

HYBRID CHALLENGES REQUIRE HYBRID, SCIENTIFICALLY BASED, RESPONSES

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Abstract

New security challenges are looking for new security paradigms in order that state and societies can successfully face with them on preventive level. Due to the rapid influence of hybrid threats to almost all areas of our lives today, we must change our attitude toward those problems and introduce and transform existing intelligence and security studies as a separate science in order to prepare our societies for security challenges that are already here.

Keywords

Security science, hybrid threats, equation of security

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Security is one of the issues that humanity deals with since the beginning of its existence. Extending the existence of a species was, as it is today, causally connected with the security of the procurement of the essential necessities that were/are needed for a safe, uninterrupted and complete life. At the time of primary development, security was associated with gaining knowledge and the ability to provide sources of water, food, fire, and places to hide from different threats. Today, the issue of security is much more complex. It is directly connected with several thematic areas of human development that are depending on current and future technological and technical results of research and innovation activities.

Knowledge and security

The development of useful knowledge has significantly contributed to the improvement of a "being safe" confidence. It contributed to create feeling of supremacy over its neighborhood despite the many challenges that humans were faced with. This role of knowledge has only intensified over the centuries. Today we are faced with so intensive levels of speed and change of existing knowledge that humanity has not been faced in its history.

We will probably agree that knowledge, and consequently scientific development, is the value that has led to the today's situation where humans took control of almost all the processes that are happening on our planet. Therefore, it can be said that science is not stationary or limited by the level of its influence and development. Science, as well as knowledge, is changing, adapting, supplementing, shaping and creating everything around us. It is a never-ending process and it must serve as the basis for our further development and progress. Collected and structured knowledge, supported by rational approach and scientific analysis of the past and present, with forecasting the future, is a best way to determine the real relationships between causes and consequences. It is the foundation of knowledge and science future developments.

In this regard, it is necessary to look at the process of analysis the issues connected with security science, whether it is possible to say that security sciences really exist or not, how it is defined, what is/might be included in this term, are the existing attitudes and definitions correct, can those definitions be successfully faced with changed security paradigms?

Concept of security as a process and condition

In order to define what security science is, it is necessary to define the concept of security. Security is anthropological, social, societal (as well as numerous other processes and values) condition that is not given once and for all. The security awareness is subject to several different impacts and influences. Achieved level of security needs to be maintained or changed. Therefore, it is possible to claim that the security is, in same time, never-ending process and condition. Security, as a process, does not have its uniquely determined duration, but results of the changes of conditions that are influencing this process are, in the short and long term, foreseeable.

The security issue is constantly facing with several challenges that affects it directly and indirectly. If the state of absolute security is marked with value 1, while the state of absolute uncertainty is marked with value 0, analyzing our past, we can notice that it is quite difficult for the security pendulum to maintain one/same position in the long run. Process of changes from value 0 to 1, and vice versa, marked the history of mankind, history of developments, history of conflicts. Conflicts are, quite often, *conditio sine qua non* of technical and technological developments.

Such an approach to addressing issues related to the security seen as a process, necessarily suggests that security is not only affected by the subjects of international relations (states) but also by numerous other factors that acts in certain areas, from the local to the global level. State and public institutions, the private sector, the academic community, non-governmental and intergovernmental organizations (national and international organizations and associations) as well as prominent individuals have an important impact on the security. All of them can represent different security stakeholders in certain moments. At the same time, very often, depending on the opposing involved interests, same security situation can be described with different security levels, different context, and different description.

Security-related activities are taking place in all three existing domains: the physical domain (the domain of the physical world), the information domain (the domain of receiving and processing data and information), and the cognitive domain (the domain in which decisions are made due to the activities from all three domains). This closed, never-ending circle of

knowledge, does not stop because it is a circle without a clearly marked start and without a visible and recognizable end.

The perception of security by different individuals, groups, communities, peoples, multi-national organization and associations can be subjective or under the influence of certain processes. Therefore, this perception does not necessarily have to be accurate nor real, but it can have a significant impact on security as a process. Namely, although the achieved level of security (a condition where there are no serious sources of possible security challenges) can be positive, the perception of that condition does not necessarily have to be positive. It can also be said that even when security condition is positive, and when the perception of the security is positive, security as a process can be exposed to various challenges. That is, one of the reasons, why transformation of perception from secure to uncertain occurs.

Therefore, it can be said that the security situation, as well as the perception, is not necessarily and objectively true because it depends on several factors that can directly and indirectly affect it.

Security domains

Security, both as a condition and as a process, is defined in many other branches of science and human activity. Security wraps up our everyday reality even when we may not be aware of it. The question is: are the activities listed below only a part of other disciplines or can (and should) be gathered and considered as an integral part of security sciences? Just to list some of them: economic, financial, corporate, homeland, national, international, personal, collective, cyber, military, social, societal, identity, political, cultural, health, energy, ecological/biosphere security. The above-mentioned security topics can be organized to the following thematic areas (Figure 1.):

- The domain of Societal security (political, social, identity, cultural, health, personal, collective, ecological/biosphere),
- The domain of Economic security (economic, financial, corporate, energy),
- Homeland security domain (international, national, military), and

- Information and communication security domain (cyber, information communication systems, technology with emphasis on IoT and AI).

However, since there is no definite security, it should be said that these thematic areas overlap and affects each other significantly. In the process of analyzing mutual security domain influences, one can also analyses conditions and processes that produce consequences at different levels: individual, communal, regional, national and global. The broader the scope of influence is, the more frequent presence in several domains exists.

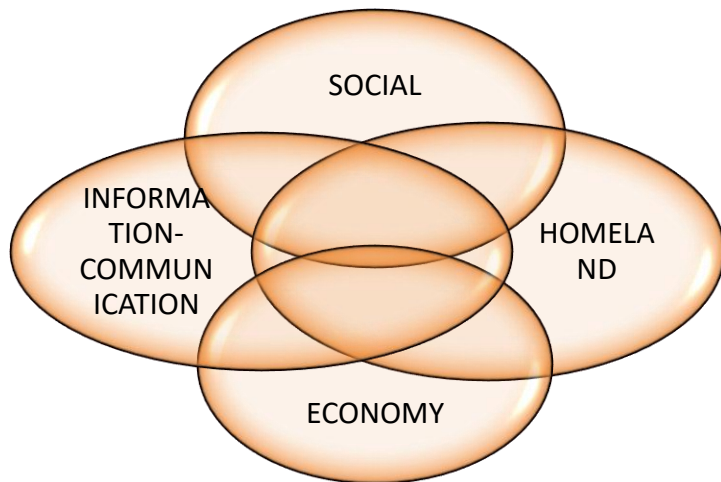


Figure 1: Security domains

Lost in translation

One of the key questions that needs to be mentioned is the question of translation of the expert terms into different languages. It often happens that many different terms that exist in one language are translated only with one term or wrongly, to another language. Such situations, especially done by the low-skilled translators, can lead to serious mistakes that are difficult to correct.

Two significant examples of the terms translated from English to Croatian language are going to be shown here.

1. The English language knows two very close terms: **security** and **safety**. In the Croatian language, both translations are translated as **sigurnost**. Therefore, in the process of translation, it is necessary to further explain, by clearly defining the context, which term has been used in the original English text. Quite often this context is missing.

2. An example of a serious mistake in translating from English to Croatian is the English term **cybersecurity**. In Croatian, the term is translated as **kibernetička sigurnost**. If we translate this Croatian translation into English language again, the expression **cybernetics security** will be obtained. Although the term cyber is derived from the concept of cybernetics, it becomes a separate, larger, entity. Unfortunately, in the Croatian translation that is not seen, and there is the possibility of bringing interlocutors from different language areas into confusion and ambiguity, and thus with serious misunderstanding.

Security as a science

Studying security as a separate scientific discipline is necessity based on present reality and on the expected future. Security can no longer be perceived as part of a system of international security/relations. The multidisciplinary approach to security studies is an indispensable activity. The level of interdependence between different scientific areas is increasingly pronounced and more significant.

Considering the above mentioned, it is necessary to introduce a hybrid security that indicates the condition and processes associated with different, but mutually interdependent, security areas/domains. Hybrid security sciences must be based on hybrid security studies, establishing parameters by which hybrid security (in components and in general) can be measured, and the processes and their impacts on each individual security and hybrid security at all.

General or hybrid security, is represented by the mathematical model of multiplication of each security group mathematical values. Values can range from 0 to 1 where 0 is a state of absolute uncertainty, while 1 indicates the state of absolute security.

$$S_0 = S_S \times S_H \times S_E \times S_{IT}$$

S_0 = Hybrid/General security

S_S = Societal security

S_H = Homeland security

S_E = Economic security

S_{IT} = Information-communication security

The value of Hybrid security is always lower than 1. Mathematical expression indicates a strong dependence on the values of a particular security. The perception of Hybrid security strongly influences other processes at the national and international level.

Let's take an example of Germany, which is the global economic, political and technological power. We can say that the values of individual security areas are very close to the maximum amount as shown in the Figure 2.

Regardless of the numerous scandals that hit a part of the German auto industry and some financial institutions, German economic security is exceptional, as evidenced by data on budget surpluses, level of (un)employment, the abilities (positive) of the German economy. Germany is one of the countries that has long opted to invest in IT sector, which is why they are today among the most developed IT countries in the world.

The Homeland Security coefficient value is somewhat lower with respect to the problems of German armed forces, the dispersal of jurisdiction in the security and intelligence sector as a result of political post-war decisions. Although the system is finding legal ways to achieve greater efficiency and greater integration of capabilities. However, the security sector has certain challenges that it faces daily.

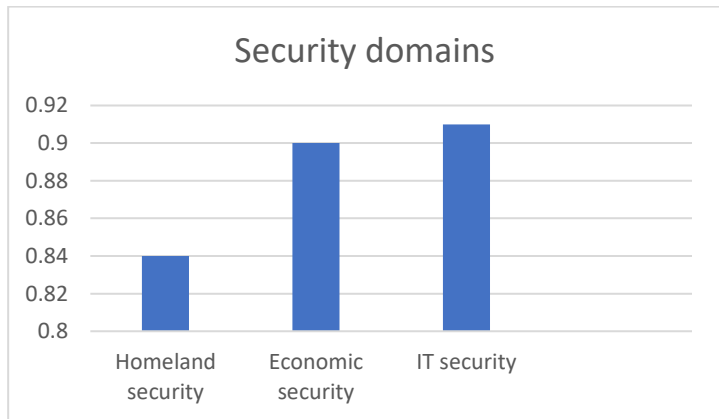


Figure 2: Security domains (part 1)

Germany faces serious security challenges in the domain of societal security. Although the German social, health and ecological system is among the best in the world, an important impact on the total value of societal security is done by the activities associated with increasing illegal migration wave in 2015 and due to the consequences, that resulted from it. Feelings/perception of changed and endangered identity, culture, civilization, personal and collective security due to a series of unwanted events were further highlighted by the introduction of numerous disinformation. Thus, the total value of the perception of societal security has fallen and strongly influenced the overall perception of security, hybrid security (Figure 3). The consequence is, neglecting all other positive values, the fall of trust in the political elite, the sliding of the political spectrum towards radical populist political views and the emergence of additional divisions in society.

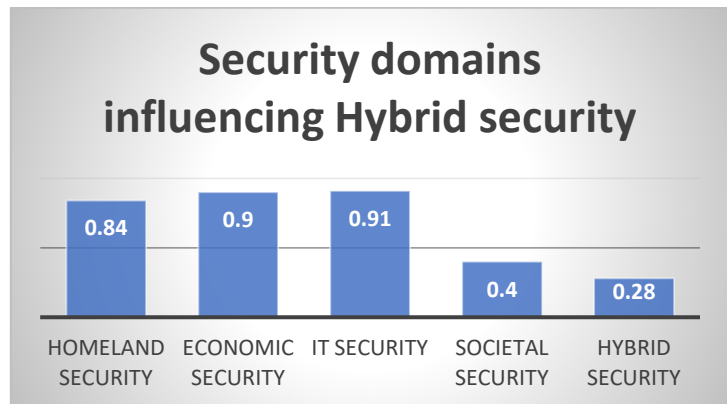


Figure 3: Hybrid security interdependences

The overall view of security, hybrid security, takes on a completely different form and value after listing all the values in the table. This model demonstrates the strong interdependence of different securities, their perceptions, and the fact that strong imbalances in only one area strongly affect the hybrid security of a society and community. Therefore, it can have a significant negative impact to the security of the state, society, groups, individuals. Consequences can be different and depend on society: from strong political changes in the political process to riots and other forms of violent expression of attitudes.

Conclusion

Security sciences should focus on research on these processes, the models how to define measurable parameters for each of the individual security domains, the level and intensity of their interaction and the impact on overall security result, on hybrid security. That is why security can not be treated any more only as a part of other sciences. It deserves and needs to be introduced and treated as a separate science, hybrid security science.

G. Akrap: Hybrid Challenges Require Hybrid Responses