effectiveness of a policy instrument". It is also noted that "the greatest challenge of the successful Policy mix is to reflect the priorities of the concrete IEE" which represents an important aspect of the research presented in this paper and the main advantage of deploying technological forecasting integrated model as a means to set priorities for concrete IEE.

The paper is organized in the following manner. Section two presents the Integrated Technology Forecasting Model (ITFM) for IEE smart policy mix support, and explains the methods integrated in the model, i.e. the Modified Objectives Matrix, Delphi method, and Delphi-AHP method. Section

three gives the detailed description of the three phases of the ITFM. Section four concludes the paper.

2. DEVELOPING TECHNOLOGY FORECASTING MODEL BY INTEGRATING TECHNOLOGY FORECASTING METHODS AND TECHNIQUES

This paper focuses on defining the Integrated Technology Forecasting Model (ITFM) for prioritising the policy mix. It combines different TF methods. Figure 1 shows the process of transformation of the policy mix into the smart policy mix by using the defined ITFM which combines the following methods: Modified Objectives Matrix, Delphi method, and Delphi-AHP method.

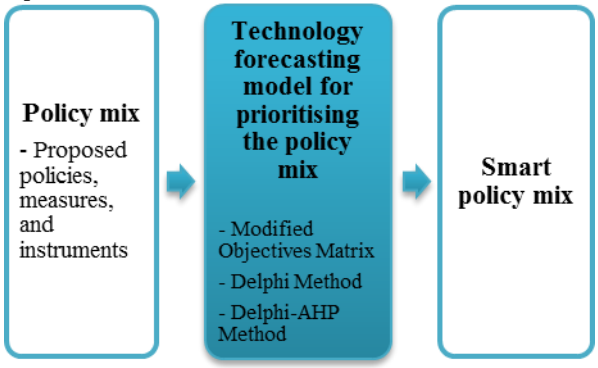

Fig. 1 Transformation of the policy mix into the smart policy mix

Table 1 Modified Objectives Matrix scheme

	Ind 1	**Ind 2**	**Ind 3**	**Ind 4**	**…**	**Ind j**	**…**	**Ind n**	**Total score**	**Rank**
Weight	W_1	W_2	W_3	W_4	…	W_j	…	W_n		
Policy measure	Policy measure scores									
Pol. meas. 1	s_{11}	s_{12}	s_{13}	s_{14}	…	s_{1j}	…	s_{1n}	**TS_1**	**R_1**
Pol. meas. 2	s_{21}	s_{22}	s_{23}	s_{24}	…	s_{2j}	…	s_{2n}	**TS_2**	**R_2**
Pol. meas. 3	s_{31}	s_{32}	s_{33}	s_{34}	…	s_{3j}	…	s_{3n}	**TS_3**	**R_3**
…	…	…	…	…	…	…	…	…	**…**	**…**
Pol. meas. i	s_{i1}	s_{i2}	s_{i3}	s_{i4}	…	s_{ij}	…	s_{in}	**TS_i**	**R_i**
…	…	…	…	…	…	…	…	…	**…**	**…**
Pol. meas. m	s_{m1}	s_{m2}	s_{m3}	s_{m4}	…	s_{mj}	…	s_{mn}	**TS_m**	**R_m**

Column 1 presents the proposed policy measures of the policy mix, while the first row presents the defined indicators (criteria) for assessing the measures. Policy measure scores (s_{ij}) present the scores of each measure according to each criterion (indicator) defined. Total score for each policy measure is calculated in the following manner:

$$TS_i = \sum_{j=1}^{n} W_j * s_{ij} \quad (1)$$

using the following notation:

TS_i – total score of policy measure i (i=1,…,m),

s_{ij} – score of policy measure i according to indicator j (i=1,…,m; j=1,…,n)

W_j – weight of indicator j (j=1,…,n), where

$$\sum_{j=1}^{n} W_j = 100 \quad (2)$$

In this paper, values for s_{ij} are obtained by using the Delphi method, and for W_j by using the Delphi-AHP method. The overall score (TS_i) obtained by applying the Modified Objectives Matrix is used for ranking (R_i) policy measures. Policy measure with the highest score is ranked first and is recommended to be implemented first.

2.1. Modified Objectives Matrix

Objectives Matrix (OM) is generally observed as a method for analyzing and evaluating productivity in terms of efficiency and effectiveness. It is a method of indexing productivity measures and calculating an overall, multi-factor productivity index. According to Felix and Riggs [6], an Objectives Matrix model enables management of an organization to combine all important productivity criteria into an easily communicated format. This method is comprehensive and very flexible. It can be used to derive a composite index for the entire organization based on the defined criteria. For the purpose of this paper, we define the Modified Objectives Matrix method. General scheme is presented in Table 1.

2.2. Delphi method

The Delphi method, developed by the RAND Corporation in 1950s, is a forecasting method which involves a group of experts who anonymously reply to the defined questionnaire. The idea is to obtain the most reliable consensus of a group of experts [7]. It is an iterative process. In each round experts are asked to fill in questionnaires individually and anonymously. After each round all responses are summarized by the

moderators and reported back to the panelists, who then have an opportunity to revise their answers in the next round. The process continues until a set level of stability in answers is reached [8, 9]. The goal of each round is to reduce the range of experts' responses and obtain the expert consensus.

The process of the Delphi can be summarized through the following steps [10]: (1) Choice of the moderators, (2) Choice of the experts for the panel, (3) Definition of the questionnaire, (4) Distribution of the questionnaire (by moderators), (5) Filling in the questionnaire (by experts), (6) Statistical analysis and feedback to the panel (by moderators). Each round consists of the steps 4, 5, and 6. Rounds of research are conducted until the consensus among experts is met.

Since its first introduction, researchers have developed variations of the method (see e.g. [11, 12, 13]). However, Linstone and Turoff [8] captured some common characteristics of the method, highlighting that the key advantages are that it avoids direct confrontation of the experts, increases the robustness of opinion gathering due to the structured and repeated process, and can engage geographically dispersed experts with low costs [9, 14]. The results of the Delphi method are highly dependent on the clarity and preciseness of the defined questionnaire and on the choice of experts for the panel. Okoli and Pawlowski provide detailed guidelines for the process of selecting appropriate experts for the Delphi study [15].

Researchers have applied the Delphi method to a wide variety of situations. In this paper, the Delphi is used for obtaining the policy measure scores which will be used for calculating total policy measure scores in the Modified Objectives Matrix.

2.3. Delphi-AHP method

Analytical Hierarchy Process (AHP) is a quantitative method used in various fields in multicriteria decision-making process [10]. Thomas L. Saaty [16, 17, 18, 19] developed this method as an analytical tool, which is based on a pairwise comparison of the hierarchy elements. Namely, since AHP is used for multicriteria decision making, at the first level of hierarchy it has the criteria (attributes) that are specific for the observed problem. At the lowest level of hierarchy, there are alternatives that are evaluated in the decision-making process. The process of AHP can be summarized through the following 7 steps [10]:

1. Establishing the hierarchy model by defining the main goal, criteria, and alternatives of the observed problem;
2. The examined group of experts does the pairwise comparison of criteria relevance and fills the matrix with numbers on the nine-point scale (Table 2);
3. The examined group of experts does the pairwise comparison of alternatives relevance from the perspective of each criterion and fills the matrix with numbers on nine-point scale (Table 2);
4. Aggregation of the results and calculation of the final scores for each alternative based on the determined weights of criteria and alternatives for each criterion;
5. Prioritization of the alternatives based on the aggregated scores;
6. Checking the consistency of the evaluation;
7. Selection of the appropriate alternative.

Table 2 Saaty's pair-wise comparison nine-point scale [20]

Intensity of Importance	Definition	Explanation
1	Equal Importance	Two activities contribute equally to the objective
2	Weak or slight	
3	Moderate importance	Experience and judgment slightly favour one activity over another
4	Moderate plus	
5	Strong importance	Experience and judgment strongly favour one activity over another
6	Strong plus	
7	Very strong or demonstrated importance	An activity is favoured very strongly over another; its dominance demonstrated in practice
8	Very, very strong	
9	Extreme importance	The evidence favouring one activity over another is of the highest possible order of affirmation

There are several variations of this method, used combined with other qualitative and quantitative methods in analytics. Delphi-AHP method has been developed to use the advantages of both methods in the decision making process. This method has proven its applicability in some previous research [21, 22]. In this research, we combine the Delphi and the AHP method in order to obtain the weights for the defined criteria. Firstly, we use the AHP matrix to evaluate the significance of the defined criteria used for prioritising policies (strategies). The results of this step are weights of the proposed criteria. Since there is more than one expert, it is necessary to determine the consistency of the results by calculating the standard deviation of the average weights. If the deviation is higher than expected, the process repeats until there is a consensus of the estimations, that is, until the deviation is lower than expected. At last, the final weights of the criteria are the elements (Weights) of the Modified Objectives Matrix.

3. INTEGRATED TECHNOLOGY FORECASTING MODEL FOR PRIORITISING THE POLICY MIX

The ITFM for prioritising policy measures and creating a smart policy mix is presented in Figure 2. It is a three-phase procedure. In the first phase, the Delphi method is used for forecasting the significance of each individual policy measure to the fulfillment of each individual goal (criterion). In the second phase, the Delphi-AHP method is used for

determining the weights of the observed criteria. The third phase refers to prioritising the policy mix and identifying the smart policy mix by using the Modified Objective Matrix which combines the results of the first two phases.

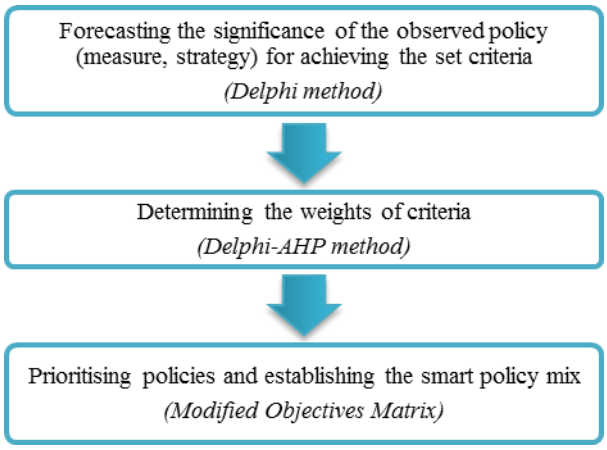

Fig. 2 Three-phase Integrated Technology Forecasting Model for prioritising the policy mix

PHASE 1

Following the steps of the Delphi method, the **first** step of this phase is to choose the moderators and coordinators of the research, while the **second** refers to the choice of the experts for the panel. The experts chosen for the panel possess the knowledge, experience and intuition in the relevant domains of government, industry and high education and research policies and measures, as postulated in the Triple Helix model [23, 24]. They are chosen based also on their expertise and insights related to both the macro and micro perspectives and influences that government policies and measures have on all the actors in the Innovation and Entrepreneurship Ecosystem. The panel is expected to be able to assess the different strategies comprising policies and measures according to specified criteria.

The **third** step is the definition of the Delphi questionnaire. In the model developed for the specific purposes of our research, it firstly refers to the specification of the criteria relevant for the observed problem.

The criteria relate to the appropriate performance objectives to be met, and the assessment of different policy measures is performed against these criteria during the Delphi procedure. Criteria were set based on the research and analysis of:

- the state of the entrepreneurial environment in the Republic of Serbia and the needs of its improvement as marked in different publications and documents (reports on countie's performance obtained based on composite measures, such as EIS, GII, GCI, Doing Business etc., documents and strategies published by the Government, Statistical Office Yearbooks and similar documents);
- the relevant domains of Global innovation and Entrepreneurship indices, i.e Global Innovation Index – The European Innovation Scoreboard (EIS), The Global Innovation Index (GII), The World Bank's Doing Business, Global Competitiveness Index (GCI), Babson Entrepreneurship Ecosystem Project, and The OECD framework;
- the frameworks set in the Smart Specialization Strategy [25, 26];
- the strategic goals and priorities of the Government of the Republic of Serbia [27, 28, 29].

The results of the research are presented following the set of criteria relevant for the Serbian IEE development. They represent an open list and are subject to change. These criteria are used in the process of assessment and evaluation, performed by the panel, of the expected effects of different policies, strategies, and measures (in future text refers to as „policy measures") that can be used for developing the IEE:

1. Fulfilling Sustainable Development Goals (SDG);
2. Contribution to employability (EMP);
3. Contribution to improvement of the entrepreneurial climate in the risk-accepting society (CLIM);
4. Contribution to networking, cooperation, and partnership (NETW);
5. Contribution to the development of higher education of creative and entrepreneurial human capital (EDUC);
6. Contribution to development and application of the ICT (ICT);
7. Contribution to strengthening links between science and practice (SP);
8. Contribution to rapid growth and achievement of short-term results (GROW);
9. Compliance with the relevant EU documents (EUSTR);
10. Compliance with the relevant Government Strategies and Plans of the Republic of Serbia (SRBSTR).

After identifying the relevant set of criteria, the scale for assessing the significance of the individual policy measures and instruments is defined. Policy instruments could be grouped in several ways [4, pp. 152]: target groups, refer to policy instruments specially targeting specific types of firms, sectors and technology, supply-side and demand-side policy instruments, desired outcomes, and mode of intervention. Mode of intervention is looking at the following categories of instruments:

- Financial Direct (e.g. grants, credits, loans, subsidies, innovation vouchers);
- Financial Indirect (e.g. fiscal instruments, tax incentives for R & D and Innovations, tax incentives applicable to different tax arrangements including corporate and personal income taxes to encourage private investments in R&D, exploitation of Intellectual Property assets, attract business angels and leverage early stage financing, etc.);
- Law and regulations comprise legal instruments in passing new laws and regulations in different domains (e.g. Intellectual Property rights, Business Bankrupcy procedures, Employment laws and regulations, etc);
- Non-financial instruments include different business innovation services, information campaigns to promote business innovation and entrepreneurship, organization of events, etc.

Individual policy measures are evaluated with a score of 1 - 5 (Likert scale). The defined scale for each criterion is presented in Table 3.

Table 3 Likert scale for assessing the significance of the defined criteria

Score→ Criteria↓	1	2	3	4	5
SDG	Contribution to achieving one SDG: economic, social, or ecological	Moderate contribution to achieving one SDG: economic, social, or ecological	Significant contribution to achieving one SDG: economic, social, or ecological	Moderate contribution to achieving all three SDG: economic, social, or ecological	Significant contribution to achieving all three SDG: economic, social, or ecological
EMP	No influence	Dominant indirect long-term influence	Moderate direct influence, low indirect influence	Moderate direct influence, moderate indirect influence	Dominant significant direct short-term influence
CLIM	No influence	Low long-term influence	Moderate long-term influence	Significant long term-influence with certain short-term results	Significant long-term and short-term influence
NETW	No influence	Low influence	Moderate influence	Significant influence	Direct influence, short-term results
EDUC	No influence	Low influence	Moderate influence	Significant influence	Direct influence, short-term results
ICT	No influence	Low influence	Moderate influence	Significant influence	Direct influence, short-term results
SP	No influence	Low influence	Moderate influence	Significant influence	Direct influence, short-term results
GROW	No influence	Low influence	Moderate influence	Significant influence	Direct influence, short-term results
EUSTR	No compliance	Low compliance, long-term results	Moderate compliance, long-term results	Significant compliance, long-term and short-term results	Significant compliance, short-term results
SRBSTR	No compliance	Low compliance	Moderate compliance	Significant compliance	Complete compliance

The questionnaire being now complete, the first round of the Delphi is carried out. The experts chosen to be the panel individually receive the questionnaire with instructions to present their opinion by assessing each measure in relation to the given set of criteria. The question in the questionnaire for each proposed policy measure would be as follows: "Using the 1-5 scale presented in Table 3, please assess the extent to which the policy measure contributes to achieving the set criteria". Number of questions would be equal to the number of policy measures. For example, if four policy measures are proposed, the questionnaire would have the form presented in Table 4. This questionnaire would be filled in by each expert of the panel.

Table 4 Example of the questionnaire used in the Delphi method

Using the Likert scale presented in Table 4, please assess the extent to which the policy measure contributes to achieving the set criteria.

		SDG	EMP	CLIM	NETW	EDUC	ICT	SP	GROW	EUSTR	SRBSTR
Q1	**Financial Direct**										
Q2	**Financial Indirect**										
Q3	**Law and Regulations**										
Q4	**Non-Financial**										

After each round, moderators summarize all answers and provide a report to the panelists. If a set level of stability is not reached, experts then have an opportunity to revise their answers in the next round. The process continues until experts' consensus in answers for each question is met. Following this procedure, policy measure scores are obtained for all policy measures, on the scale 1-5 (Table 5). These scores are later used in the Modified Objectives Matrix for calculating the total policy measure scores.

Table 5 Policy measure scores obtained using the Delphi method

Criteria	SDG	EMP	CLIM	NETW	EDUC	ICT	SP	GROW	EUSTR	SRBSTR
Policy Measure	**Policy measure scores**									

Financial Direct	S_{1}-SDG	S_{1}-EMP	S_{1}- CLIM	S_{1}-NETW	S_{1}-EDUC	S_{1}-ICT	S_{1}-SP	S_{1}-GROW	S_{1}-EUSTR	S_{1}-SRBSTR
Financial Indirect	S_{2}-SDG	S_{2}-EMP	S_{2}- CLIM	S_{2}- NETW	S_{2}- EDUC	S_{2}- ICT	S_{2}- SP	S_{2}- GROW	S_{2}- EUSTR	S_{2}- SRBSTR
Law and Regulations	S_{3}-SDG	S_{3}-EMP	S_{3}- CLIM	S_{3}- NETW	S_{3}- EDUC	S_{3}- ICT	S_{3}- SP	S_{3}- GROW	S_{3}- EUSTR	S_{3}- SRBSTR
Non-Financial	S_{4}-SDG	S_{4}-EMP	S_{4}- CLIM	S_{4}- NETW	S_{4}- EDUC	S_{4}- ICT	S_{4}- SP	S_{4}- GROW	S_{4}- EUSTR	S_{4}- SRBSTR

PHASE 2

In this phase, the Delphi-AHP method is used for determining weights for all defined criteria. Experts assess the significance of the criteria by filling in the pairwise comparison matrix presented in Table 6.

Table 6 Pairwise comparison matrix for the defined criteria

	SDG	**EMP**	**CLIM**	**NETW**	**EDUC**	**ICT**	**SP**	**GROW**	**EUSTR**	**SRBSTR**
SDG	1									
EMP		1								
CLIMATE			1							
NETW				1						
EDUC					1					
ICT						1				
SP							1			
GROW								1		
EUSTR									1	
SRBSTR										1

Each expert anonymously and individually fills in the comparison matrix by providing scores using the Saaty's pair-wise comparison nine-point scale (Table 2). If e.g. criteria SDG has one of the above non-zero numbers assigned to it when compared with criteria EMP, then EMP has the reciprocal value when compared with SDG. Then, the moderators calculate the mean comparison matrix by finding the arithmetic mean of all experts' answers. Additionally, for each cell in the matrix, standard deviation is calculated. For those cells for which the set level of stability is not met, experts revise their answers in the second round. After reaching consensus, weights of criteria are obtained by applying the AHP method procedure. In the end, sum of the obtained weights (Table 7) would be equal to 100. These weights are used in the Modified Objectives Matrix.

Table 7 Weights of indicators obtained by using Delphi-AHP method

Criteria	**SDG**	**EMP**	**CLIM**	**NETW**	**EDUC**	**ICT**	**SP**	**GROW**	**EUSTR**	**SRBSTR**	**Σ**
Weight	W_{SDG}	W_{EMP}	W_{CLIM}	W_{NETW}	W_{EDUC}	W_{ICT}	W_{SP}	W_{GROW}	W_{EUSTR}	**W_{SRBSTR}**	**100**

PHASE 3

This phase implies the prioritization of the policy mix by applying the Modified Objectives Matrix. An example of the matrix for 10 defined criteria and 4 policy measures is presented in Table 8. Elements of the matrix are obtained in the phases 1 and 2. Total policy measures scores are calculated by applying formula 1 (Section 2), and the policy measures are ranked accordingly.

Table 8 Modified Objectives Matrix example for 4 policy measures and 10 criteria

Criteria	SDG	EMP	CLIM	NETW	EDUC	ICT	SP	GROW	EUSTR	SRBSTR	**Total score**	**Rank**
Weight	W_{SDG}	W_{EMP}	W_{CLIM}	W_{NETW}	W_{EDUC}	W_{ICT}	W_{SP}	W_{GROW}	W_{EUSTR}	W_{SRBSTR}		
Policy Measure	**Policy measure scores**											
Financial Direct	S_{1}-SDG	S_{1}-EMP	S_{1}- CLIM	S_{1}-NETW	S_{1}-EDUC	S_{1}-ICT	S_{1}-SP	S_{1}-GROW	S_{1}-EUSTR	S_{1}-SRBSTR	**TS_1**	**R_1**
Financial Indirect	S_{2}-SDG	S_{2}-EMP	S_{2}- CLIM	S_{2}- NETW	S_{2}- EDUC	S_{2}- ICT	S_{2}-SP	S_{2}- GROW	S_{2}- EUSTR	S_{2}- SRBSTR	**TS_2**	**R_2**
Law and Regulations	S_{3}-SDG	S_{3}-EMP	S_{3}- CLIM	S_{3}- NETW	S_{3}- EDUC	S_{3}- ICT	S_{3}-SP	S_{3}- GROW	S_{3}- EUSTR	S_{3}- SRBSTR	**TS_3**	**R_3**
Non-Financial	S_{4}-SDG	S_{4}-EMP	S_{4}- CLIM	S_{4}- NETW	S_{4}- EDUC	S_{4}- ICT	S_{4}-SP	S_{4}- GROW	S_{4}- EUSTR	S_{4}- SRBSTR	**TS_4**	**R_4**

The ranked policy measures present the smart policy mix which identifies the sequence of implementation of the measures according to their contribution to the fulfilment of the defined criteria.

4. CONCLUSION AND FUTURE WORK

Competitive Innovation and Entrepreneurship Ecosystem (IEE) is recognized as the crucial force enhancing development of a country. Governments are involved in boosting IEE competitive performance by developing smart policy with a balance of measures and instruments.

In this paper we generated an Integrated Technology Forecasting Model (ITFM) combining technology forecasting methods for the purpose of prioritising and developing a Smart Policy Mix as support to decision makers The main strength of the ITFM is viewed in its capacity to reflect the specific character of a particular IEE by defining the set of criteria (goals) for each particular IEE, and also by determining criteria weights and policy measure scores according to each criterion defined for the observed IEE.

The first phase of the model refers to determining the significance of the observed policy for achieving the set criteria using the Delphi method. In the second phase the panel of experts determines the weights of criteria using the Delphi-AHP method. In the third phase, Modified Objectives Matrix is used for prioritising policies and establishing the smart policy mix. Final outcome of the suggested model, when used in practice, is the set of policy measures ranked in such an order that reflects the sequence of their implementation based on their contribution and significance to the achievement of the set goals (criteria).

The field of interactions between policy measures and instruments is still not investigated enough and one of the paths of future research of the Smart Policy mix would involve the deeper analysis of interactions between the policy measures and instruments which have high impact on the effectiveness of the policy instrument and the policy mix. The specific country/regional IEE circumstances will affect the Smart Policy mix and in this way countries' smart policies will differ.

5. REFERENCES

[1] Isenberg, D. (2011). The entrepreneurship ecosystem strategy as a new paradigm for economic policy: Principles for cultivating entrepreneurship. *Presentation at the Institute of International and European Affairs.*

[2] Hao, J. X., Van Ark, B., & Ozyldirim, A. (2017). Signposts of Innovation: A Review of Innovation Metrics. *Economics Working Papers Series, The Conference Board*.

[3] Levi Jaksic, M., Rakicevic, J., & Jasko, O. (2018). Competitive innovation and entrepreneurship ecosystem framework, *Proceedings of the XVI International Symposium SymOrg 2018 - Doing Business in the Digital Age: Challenges, Approaches and Solutions*, University of Belgrade, Faculty of Organizational Sciences, Zlatibor, 7-10 June.

[4] OECD. (2014). *Science, Technology and Industry Outlook 2014*. OECD Publishing.

[5] OECD. (2016). *Science, Technology and Industry Outlook 2016*. OECD Publishing.

[6] Felix, G. H., & Riggs, J. L. (1983). Productivity measurement by objectives. *National Productivity Review*, *2*(4), 386-393.

[7] Dalkey, N., & Helmer, O. (1963). An experimental application of the Delphi method to the use of experts. *Management science*, *9*(3), 458-467.

[8] Linstone, H. A., & Turoff, M. (2002). *The Delphi Method: Techniques and Applications*, Addison-Wesley, London.

[9] Novakowski, N., & Wellar, B. (2008). Using the Delphi technique in normative planning research: methodological design considerations. *Environment and Planning A*, *40*(6), 1485-1500.

[10] Levi Jaksic, M., Marinkovic, S., & Petkovic, J. (2015). *Management of Innovation and Technological Development*, 3rd ed, Faculty of Organizational Sciences, Belgrade. (In Serbian)

[11] Di Zio, S., Rosas, J. D. C., & Lamelza, L. (2017). Real Time Spatial Delphi: Fast convergence of experts' opinions on the territory. *Technological Forecasting and Social Change*, 115, 143-154.

[12] Ishikawa, A., Amagasa, M., Shiga, T., Tomizawa, G., Tatsuta, R., & Mieno, H. (1993). The max-min Delphi method and fuzzy Delphi method via fuzzy integration. *Fuzzy sets and systems*, *55*(3), 241-253.

[13] Mozuni, M., & Jonas, W. (2018). An Introduction to the Morphological Delphi Method for Design: A Tool for Future-Oriented Design Research. *She Ji: The Journal of Design, Economics, and Innovation*, *3*(4), 303-318.

[14] Filyushkina, A., Strange, N., Löf, M., Ezebilo, E. E., & Boman, M. (2018). Applying the Delphi method to assess impacts of forest management on biodiversity and habitat preservation. *Forest Ecology and Management*, *409*, 179-189.

[15] Okoli, C., & Pawlowski, S. D. (2004). The Delphi method as a research tool: an example, design considerations and applications. *Information & management*, *42*(1), 15-29.

[16] Saaty, T. L. (1977). A scaling method for priorities in hierarchical structures. *Journal of Mathematical Psychology*, *15*, 234–281.

[17] Saaty, T. L. (1980). *The Analytic Hierarchy Process: Planning, Priority Setting, Resource Allocation (Decision Making Series)*. McGraw-Hill.

[18] Saaty, T. L. (1990). How to make a decision: The analytic hierarchy process. *European Journal of Operational Research, 48,* 9–26.

[19] Saaty, T.L. (2013). Analytic Hierarchy Process. In: Gass, S.I., & Fu, M.C. (Eds) *Encyclopedia of Operations Research and Management Science*. Springer, Boston, MA.

[20] Saaty, T. L. (2008). Decision making with the analytic hierarchy process. *International journal of services sciences*, *1*(1), 83-98.

[21] Kim, M., Jang, Y.C., & Lee, S. (2013). Application of Delphi-AHP methods to select the priorities of WEEE for recycling in a waste management decision-making tool. *Journal of Environmental Management, 128* (2013), 941-948.

[22] Vidal, L. A., Marle, F., & Bocquet, J. C. (2011). Using a Delphi process and the Analytic Hierarchy Process (AHP) to evaluate the complexity of projects. *Expert Systems with Applications, 38* (5), 5388-5405.

[23] Etzkovic, H., & Leydesdorff, L. (1995). The Triple Helix---University-Industry-Government Relations: A Laboratory for Knowledge-Based Economic Development. *EASST Review 14*, 14-19.

[24] Levi Jaksic, M., Jovanovic, M., & Petkovic, J. (2015). Technology Entrepreneurship in the Changing Business Environment - a Triple Helix Performance Model. *Amfiteatru Economic 17(38),* 422-440.

[25] European Commission. (2012). *Guide to Research and Innovation Strategies for Smart Specialisations (RIS 3)*. Available at: http://ec.europa.eu/regional_policy/sources/docgener/presenta/smart_specialisation/smart_ris3_2012.pdf

[26] European Commission. (2014). *National/Regional Innovation Strategies For Smart Specialisation (RIS3)*. Available at: http://ec.europa.eu/regional_policy/sources/docgener/informat/2014/smart_specialisation_en.pdf

[27] Ministry of Education, Science and Technological Development – MESTD (2016). *Strategy for scientific and technological development of the republic of Serbia for the period 2016-2020 – "Research for innovation"*, Government of the Republic of Serbia. Retrieved from: http://www.mpn.gov.rs/wp-content/uploads/2015/08/STRATEGIJA-naucnog-i-tehnoloskog-razvoja-RS-za-period-2016-2020..pdf

[28] Ministry of Economy - ME. (2016b). *Strategy for supporting the development of small and medium-sized enterprises, entrepreneurship and competitiveness for the period from 2015 to 2020.* Government of Republic of Serbia. Retrieved from: http://www.privreda.gov.rs/wp-content/uploads/2015/06/Strategija-mala-i-srednja-preduzeca.pdf

[29] Ministry of Sustainable Development and Tourism – MSTD (2008). *National Strategy of Sustainable Development,* Government of the Republic of Serbia. Retrieved from: http://www.zurbnis.rs/zakoni/Nacionalna%20strategija%20odrzivog%20razvoja.pdf

AUTOPOIESIS AND THE ANTICIPATION OF SECURITY

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Abstract. *The article mainly refers to the usage of poiesis in the field of security as a robust way of building foresight. One can choose to use autopoiesis in order to better understand statal entities. This premise brings some important conclusions with respect to the anticipation of security that could be used in planning and building prosperity. The article concludes that the modelling of the future in the field of security could have promising results by using autopoiesis.*

Keywords: *poiesis, correlations, foresight, anticiption*
PACS numbers: 89.90 +n, 89.70 +c, 89.65 Gh

1. INTRODUCTION

The international iconic events of the last ten years have demonstrated us that the analysts and the practitioners of security failed to anticipate how international order will change. From this point of view, there is a prominent necessity of cultivating the prospective spirit into security studies. As the time demonstrated, security cannot only be a consequence of some reactive attitudes; on the contrary, it must follow an anticipatory direction [1-2]. Working with possible futures offers a real challenge, helping us to identify paths for avoiding negative possibilities and fulfilling positive agreements.

But in international security practice, at international level, powerful states refined themselves a strong know-how over the anticipation and foresight with the purpose of targeting and avoiding the negative elements of the unpredictable. The existence into a world of networks and reciprocal influences in which your own actions or other actors' actions can affects your own security, pushed some stake-holders to create many work instruments, models and mechanisms for predicting security. Organizations as *National Intelligence Council, Rand Corporation, Club of Rome, United Nations or European Union* developed multiple scenarios trying to get public attention and influence the political leadership over the decisions related to the security agenda [3-5]. But eventhough those think-thanks had such decisions, the institutional agenda of security seldom changed over the impact of the scentific research. Eventhough the technological evolution and the cultivation of a well refined know-how, the national security actors and stake-holders did not succed to better prepare for the unknown, failing to anticipate big events like Brexit, Ucrainian Crise or Syrian Dilemma of War.

2. ON AUTOPOIESIS

In our view, the modelling of the future in the field of security studies started on an incomplete assumption of security that somehow did not achieved the wanted result. This happened mainly because of the lack of systemic view over the statal entities. From our point of view, a powerfull tool of anticipation could have as its starting point the systemic perspective of poiesis.

Etimologically, p*oiesis* comes from Ancient Greek and is translated through *to do, as* Maturana & Varela argue [6]. At its first beginnings, the term defined the process of becoming, transforming and perpetuating systems and nature. As expected, Aristotle and Plato studied the meaning of poiesis in conjunction with praxis or physis, as Parry observed [7-8]. The term was seen as the link between matter and time, that strengthen the relations between the whole and the subsystems, as Schatten emphasised [9]. Poiesis as seen by Aristotle, tries to capture the passage from something hidden towards the act of creation. Thus, poiesis is shaping the relation between life and death. Dreyfuss and Kelly define poiesis as the ability of discerning and choosing one of the meanings already available [10].

Maturana and Varela tried to extend the meaning of poiesis, as seen in the '80s. The two authors identified two main forms of poiesis (1) autopoiesis and (2) alopoiesis. They started from the premise that autopoiesis defines a system capable of reproducing and self-sustaining itsealf [6]. An autopoietic system contrasts with an alopoietic one. The last system produces certain elements different from itself [11]. Therefore, the autopoietic systems are (1) autonomous, (2) self-referential and (3) self-generated. This functional perspective describes the autopoietic system as an opened system [6]. Therefore, the system has a certain *structural coupling* – according to which all systems have plastic unities. When the system changes, a symbiosis between structural association and structural change appears, as Schatten argues [9]. In 1981, Maturana described the autopoietic system as a network of production processes (mainly targetting transformation and destruction) of the components that are divided into the following two categories [11]:

(1) Components that continuously regenerate and realize the process that produced them, and

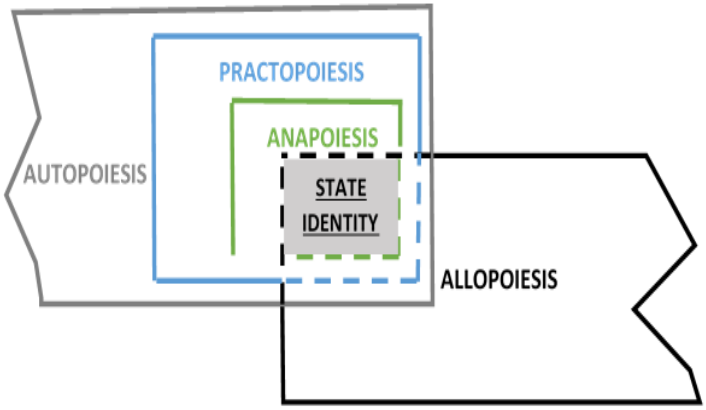
(2) Components that are a concrete unity. Niklas Luhman applied these thing to social systems. N. Luhman built a new theory of systems, based on the relation between *identity* and *difference*. In N. Luhmann's view, autopoiesis defines both the internal operations of a self-referential system, as well as the results of these processes. He considers that autopoietic systems are autonomous, individual, are limited by the operations of the system in the autoreproduction process and have no input or output.

To this tought, the operations made by autopoietic systems compensate the perturbations on the external environment, but the mechanisms used in this scope remains hidden to the observer. One of the forms of manifestation of autopoietic theory is represented by *practopoiesis* (meaning the system that creates actions). The central concept of practopoiesis is the *plasticity* of the system that develops on three properties

(functions) of the system [12]: (1) *monitor and act, (2) poietic hierarchy* and (3) e*co-feedback.* Those three elements are molded through the practopoietic traverse (traverses) that adjusts and adapt the system's components in case of emergency [12]. The traverse links together the system's specificity levels. Consequently, those levels give to the system the capacity to reconstruct the knowledge assimilated at a certain moment in the past T and use it in the present depending on the emergency of the situation creating a new approach named *anapoiesis*. From our point, this approach is considered here to be a necessary feature for the correct interpretation of state and security, due to the direct link between these concepts and the human being.

As upper described, the poiesis succeeds to anticipate the change in the systems from a certain *state A* to a new *state B*, determined by the performance of the anapoietic characteristic. Therefore, we think that poiesis can be used to anticipate the security of an entity, staring form the premise that *a country could be defined as an autopoietic system with alopoietic sybsystems*. The auto and alo symbiosis gains momentum by a *practopoietic approach*. This conducts the construction of security through proactivity, being a solution of integrating all subsystems by a common action and by reinterpretating knowledge, as stated by the anapoietic feature and described in the figure one.

Fig. 1 Poiesis and its influence over the state identity.



The statal autopoietic interpretation leads to the identification of the following elements with respect to the anticipation of security:

1. To ensure the security of an autopoietic system, its *identity must* be conserved, based on a *dynamic ballance* between a series of internal and external conditions.
2. A resilient approach must be shaped in order to complete the foresight products.
3. In order to better anticipate, *monitor and act function* has to be robust and bassed on a solid anapoietic caracteristic of the statal entity.
4. Monitor and act must anticipate both the possible conditions of the entity and its identity, but also the external influencing factors. Therefore, an intersection must be drawn between how it is posible to be (possible scenarios) and how do we want to be (wanted scenarios).
5. The eco feed-back must bind and link the monitor and act with the reality. Therefore, the posibble scenarios and the wanted scenarios will intersect the real scenario.
6. A hierarchy of risks and threats must be shaped in order to improve the monitor and act function. The *risk prediction and ranking* represents a practical way of assuring succes to the anticipatory mechanism. Particularly, in the new security studies approaches, the risk became a more suitable solution for describing the post-national era and its transnational threats [13]. The state of art shows that authors rather have been preoccupied of how emergence and resilience occurs in security and the impact of the unknown over the entities than on anticipating risks [14].Using risk in security studies is becoming a new shift in security planning that provides a base for implementing future-related-decisions [13].
7. A multitude of influencing factors affects the future and the succes of prediction. This is why a multi-domain approach must be shaped.
8. A We-Wi approach should be build (Weak Singnal discovery and Wild Card identification). The security foresight has a peculiarity: it has to obtain performant research tools while relating to the will of man and operating in uncertainty. Therefore, an encountered difficulty is dealing with the impossibility of maximum accuracy (meaning there is no perfect model). From our point of view, a solution for this difficulty might be using models and instruments that could take into account the birth of the discreet events and the weak signals interpretation (WI-WE Approach) and the cultivation of the antifragility, as N. Taleb argues [15-16]. Although the future studies methodologies are highly performant, there is a probability that the security to be influenced by the appearance of some unpredictable events [15-16]. The black swans can have major effects on reorganizing some domains and over international trends.
9. A foresight maturity model must be implemented. The monitor and act might fail to anticipate correctly future tendencies and trends; in future studies there is an actually debate regarding the fact that foresight products are validated only by time passing [17]. That means that one has no possibility of knowing what the real rate of success of the mechanism is. In order to manage this risk's consequences, a maturity scale must be shaped in the eco feed back function. This maturity scale has to prevent false assumption and wrong fundamental products. Nowadays, a maturity scale

represents one of the most appreciated and complete way of making anticipation stronger

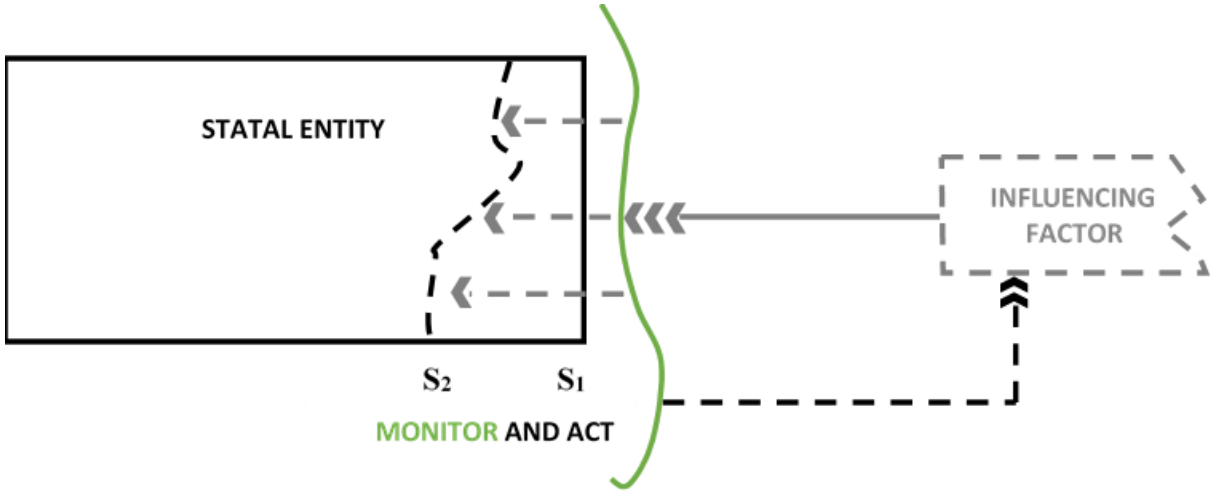
10. *Opportunities must be anticipated, identified and fructificated* to maintain the state identity. The poiesis brings a new theme in studying security – the fructification of opportunities. The idea of fructification of the security opportunities and their transformation is a topic of interest which could be managed to make some planning security directives. In this approach, we could use opportunities in order to give practical paths for increasing security.

3. Conclusions

The main objective of our research has been to identify certain elements of content for using the idea of poiesis in anticipating security of a statal entity. We started from the assumption that only an approach stemming from the self-reflected image of security from reality can prove that our intention is successful. Thus, in this article we have offered the frame in order to build such an approach starting from applying poiesis to security with the purpose of identifying moments of creation, of evolution, of development, of change and balance that a statal entity develop. We found out that the state is a *sui-generis* system of an (auto)poietic type that has *alopoietic* subsystems. The most usefull approach of the autopoietic statal system is the *practopoietic* one (as the statl entity constructs its development and security on the basis of its actions and its effects). From the security point of view, the performance of the anticipation and foresight can be obtained by developing the *anapoietical feature* (as the subsystems of a country reinterpret its data). The analysis of the state as an autopoietic system has resulted in at ten *food-for-thought-conclusions* and proposals that are crucially important for obtaining a well-balanced model of foresight.

Those conclusions are shaping the relation that forms between the statal entities and the influencing factors, as seen in figure no 2.

Fig. 2 Poiesis and the monitor and act function



We believe that using the aforementioned elements represents the *sine-quo-non*-starting point of the systematic understanding of security and foresight, beginning with the organizational metaphors as Morgan sustains [18]. By applying the concept of *poiesis*, we can shape the development and evolution of the statal entities for generating the possible scenarios that could create long-term social development.

6. REFERENCES

[1] Fierke, K. M. (2007). *From Camps to Conversations in Critical Security Studies.* Cambridge: Polity Press.

[2]Kaldor, M., & Solana, J. (2010). *Time for the Human Appr oach*. Retrieved from http://www.opendemocracy.net/od-russia/mary-kaldor-javierjaviersolana/

[3] National Intelligence Council, Global Trends – the Paradox of Progress, 2017, www.dni.gov/nic/globaltrends

[4] European Commision, White Paper on the future of Europe, 2017, https://ec.europa.eu/commission/sites/beta-political/files/white_paper_on_the_future_of_europe_en.pdf

[5] Norman Crolee Dalkey, Predicting the Future, Rand Corporation, 1968, https://www.rand.org/pubs/papers/P3948.html

[6] Maturana, H., & Varela, F. (1980). *Autopoiesis and Cognition: The Realization of the Living.* Boston: D. Reidel Publishing Company.

[7] Parry, R. (2014). Episteme and Techne. *The Stanford Encyclopedia of Philosophy*.

[8] Plato. (2008). *The Symposium, trans. by M. C. Howatson* . Cambridge : Frisbee C. C. Sheffield, Cambridge University Press.

[9] Schatten, M. (2008). Autopoietic Theory as a Framework for Biometrics. *Interdisciplinary Description of Complex Systems*, 74-79.

[10] Dreyfus, H., & Dorrance Kelly, S. (2011). *All Things Shining. Reading the Western Classics to Find Meaning in a Secular Age.* New York: Free Press.

[11] Maturana, H. (1981). Autopoiesis. În Z. M. (Ed), *Autopoiesis: a Theory of Living Organization.* (pg. 21-33). New York: Elsevier-North Holland.

[12] Nikolić, D. (2018, January). *http://www.danko-nikolic.com/*

[13] Aradau, Claudia, Luis Loboa Guerrero, and Rens van Munster. (2008), Special Issue on Security, Technologies of Risk, and the Political. Security Dialogue 39 (2-3): 147-357.

[14] Karen Lund Petersen, Corporate risks and National Security Redefined, Routledge, 2012

[15] Taleb, N. (2010). *The Black Swan: The Impact of the Highly Improbable.* Curtea Veche.

[16] Taeb, N. (2014). *Antifragile: Things That Gain from Disorder*. Curtea Veche.

[17] Grim, T. (2009). Foresight Maturity Model: Achieving Best Practicies in Foresight Filed . *Journal of Futures Studies*, 69-79 pp.

[18] Morgan, G. (1986). *Images of Organization.* California: Sage.

FORESIGHT (...) IN THE FIELD OF VOCABULARY

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Abstract. *The author tries, based on the analytical observation made in a number of previous papers, to define the possibility of making predictions in the field of language (more precisely, in the field of vocabulary/lexicon), that is, the possibility for various linguistic phenomena that are currently occurring to analogically and continuously manifest themselves, with higher or lower intensity, in the future, too. Therefore, he reiterates a set of remarks – already hinted at in other papers (see also the final bibliography) regarding the penetration of Anglicisms into Romanian (mainly, but not only, lexical units proper), which are increasingly circulated in the linguistic expression exhibited by the Romanian media, and also by common speech. The succinct analysis of the state of the Romanian language, thus affected by the Anglo-American neological inflow, which is quite consistently illustrated in the present paper, is underpinned by a rather sketchy typology. It can be noted that many of the source texts considered, coming from various Romanian publications, were (confessedly or not) translated from English. This phenomenon, which is far from being new in the language, is substantially materialized by the lexical mechanism of loan translation or calque, which offers a maximum degree of linguistic interest – but also of broader, cultural and even ideological interest. Many of the barbarisms recognizable in the speech used more recently (expressions that are blatantly deviant from the current standards) penetrate the Romanian vocabulary because of the negligent, crude, uninformed and/or simplistic type of translation that is rather common in the Romanian media as well as the public space. The papers provides quantitatively and typologically adequate illustrations of the calque procedures that often strongly affect the Romanian language typical of the press (either written or audio-visual), and also the language used predominantly by broad categories of young people – whose type of expression is indebted to more or less recent Anglo-American lexical-semantic, as well as idiomatic and conversational models and patterns. In addition to the semantic implications of calque, the grammatical and stylistic ones were emphasized. It can be noticed, therefore, that the linguistic influences of borrowing can abundantly and insidiously exceed the confines of vocabulary/lexicon, also affecting other compartments of the language: syntax, morphology, style, etc. Conclusions can only be tentative: the more recent borrowed terms can (and should, logically and licitly) remain in our language if they are short, informative, useful (essentially in the sense of being specialized), and also if they are trendy (or even voguish), although it can be noted there are plenty of loans that may eventually form the basis for a new 'langue de bois'. One has to be aware that one must not have too high expectations with respect to foresight and prediction in the field of linguistics, nor is it advisable to be pessimistic or accept the declarative demagogy of laxity ("never mind, this alternative work as well as any other!"), which could lead, if the worst comes to the worst, to calamity both in language, and the cultural and human environment.*

Key words. *vocabulary, English loans in Romanian, barbarism, calque, translation, prediction*

1. INTRODUCTION

As far as making predictions about the lexicon or vocabulary of a natural language (in our case, the Romanian language) is concerned, it must be said that the concept of *foresight*, in all its complexity and depth, seems extremely difficult to apply. Humanistic sciences (including linguistics) are known to have a rather descriptive, analytical and, marginally, normative nature. Their abstractions are rather difficult to subject to the rigorous character of mathematics-like experimental approaches, or to the strict requirements of generalizing statistics. Incidentally, social sciences themselves are by no means easy to place under the constraints of numerical regulation with a view to allowing very accurate and rigorous predictions, forecasting, foresight, etc. Likewise, the very concept of *foresight* has an enormously vast scope and complexity for the humanly limited nature of observation in the philological domain. Therefore, linguists studying the trends of natural language (and specifically the tendencies noticeable in vocabulary) must be aware that the observations made by their fellow-philologists at present may be turned to good account in the future: for example, their data mining is not, and should not remain, a simple "butterfly collection", while the concrete character of concrete, on-site observation can only be profitable for all abstraction or theorization necessary for subsequent generalizations – and why not? – for prediction itself. In the area of language evolution, we believe that we can be roughly aware of what may await us in the future

On the other hand, it is more than obvious that the natural language that absolutely predominates the overall process of lexical borrowing in contemporary Romanian (very much as other European languages) is English. Yet, unlike the (European) languages that evince internationalization tendencies and vain attempts, such as the Romance languages (especially French), which use Greek and Latin lexical roots (which are "dead" in point of etymology and derivation), English tends to be a "living" language of expressive and metaphorical/figurative character, apt to supply (mainly technical) coinages that are "compositional" or "transparent" rather than opaque, e.g. Eng. *soft(ware)*, which, even if merely compared to its counterpart, *hard(ware)*, is still expressive, unlike French *logiciel*, an overtly abstract term. (On the other hand, it will be useful to compare French *puce*

and English *chip*, which has been taken over as such by Romanian vocabulary). Moreover, it is arguably hard to place Japanese, Chinese or Arabic in the same category… Maybe the future will solve – be it partly – this dilemma? Through the examples below, we have sought confirmation of older phenomena and tendencies, which are continuing in contemporary Romanian (especially in the form of recently acquired Anglicisms), i.e. various types of resettlement and reformulation.

It can be noticed how, along the axis of time, lexical roots and word formation mechanisms were borrowed by most European languages (including Romanian, which is the specific topic of the present paper), and also how quite numerous former neologisms have disappeared; see such older Anglicisms, which are now naturally outdated and consequently disused, as *sport(s)man*, *cottage*, *high-life*, *boston*, *cakewalk*, etc.; "Utopie a fost primul *railway* dintre Stockton şi Darlington, în septembrie 1825" (Cezar Petrescu, *Aurul negru*); "interesele unei clase pozitive, clasa pozitivă a proprietăţii teritoriale *tory conservativ*, clasa negustorilor sau industriaşilor *wygs*" (from an article authored by Eminescu), etc. Today, few speakers would consider the collocative phrase "*miting* aerian" as correct or appropriate.

Moreover, Romanian is by no means the only European language that has massively borrowed, and is still currently borrowing, terms of Anglo-American origin. A language that is commonly considered conservative in terms of lexical borrowing, such as French, is also subject to this significant and rather consistent process of lexical renewal, e.g. "*Touring Club* de France" (appearing in a 1937 French film), "**l'overdose",** "le consultíng", "le playlist", "un briefing", "un grand *challenge*" (TV5), "mon *challenge* a été de revendiquer…"; "j'ai toujours été *fan* de…"; *gamer* (as a noun), "un *hub* migratoire" (pronounced [œb]); "…se trouve en *pole position*" (pronounced [pol pozi'sjõ]); "l'e-*commerce*" (pronounced in the French fashion, i.e. [likɔ'mɛrs]); "je vous invite à *surfer* sur le site"; *streamer* (as a verb), "Vous pouvez *podcaster*…" (TV5), *auditionner* (the verb is based either on *audit* or *audition*); "*Bye-bye* à l'architecture ancienne!"; "Une assiette un peu *rock-and-roll*"; "douche *sensorielle*" (in a hotel); "le chiffre d'affaires des *big five*", etc.

2. TYPOLOGIES

A brief attempt to outline the systematic typology of such lexical loans (see also Manea 2010) can only begin by presenting the absolute evidence of the ampleness of the lexical pool under discussion: Anglicisms are legion in the general picture of today's Romanian media, and also (even more importantly) in everyday speech, e.g. "legea *offshore*"; "Interviu cu F. C. despre facebook şi *influenceri*"; "Comandă-ţi un *test drive*!"; "a-i da (cuiva) un *start* bun"; "*scorul* obţinut la alegeri" (see also the noun *scor* used colloquially, meaning "price"); "Sibiu Open" (a tennis tournament); "ONG-ul Magic Camp"; "Sahia Vintage" (the name of a new film collection – in the magazine *Film*, 2/2015); "Masterclass Enescu Experience 2017"; "Xtra Night Show"; "Cash Taxi" (TV shows); "Genul programului: ROMANCE"; "Genul programului: Talent Show"; "Asociaţia lirică" lua naştere în *1912*, cu câţiva membri în *board*"; "*home* cinema"; "Monica Niculescu, *Lucky Loser* la *Wuhan Open*" (net); "a da *block* (cuiva, pe net)"; "a face un *shortcut*" (fig.); "un *statement* (al unui reprezentant al *Departamentului de Stat* al S.U.A.)"; "concurs de *video mapping*"; "*aplicaţia* va fi ca un fel de *reminder*"; "Marilyn Monroe, Onassis sau *J.F.K.*" (pronounced in the English way); *Urimat* (*tdmk* – cf. *bancomat*, *tonomat*, etc.; so the suffixal formant *-mat* is becoming global); "Eurosting" (the hybrid-form trademark of a fire extinguisher); "Lupta împtriva *bullying-ului* în şcoli"; "este îndemnul *voice-over-ului*"; "am scris despre copilul de şase ani care a făcut 11 milioane de dolari din YouTube (…), din *review-urile* de jucării (…) Strategia de *social media* a părinţilor lui Ben a dat roade (…) În plus, asocierea acestuia cu diferite vedete (...) i-a adus şi mai mulţi *followeri*"; "astea sunt rezultatul *fake-news-ului*"; "*o clonă* maliţioasă *a aplicaţiei Uber* face victime pe *Android*"; "(n-am fost convocat) la niciun fel de *under*"; "Asta e o chestie *tricky* la gătit" (TVR1); "*Brandul* de confecţii *H&M*" (pronounced [haʃ-en(d)-ém]"; "Vrem să fie ceva *catchy*" (from an interview by a pop music and Internet celebrity, whose stage name was *Morris* – while his real name was *Marius*: the boy was born in Moldavia and brought up in Constanța; the nickname was given by his high-school French teacher), etc.

2. The group of the admittedly **unnecessary Anglicisms** (or else, "otiose" or "superfluous" loans) is quite outstanding – not only to the eye of the educated, knowledgeable philologist, e.g. "am pierdut *conexiunea* cu autoritățile"; "Winner – Pariuri sportive" (name of a betting shop); "Cum sa gatesti un cotlet de porc precum un *steak*… Urmeaza sa le gatesti precum un *T-bone* sau *Rib-Eye steak* veritabil"; "are un *vibe* specific"; "E mult mai *safe*" (car pilot); "ești *safe*" (young lady in Bucharest); "Generația Slim Fit"; "Cinci greșeli frecvente de *styling*" (from the net); "activități care au legătură cu *learningul*" (TV); "album cu *sticklere* care…" (TV); "hateri" (*Neptun* TV); "proprietar de *food-truck*" (ProTV); "*Foodtruck-urile*, un *trend* bine dezvoltat în străinătate…" (net); "Vino la *Street Food Festival*" (in Sibiu); "*show* cu foci (…) Pe teritoriul parcului te așteaptă un *poolbar*" (*Stil & Elan*, April 2018, p. 9); "Marius Pandel, *Managing Partner al Christian Tour*, cel mai mare *touroperator* din țară"; "*pleasure seekers*" (TVR advert), etc.

2.1. Among the above group of relatively recent English loans, **barbarisms** cut a distinct figure, in the sense that they still fail to fit into the lexical landscape of the receiving language, e.g "*Contouring*-ul ne-a cucerit iremediabil (…), aspectul sculptat al feței pe care îl oferă" (from the net); "a ține *timeline*-ul" (cf. Rom. "a *respecta* termenul (de finalizare / de dare în folosință / de livrare)" etc.); "Șase *blenduri* (de cafea)" (from the net); "șansa să te comporți ca un *abuzat*" (TVR1); "un *preview* al partidei" (TVR); "*floriști* olandezi" (TVR); "asta e o *tehnicalitate*" (said by M. Badea); "Primarul Timişoarei, dedicaţie muzicală pe Facebook pentru toţi *haterii*"; "studiile teritoriale rămân pentru mine *un aset* al…" (TVR); "Năsăud Shopping Center"; "Biblioteca din Alexandria avea cele mai bune texte *disponibile* ale autorilor greci, dar și opere *non-grecești*, cum ar fi Vechiul Testament ebraic" (from the net); "îi oferă acest *assist* perfect lui Marcello" (ProTV); "Un tată singur, *workaholic*" (*Film*, 2/2015, p. 75); "Românii au talent" – Ultimul *golden buzz* al sezonului 8"; "cea mai bună balerină din *UK*" (*Telejurnal*);

"pe tot cuprinsul *UK*-ului" (TVR); "*Demo* împotriva vaccinării" (TVR2); "Giganții *tech* ai lumii" (net), etc. Many of them are names of businesses, festivals, events, etc., e.g. "Craiova Super Rally"; "Sibiu Guitar Meeting" (Sept. 2018); "Spotlight 2018" (festival name); "Cabinet medical *PetCare*", "Patria Bank"; "Salamandra Productions"; "Dragon Star – Curier" ; "Sweet *Marie*" (confectioner's); *SpotVision*; *Zgros Grup*; "In Time Express *Logistik*"; "GEOTAX CAR", etc. Similarly, the domain of advertising teems with such terms, e.g. "Review 2017"; "Delicii *raw vegane*", "Beautiful *Estetic*", "Medical Tours Company", "AG The Design Experience"; "Peste 15.000 de *review*-uri ale produselor" (in a *JYSK* shop); "Noul *gliss*" (TV advert); "UN SMUTI" (i.e. *smoothie*) (TV); "Papaya Advertising", "Headvertising", "Car&Truck Wash"; "Descarcă aplicația (…) *Ready*?" (TV advert); "E timpul să ai tot ce vrei. *Ready*?" (TV advert); "Kinder Country… *I love my country!* (TV advert… said in Romanian!), etc.

2.2. However, it is the **press** that is the most obvious area of predilection for the penetration and circulation of such Anglo-American loans, e.g. "de la populism și inegalitate socială la viitorul *muncii*, inteligența artificială sau rolul de lider mondial", "Crezi ca demnitatea s-a nascut si va muri o data cu generatia *'baby-boomers-ilor'*?"; "Mitriță a fost un *one-man-show*"; "Morning Zu" (TV show); "Motor Vlog" (TV show); "*newsletters* promoționale" (TV); "Anglia are un *striker* extraordinar" (TV); "Irina Begu, *out* de la Australian Open (from the net); "*Sexy Sloane*: adversara Simonei Halep din finală a realizat *un pictorial incendiar* pentru Sports Illustrated…", "Moscova declanșează un *cyberatac* care dezactivează dronele NATO"; "contraatacul *letal* terminat cu golul…" (TVR); "*UPDATE* 16.30 – Halep și Towsend au intrat pe teren (…)"; "În plus, (…) ți-am pregătit 5 trucuri de machiaj pentru a le masca"; "Noua *relație a luat formă* după ce Ariana s-a despărțit de rapperul Mac Miller (...). Pete s-a despărțit și el recent la rândul său de *comedianta* Cazzie David"; "*Beauty chat* (frpm the net)' "Campania *selfie-urilor* făcute din profil a pornit sub *hashtagul* #SideProfileSelfie"; "Văzusem atât de multe campanii de *body positivity* în legătură cu orice (...), m-a făcut *să realizez* că dacă oamenii pot accepta lucrurile pe care le *urăsc* cel mai mult la ei înșiși, eu pot învăța *să îmi iubesc nasul*", a explicat Sanghani, …Campania are scopul de *a lărgi orizonturile* standardelor de frumusețe (...)"; "Și tema acestui articol, lumea *"post-truth". Prefer să păstrez varianta în engleză*, pentru că *"lumea de după adevăr"* sună chiar mai încifrat decât originalul"; "Nu poartă banderola de căpitan (de echipă), însă se poartă ca *unul*" (TV commentator); "o vizită de *lucru-flash* a Angelei Merkel" (cf. Rom. *vizită-fulger*); "*Meci epic*: Wozniacki, *pusă cu spatele la zid*! (…) La acest scor, Fett *a servit pentru câștigarea partidei* (...)"; "viitorul relației dintre Televiziunea Națională și producătorii emisiunii *Biziday*"; "reprezentanții ISU precizând că persoana decedată *era încarcerată*"; "Al doilea sportiv din Rusia a fost *testat pozitiv* la Jocurile Olimpice de iarnă (...) Cazul *vine ca o lovitură majoră* pentru speranțele unei națiuni de a-și recâștiga statutul olimpic (...) *Nadezhda Sergeeva*, componentă a echipajul feminin de bob, *a fost testată* pozitiv pe 18 februarie (...) Echipa medicală a echipei nu *a prescripționat* medicamentul sportivului" (from the net); "publicate de Alexandr Soljeniţn, în volumele (...) și O zi din viața lui *Ivan Denisovich*", etc.

2.3. Moreover, **translations** of all sorts amply circulate Anglicisms in today's Romanian, e.g. "Simona Halep *a trăit extrem de periculos* la debutul ei la French Open 2018!"; "solidaritate de gen și solidaritate de clasă…"; "roluri de gen" (TV); "*Master-chefii* din politică au hotărît azi să…" (I. Hristache); and, in actual fact, practically the whole of the mass media circulate words and phrases taken over from English, e.g. "(antrenorul) X are acest *background* extraordinar al campionatului spaniol" (sports commentator, World Cup, 2018); "acest *glamur* al regalității" (pronounced [glamúr]); "adevărate *thrilleruri*" (TV – let us observe that one can often hear the plural form *thrillere*); "Japonia (e) *în control*"; "părea că *totul merge pentru* o victorie a niponilor" (sports commentator, World Cup, 2018); "Dacă nu e *action-adventure* sau un amuzant film cu *super eroi*"; "Talk News" (on *b1 TV*), etc.

2.4. The Internet is another source of Anglo-American loans, e.g. "News – Economie – Internațional – Educație – *Tech* – *Life&Style* – Sănătate – Cultură – *Entertainment*" (this is what the *menu* of one site looks like); "*Disclaimer*: Rezultatele obținute nu sunt garantate…"; "Interviu cu A. M. Amintiri *funny* din cariera sa"; "modul fascinant în care sud coreenii au lansat *un update* defectuos pentru Galaxy S7"; "*Museum of Senses* din București"; "*Photo finish* pentru *play-off*"; "Politic show", etc.

2.5. The predilection for Anglo-American terms and expressions among **young people** is absolutely noteworthy, e.g. "este *wow*!"; "(ceva este) *(super-)super-uau*"; "*Aleluia*!" (as an interjection mainly used by teenagers – or in TV adverts); "Uău-uău-uău!" (instead of "Hei, stai așa / un pic!"); "Gizăs! Hăuli șit! Hăuli fac!" (5- or 6-year olds playing in a park in Pitești, May 2018); "O prietenă a tânărului a reacționat, susținând că *îi va da block* lui V. D. pentru că nu poate avea în lista sa prieteni cu o astfel de gândire", etc.

3. A special category of English loans is, of course, represented by (highly) **specialized** words and expressions, whose status (and actual use) are naturally different – being accessible to (and understandable by) some relatively limited categories of speakers, e.g. "roșii *cherry*" (pron. ['ʃeri] – TVR); (as an automotive term): "standard jante de 17 *inchi* din aliaj, *pachet look exterior*, computer de bord cu *display LCD*, două *tweetere* pe planșa de bord – pentru frecvențe înalte –, pachet *City Plus*" (net); "acel *switch* i-a întărit la pauză"; "bilet achiziționat în mijlocul de transport cu card *contactless*"; "Fiți atenți la cardurile care au activată funcția *contactless*. (…) Cu ajutorul unor *aplicații* de *smartphone* scanează datele, iar cu ele *clonează* carduri și fac plăți din acel cont"; "tehnologie *contactless*"; "campionatul național de *offroad*" (TV); "un meci complicat, împotriva unei stângace care lovește cu *topspin*, iar *topspin*-ul unei jucătoare care lovește cu stânga e foarte greu de gestionat"; "Mulțumim lui L. și M., din *backstage*"; "Avertizări de tip *no-casting*" (TVR weather forecast); "banii proveniți din *market pool*"; "Piața de *gaming*" (TVR); "*Rangerii* rezervației Sfânta Ana" (TVR); "Sandra Bullock neagă că și-ar fi injectat *fillere* în pomeți și explică apariția ei la Premiile Oscar"; the older sports term "*recalificări*" has recently been supplanted by *play-off* (in football, volleyball and other sports).

4. Among the most interesting indirect loan mechanisms, linguistic **calque** (or loan translation) undoubtedly ranks high, e.g. (realizator TV): "Eu nici nu am *licență*" (cf. Eng. *(driving) licence*); "nu pot să-l *fac* pe Iliescu" (cf. Eng. *to do sb*. "a imita, a imita vocea (cuiva)" (local stand-up comedian); "Budescu s-a simțit *folosit*" (TVR); "(echipa de fotbal A. S.) Roma a reușit să *lovească*" (TV sports commentator); "toate informațiile care vin din teritoriu sunt *intrate* aici" (cf. Eng. *to enter* "a introduce") (TVR1); "Bucureștiul este un oraș *neprietenos*" (a man-in-the-street opinion – triggered by the fact that Bucharest lacks, among other things, streets and lanes specially adapted to blind people's use); "distanța nu este tocmai *prietenoasă*" (TV rugby commentator); "Google a *dezvoltat* un algoritm care…" (net); "iar la patru ani era *inclusă* în cercul de pictură de la Palatul Copiilor"; "Japonia, lovită de un cutremur puternic. Sunt victime și pagube *extinse*… Deocamdată au fost *raportate* două decese" (net); "*urasc* sa stau de vorba cu oameni care ma considera taran"; "dispecerat reclamații calitate și *asistare* în trafic" (TV); "două *lanțuri* de *retail*" (from the net); "precizând că a blocat un fișier folosit în *minarea de criptomonede* (…)același site a început să *mineze* criptomonede precum *Bitcoin*, iar situația este *una* periculoasă pentru sistemul tău" ; "a reușit să fugă *timp de decenii*" (TV) ; "posibilitatea *pentru* (ceva)"; "*peste* week-end" (TV) ; "Care este legenda *din spatele* sărbătorii iubirii la români, Dragobete" (from the net) ; "ca el *să continue în fruntea* partidului" (without the verb *a fi*) ; "Democrația *e sub asediu pe scară globală*"; "Din pacate, *suntem parte dintr-o* Romanie in care romanii uita foarte repede" ; "Cerul e limita" (said by a doctor who studied for years in the US) ; "*Nu este seara* lui Dybala" (ProTV); "E încă *devreme în meci* (TV sports commentator) ; "*Fii* și tu *parte la* schimbare!" (TV advert); "Încearcă OneBlade și *uită* de spumă" (reclamă TV); "Asta-i tot ce *puteți*?" (…) "Ciuma roșie", Jos comunismul!" (…) *Uitați*-le!"; "L. Dragnea ar trebui să *facă un pas înapoi*" (TV);

On the other hand, phraseological calque seems to be a far more interesting type of loan translation (though not very common in use), e.g. "Restrângerea drepturilor și libertăților cetățenilor a fost *făcută la scară largă*"; "să *iei cu sare și piper* ceea ce ți se spune despre…" (cf. Eng. *take it with a pinch of salt*); "să fii victima unei *economii de adevăr*" (cf. the English euphemistic and ironical phrase *rather economical with the truth* – in the *Garantat 100%* show); "Iar *la sfîrșitul zilei* stai și te întrebi" (I. Hristache, TVR1), "*Va fi ca un șoc* pentru domnul președinte" (M. Badea), etc. The instances of syntactic calque seem to be as frequent today as they were in the 1970s or 1980s, e.g. "Bleher Fest" (a festival devoted to Max Bleher); "Bega Bulevard"; în engleză, *mother tongue*); *Asfalt Tango, Maternity Blues* (titles of post-1990 Romanian movies); "Sunt *probleme în a găsi*…" (TV); "e o acțiune de atac a oapeților, *cu balonul ricoșat* în brațele lui (...)", etc.

5. Of course, **translation** is (as already mentioned earlier in this paper) the most common activity, and also the most prolific lexical enrichment process that encourages the spreading of calqued terms and phrases, e.g. "Cum faci friptura de miel perfectă. *Pașii* gătirii: de ce se șterge carnea cu un șervet"; "*oamenii* din Panama"; "oponenți" (instead of *adversari* – in a sports commentary); "și se află în *custodia* poliției" (TV); "e un *narativ*, o poveste, care se vinde" (TV analyst); "*Uitați* de germenii alergeni!" (TV advert); "Un munte de prospețime / La *preț bun* pentru tine" (printed on a bag of *Dero Ozon*); "premieră pentru *motorsportul* românesc" (TVR1); "…a venit de niciunde / de nicăieri" (various TV sports commentats); "Moldova va investi 122 de milioane de lei în *economia* "*verde*" (…) Alte acţiuni se referă la promovarea principiilor *oraşelor verzi, fortificarea* sistemului de achiziţii publice durabile..."; "Este sigur pe sine și este *confident în abilitățile* sale în a-și exprima emoțiile"; "*înființarea* unei *foi de parcurs*" (cf. Eng. *roadmap*); "Televiziunea care a *produs* această partidă" (TVR); "un ritm (de joc) foarte *înalt*" (ProTV); "Unii sunt *nervoși* că România (o să înceapă să) o ducă bine"; "*luptătorii* (ISIS, islamici, etc.)" – used instead of the older neologistic term *combatanții*; "Munca în fața *camerei* necesită dinți sănătoși" (TV advert); "Eram tînăr și *le luam așa cum veneau*", "nu *mă impacta* foarte tare" (B. Stelea); "*Evenimentul* avea ca temă un rodeo mexican, pentru care toate modelele au trebuit să pregătească numere *pe spatele unor cai*" (from the net); "Nu era foarte *fericită cu faptul* că…" (M. Badea); "*Șansele sunt că* nu va putea să…" (M. Badea); "Pentru că și eu sunt *un* dragon!" (TV advert); "Președintele rus a *dezvoltat o alianță* cu extrema dreaptă și a lansat o armată de *hackeri* și *troli*, nenumărate conturi false în *social media*"; "*exersarea* unor atitudini intuitive împlinite" (misusing *exersare* instead of *exercitare*); "folosește *condiția* unor cetățeni ca să-și insulte adversarii" (instead of *situația medicală* or *boala*); "P.S.D. vrea să-i convingă pe *oameni* [cf. Eng. *people*] că nu vrea să…" (*Cațavencii*, May 2018). Some more recent English loans carry the benefit of greater expressiveness, e.g. "Italia *trăiește periculos* în prima repriză" (TV); "Asta le-ar fi *bătut pe toate*!" (World Cup 2018 commentary); "Cei doi [jucători – nou introduși] au *sânge proaspăt*" (World Cup 2018).

5.1. Therefore, we can tentatively state that **translation** as such (which is, by any standard, the most important source of lexical borrowing at present) will continue to be perhaps the richest source of English loans in the foreseeable future, too, e.g. "Actualizările software Windows 10 se instalează automat pe dispozitiv (*indiferent dacă vă place sau nu*)"; "Cu ajutorul poliţiei, s-a stabilit că dulapul i-*a aparţinut original* unui bătrân înstărit care a trăit întreaga viaţă în aceeaşi casă" (net); "După *completarea* meciurilor din primul tur, lista vedetelor care sunt deja în drum spre aeroport e incredibil de lungă"; "Dar pe zgură ea ştie cum să alunece, nu multe jucătoare *sunt confortabile în* această mișcare (…) ea câteodată mai pierde din atitudine, dar *Darren e acolo mereu să* îi ceară, *să pună presiune pe* ea" ; "Există totuși un mod *pentru a te asigura că* valiza ta iese prima de la cală"; "*În termeni de bază*, moleculele de apă sunt alcătuite (…)"; "La prima vedere, Dark Hammer (Ciocanul întunecat) *arată foarte mult ca orice altă* carte de benzi desenate science-fiction: Pe coperta frontală, o dronă zboară peste…"; "Pentru că Hitler *vedea războiul în termeni personali*, în sensul rivalităţii cu Stalin…" (from the net).

6. Here are various other similar phenomena, illustrating the current influence (and, of course, the prospects) of the Anglo-American lexicon: ***s***ometimes, the semantics of already existing (neologistic) terms was extended, expecially by **meaning usurpation**, e.g. "(carte) ilustrată de șase *artiști* contemporani" (TVR); "unele tipuri de contracepție au fost

cunoscute şi mai devreme, dar totuşi în Evul mediu metodele nu erau *efective*". At other times, what actually matters is only meaning extension in keeping with the Anglo-American semantic patterns, e.g. "două minute *adiționale*" (sports commentary); "în această seară avem cel puțin (X) oameni în *locație*" (illustrating one of the numerous new meanings of *locație* – in this case, a new hotel facility); "X a *negat* șansa golului" (cf. Eng. to *deny* – sports commentary); "Foto (…) *captură* youtube"; "Ce *mutare* inspirată făcută de Cosmin Contra!" (cf. Eng. *move*), etc. Similarly, one can come across cases of extreme domestication, e.g. "X… a trimis o *atașare*" (from the net – yahoo email). Or, the other way round, the new semantics can boil down to introducing Anglo-American proper names (through eponymy – especially in the press), e.g. "X e un *Hulk* în careul…" (TVR). Likewise, other Anglicized expressions are actually **quotes** and/or cultural **allusions** (or the imprint left by some kind of cultural-historical quotation): "Dosar penal pentru Iohannis și *Prima Doamnă*" (TV *b1*); "*New Deal* Românesc: *iliberalism* cu față umană"; *Despre oameni și melci* (title of a post-1990 Romanian film, alluding to Steinbeck's novella *Of Mice and Men*); "Carnea *Frankenstein*", produsă din porci modificaţi genetic"; "Halep, *greu de ucis*" (the Romanian player's Melbourne 2018 semifinal match was compared to Bruce Willis' movies); "Glorie (…), *Agonie*" (car advert on *LookTV*).

7. The **collocation** and **stylistics** of a number of terms is also substantially influenced by borrowing, in addition to the mere semantics of the respective terms or phrases, e.g. "ceasul a fost *setat* pentru o perioadă de 10.000 de ani" (TV); "Plutonul (de ciclişti) a *setat* o viteză mare" (TVR1 – from the translation of the winner's interview); "costum / modă / tendință *slim*"; "Machiaj *dramatic* cu dermatograf *gel*" (net); "un singur *set de reguli*" (*Nat Geo* advert); "ceea ce a însemnat o *eroare masivă*" (from the net); "medicii au găsit-o pe femeie în stop cardio-respirator, cu o *rană masivă* la gât"; "Soluție *avansată* pentru *confortul* coloanei vertebrale" (advert); "*Cupa Mondială* din Rusia va fi una *vintage*", etc. One can come across ironically critical or jocular comments, e.g. "*food designer* (adică "bucătar-șef" – as Irina Nistor added).

8. Quite obviously and naturally, the lexicon keeps a close relationship with the **phonetics** and **spelling** of the English borrowings, so – currently and, of course, in the foreseeable future – the form of the terms and phrases or idioms taken over from British or American English will suffer the double pressure of the structural rules typical of the respective sub-systems of the Romanian language, and, on the other hand, that of the speakers' growing acquaintanceship with English and its sound-to-letter canons and (quasi)regularities. Thus, we could safely predict that English loans in Romanian will evolve, in future too, along the guidelines suggested by the solutions provided by such illustrations quotes as the ones below: "Faza *knock-out* a Cupei Mondiale (TV sports commentator, who pronounces [knok]); *debáteri* (pronounced [-bei-]) (Telejurnal Moldova); "Cum funcționează democrația – nivel *beizic*"; două *ăsisturi*; un *ásist*!! (TVR); "făcea parte din *dealul* Deveselu" (pronounced ['dilul]); *Man United* (pronounced [men]); "un *escape game*" (pron. [eskép]); "*víking* autentic"; *skype* (pron. [skaipi]); "locul 39 în *WTA*" (pronounced as in English spelling); "Alex Box Club" (name of a children's boxing club; the TV speaker pronounces it [klab], and then, in the feature report – [klub]); "*pedăl bordingul*" (TVR – the pronunciation was actually meant to signify *paddle boarding*, a sea sport closely resembling both surfing and boarding, while using paddles); "Eram în *Jamaica*, Maldive…" (the affected Englished pronunciation had the voiced affricate /dʒ/ instead of the usual voiced fricative /ʒ/), etc. A general issue plaguing the (would-be Englished) pronunciation of native speakers of Romanian (mainly when it comes to sports commentators and suchlike) is the hybrid sound of Rom. *ghem* ("game"): some pronounce it as *ghem*, some others as *g(h)eim* (cf. Eng. [geim]). The French phrase *déjà vu* is pronounced by most (younger) Romanian TV journalists or speakers as either [deʒa-vú] or [déʒa-vu].

8.1. Spelling the English loans is (and has often been) prone to inconsistencies in applying the letter-to-sound conventions – especially when the Francophone tradition conflicts with the Anglophone one, e.g. "Igna*sh*evi*tch*" (written on a football player's shirt, during the 2018 World Cup); "*vaucere* (de) vacanță" (in an email to the members of the Faculty of Letters); "De asemenea, să se acorde mare atenţie "*chitului*" de diagnostic pentru confirmarea bolii şi să fie verificată eficacitatea dezinfectantelor"; "Aventura lui (…) nu s-a oprit aici şi, aşa cum ne povesteşte fiul său (…), a construit un al treilea *yacht* cu vele".

9. In some cases, the English influence extends to affecting the very grammar of the Romanian texts in question, e.g. "*destinate pentru* instituțiile din…" (the error was addressed in a "Vorbește corect" / "Speak Correctly" show: the linguistics experts explained that what we had to do with was "copying the English preposition" – cf. Eng. *designed, meant, intended, devised,* and even *aimed*); "Președintele Running Club", etc. Incidentally, the Romanian structures resulting from the literal translation of the source press materials used are obviously faulty, e.g. "*al doilea cel mai bun atac* din grupe" (TV commentator), "Românul a suferit *al doilea cel mai urât eşec* din carieră", "România are *al treilea cel mai mic salariu minim* din UE", "Şerban Nicolae: Iohannis *abundă în* declaraţii stupide" (net).

10. It is an absolutely notable fact that lexical borrowing has (had) strong repercussions on the verbal use of Romanian speakers – with quite a few such loans becoming genuine **clichés**. Here are some illustrations of the quite numerous terms and phrases that have actually become clichés in contemporary Romanian: "Iohannis *confruntă* legile justiției" (TVR1); "Spania *versus* Maroc (TV sports commentary); "Touché!"; "Contractul național, *noua Biblie a* infrastructurii"; "(…) uneori, devin *virale* primele audiţii"; "judecătorii (…) îndepărtează tot mai mult instituţia de rolul său de *gardian* al Constituţiei şi o transformă într-*un jucător politic* (…)CCR dă o lovitură *devastatoare* independenței autorității judiciare".

11. The **stylistic** implications can sometimes be euphemistic, e.g. "*Stewarzii* se duc în tribune ca să intervină" (cf. the old Romanian phrase "oameni de ordine"); "Ursul va fi *relocat*" (TVR1); "*actriță din filme pentru* adulți" (TVR1 – on the Internet, the following variant was used: "o *actriță pentru* adulți"); "magazine *sociale*" (i.e. second-hand shops).

11.1. Interestingly enough, there are quite numerous cases of stylistically **innovative** contributions by the native speakers of Romanian, who recycle Anglo-Saxon lexical

roots or metaphors, e.g. "Sport *Report*" (TV programme); "România are şansa de *a se reseta* şi de a se transforma în următorii ani"; "Acest fenomen numit şcoală a fost *by-passat* ani de zile"; "cea de-a treia ediţie a *Haidook Summer Fest*"; *gingerată*; "Până şi un *VIP* are nevoie de un *V.I.Pu*!" (cf. Eng. *poo* – TV drug advert); *Smiley*, *Glance*, *Cheloo* (nicknames of Romanian pop singers); "El e "*sniperul*" arbitrajului românesc! (from the net) "BNR încearcă să dreagă exodul creierelor şi angajează specialişti români din străinătate" (…) Programul, intitulat "*Brain Regain*" (from the net); "(un) *haştagian*" (M. Badea), etc.

11.2. Unfortunately, the loose linguistic standards featured by some native Romanian speakers engender genuine howlers, e.g. "Fişierele *suspicioase* au fost trimise la…" ; "erorile în *balansul* jocului (cf. Eng. *balance* – Rom. "echilibru"); "sau orice alt criteriu care duce la crearea unui cadru intimidant, ostil, degradant ori *ofensiv*"; "acum nu e *fun*", "Portarul zace în agonie", etc. When the humorous tinge of such expressions is rather pervasive, one cannot be sure whether their comicality is involuntary or not, e.g. "under-şaptesprezece (ani)" (sports commentator); "Ieftin Shop"; "*Thug* Security – Pază şi protecţie"; "Covrigărie – Patiserie – *Heaven*"; Alex Calancu Band", "Rafael & Friends (pop music group).

12. Moving closer to the conclusion section of the present article, we should set about attempting to find subcategories that could hopefully establish tentative guidelines for possible predictions about the future fate of these "words that are knocking at the door of the Romanian language".

Even if the linguistic standard still somewhat censures various forms or semantic shades considered inadequate – or maybe occasional redundant or pleonastic expressions –, at other times stylistics (even humorous style) seems to take in Anglicisms, and even welcome them, with the (logical, to say the least) possibility of generalizing them, e.g. "*Reprizele de coaching* sunt interzise la turneele de Grand Slam"; "extrapuncte bonus"; "*Top* 10 *cele mai stylish* rochii albe de vară", etc.

13. Some **tentative conclusions**: The brevity of the borrowed terms and phrases can always be counted as an asset in the process of lexical enrichment (see also Stoichiţoiu-Ichim), as well as a strong recommendation for such neologistic units to remain in the language, e.g. "Simona Halep a avut 20 de *winnere*" (TV); "un *checklist*… (al… / pentru…)", etc.

Quite a few Anglo-American terms stand good chances of entering the lexicon of our language, e.g. "Master Class-ul oferit de domnul profesor…" (TVR3). Some other words and phrases are already part of the Romanian lexicon, e.g. "Un al doilea proces, de fapt *set de* procese, îl constituie…". Likewise, some terms can be said to be rather fashionable or trendy, and so they are also very likely to remain in Romanian, e.g. "Când noi eram la *party*, ea era la antrenamente"; "Cărţi care *sunt în trend*"; "Confesiunea unui *influencer* pe Instagram. În cazul aşa-numiţilor "influenceri" din media de socializare – care sunt plătiţi să promoveze branduri şi produse – unii nici măcar nu sunt persoane reale. Sunt un soi de "*avataruri*" generate de computer. (...) Miquela este ceea ce în jargonul tehnologiei informaţiei se numeşte *CGI* – acronimul în engleză pentru imagine generată de computer". Unfortunately though, many Anglicisms substantially participate in forming and/or consolidating a new *langue de bois*, e.g. "un *mix* de politici" (said by a would-be political figure).

We think that compiling rich, representative lists of terms that stand good chances of getting into the Romanian vocabulary should be considered, as the only possible basis for a realistically constructed glossary of Anglicisms, e.g. "Ponturile unui expert american în *ospitalitate*" (from the net); "Celebrul *freelancer* şi specialist în tenis Ben Rothenberg…" (from the net); "prin includerea unui număr special rezultat din *proceedingul* conferinţelor internaţionale", etc.

We also believe that a **statistical** study (using maily press materials, preferably) could be a possible, feasible and very useful prospective idea, intended to highlight how many of the meanings used (for terms like for instance *alternativă*, etc.) have been calqued – or actually translated badly and negligently – from English (e.g. "Şi aici apar două *alternative*" – the article was actually translated from Russian!)… Predictions are also possible in this specific field, although we must be fully aware that it would not be the case for us as insiders to have too many expectations, excessive or radical hopes, or to take on an over-satisfied stance – or else to indulge in wishful thinking.

On the other hand, it would neither be advisable to be pessimistic, nor to let ourselves be carried away by, or accept, the declarative demagogy of laxity (e.g. "Never mind, this alternative works as well as any other!"), which could lead, if the worst comes to the worst, to real calamity in the field of language, as well as the cultural and human space that surrounds us.

It is extremely clear that the situation of *standardization* (from the orthographic and orthoepic point of view) in the subfield of the English borrowings in the Romanian language represents some real quick-sands: the status of most lexical units in terms of form is uncertain and disputed by the public, and sometimes even by specialists – with permanent shifts and spectacular resetting.

It is very important for the speakers to be aware of the semantic shades and novelties coming from the Anglo-Saxon area – and also of the lexical structure/composition of the terms in question (e.g., how many native speakers of Romanian that are familiar with the phrase *offshore law* can really figure out its compositional meaning, i.e. what the law refers to?)… In this field of philological research, *data mining* is a solution, though it is not a magical recipe, a panacea, or an infallible prediction instrument...

REFERENCES

[1] *Collins English Dictionary and Thesaurus*, HarperCollins Publishers, 1992

[2] *Dicţionarul explicativ al limbii române* (coord. Ion Coteanu, Luiza Seche, Mircea Seche), Editura Univers Enciclopedic, Bucureşti, 1998

[3] Hristea, Theodor, *Probleme de cultivare şi de studiere a limbii române contemporane*, Bucureşti, Academia Universitară Athenæum, 1994

[4] Manea, Constantin, *Interrelationship between Language and Society*, in *Language and Literature – European*

Landmarks of Identity, Editura Universității din Pitești, 2017, pp. 40-51

[5] Manea, Constantin, *Remarks on the Scope of the Neologistic Influence from English Sources – Translation as a Case in Point*, in *Annales Universitatis Apulensis, Philologica*, 11/2010, Tom 3, Alba Iulia, 2010, pp. 51-65

[6] Manea, Constantin, Manea, Maria-Camelia, *Further remarks on the more recent Anglo-American loanwords in Romanian*, în *Philologica Jassyensia*, an VIII, no. 1 (15), 2012, pp. 291-302

[7] Manea, Constantin, Manea, Maria-Camelia, *Locul împrumutului lexical de origine anglo-americană în dinamica vocabularului limbii române de azi*, în *Identitatea culturală românească în contextul integrării europene*, Editura *Alfa*, Iași, 2006, pp. 187-207

[8] Manea, Constantin, Manea, Maria-Camelia, *Translation from English and Decalcomania – as Sources of Both Errors and Lexical Enrichment in Contemporary Romanian*, în *Studii de gramatică contrastivă*, nr. 6, Editura Universităţii din Piteşti, 2006, pp. 103-118

[9] Manea, Constantin, Manea, Maria-Camelia, Pruneanu, Dănuţa-Magdalena, *Note asupra împrumuturilor lexicale recente din limba engleză – calchiere, adaptare, traducere*, in *Lucrările celui de-al doilea simpozion internaţional de lingvistică, Bucureşti, 28/29 noiembrie, 2008*, Institutul de Lingvistică "Iorgu Iordan – Al. Rosetti", Editura Universităţii din Bucureşti, 2009, pp. 243-253

[10] Manea, Constantin, Manea, Maria-Camelia, Pruneanu, Dănuţa-Magdalena, *Early English Loans and Cultural Conjunctions – in the Works of Three Romanian Writers of the Late 19th Century*, în vol. Conferinţei internaţionale, in *The Knowledge-Based Organization. Foreign Languages. English. Conference Proceedings 9*, "Nicolae Bălcescu" Land Forces Academy Publishing House, Sibiu, 2008, pp. 176-185

[11] Stoichiţoiu-Ichim, Adriana, *Anglomania – o formă de snobism lingvistic*, în *Comunicările Hyperion*, vol. II, Bucureşti, Editura Hyperion XXI, 1993, pp. 270-280

[12] *The New Oxford Dictionary of English*, Oxford University Press, 2001


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