

UDC 351.86:327.56

Biblid 0543-3657, 76 (2025)

Vol. LXXVI, no. 1194, pp. 277–302

Review article

Received: 21/11/2024

Revised: 30/05/2025

Accepted: 03/06/2025

doi: https://doi.org/10.18485/iipe_mp.2025.76.1194.5

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Hybrid Security Architecture in the Context of Operationalisation of the Human Security Concept

SUMMARY

The implementation of the human security concept (HS) entails the operationalisation of theoretical postulates to mitigate or reduce the intensity of threats that jeopardise individuals and communities. The implementation of state policies and strategies that affect the level of human security is based on the top-down principle. On the other hand, the operationalisation, i.e., the implementation of citizen-related security activities, requires the bottom-up implementation to respond as quickly as possible. The disadvantage of the described situation is that state strategies rarely change and are often inconsistent with altered circumstances at lower levels. At the strategic level, a state, as an inert structure, is slow to respond to the requirements of the situation to protect the interests of its citizens. In practice, this scenario leads to problems in the efficiency of the implementation of activities affecting the state of citizens' security at the local level.

The delay and mismatch between the strategic level (changing the national strategy and its operationalisation) and the level of meeting the needs of citizens require the introduction of new elements of the institutional structure

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to bridge the gap between the strategic and operational levels. This approach can be called security system hybridisation, conceptually realised in the appropriate form of the Hybrid Security Architecture (HySec). Hybridisation, in this context, involves upgrading the political system and reforming the security sector with the appropriate use of Information and Communication Technology (ICT). Conceptually and functionally, the HySec structure connects a knowledge-based analytical framework (the concept of human security) with concrete data obtained from citizens or representatives of their associations. The results of the work of both components are superimposed and used for integral management, as well as for predicting the future HS status. In this way, the harmonisation of state and non-state actors in the field of security is achieved through the implementation of policy-making activities and the development of operational programmes to raise the level of security and realise human rights at the level of local communities. By hybridising the security system in an infrastructural form through a decentralised computer network, based on a hybrid cloud architecture with multiple levels of access, it can encourage citizen participation and thus contribute to the achievement of HS goals.

Keywords: Human security, Operationalisation, Hybridisation, Security architecture, Cloud architecture, Blockchain network.

Hibridna bezbednosna arhitektura u funkciji operacionalizacije koncepta ljudske bezbednosti

SAŽETAK

Primena koncepta ljudske bezbednosti (Human Security - HS) u praksi podrazumeva operacionalizaciju njegovih teorijskih postulata u cilju ublažavanja ili smanjenja intenziteta pretnji koje ugrožavaju pojedince i zajednice. Sprovođenje aktuelnih državnih politika i strategija koje utiču na nivo bezbednosti građana zasniva se na principu delovanja odozgo prema dole, sa druge strane, operacionalizacija, tj. sprovođenje aktivnosti od značaja za nivo bezbednosti građana zahteva implementaciju odozdo prema gore kako bi se reagovalo što je brže moguće. Nedostatak opisane situacije je što se državne strategije retko menjaju i često nisu u skladu sa izmenjenim okolnostima na nižim nivoima. Država na strateškom nivou, kao inertna struktura, sporo odgovara na promene u okruženju što dovodi u pitanje efikasnost institucionalnog sistema. To konkretno znači da se sporom reakcijom ili njenim izostajanjem ugrožavaju interesi građana što se direktno manifestuje kroz kvalitet njihovih života.

Rešenje problema kašnjenja reakcija i neusklađenosti između strateškog nivoa (promena nacionalne strategije i njena operacionalizacija) i nivoa zadovoljavanja potreba građana zahtevaju uvođenje novih elemenata unutar strukture sistema. Prepoznavanje pojedinaca, udruženja građana, organizacija

lokalnog stanovništva po teritorijalnoj osnovi ili tradicionalnih autoriteta kao bitnih karika je od suštinskog značaja za otklanjanje uočenih nedostataka između strateškog i operativnog nivoa. Ovaj problem ne postoji u demokratskim sistemima sa institucijama čiji je rad u interesu građana. Međutim, u nestabilnim, tranzicionim zemljama neophodno je primeniti model koji bi obezbedio učešće što većeg broja aktera sistema u procesu uspostavljanja demokratskih institucionalnih mehanizama. Rešenje treba tražiti u pravcu hibridizacije političkog sistema kako bi ovaj aktivirao što veći deo populacije u procesu donošenja odluka. Ovaj sistem u kontekstu koncepta ljudske bezbednosti možemo okarakterisati kao Hibridnu bezbednosnu arhitekturu (Hybrid Security Architecture - HySec). Hibridizacija, u datom kontekstu, podrazumeva nadogradnju političkog sistema i reformu sektora bezbednosti uz odgovarajuću upotrebu informaciono komunikacionih tehnologija (Information and Communication Technology - ICT). Konceptualno i funkcionalno, HySec struktura povezuje analitički okvir baziran na znanju (koncept ljudske bezbednosti) sa konkretnim podacima dobijenim od građana ili predstavnika njihovih udruženja. Rezultati rada obe komponente se superponiraju i koriste za integralno upravljanje, kao i za predviđanje budućeg HS statusa. Na ovaj način ostvaruje se usklađivanje državnih i nedržavnih aktera u oblasti bezbednosti kroz sprovođenje aktivnosti kreiranja politike i izradu operativnih programa u cilju podizanja nivoa bezbednosti i ostvarivanja ljudskih prava na nivou lokalnih zajednica. Hibridizacijom sistema bezbednosti u infrastrukturnom obliku putem decentralizovane računarske mreže, zasnovane na arhitekturi hibridnog oblaka sa više nivoa pristupa, može podstaći učešće građana i time doprineti postizanju ciljeva HS.

Ključne reči: Ljudska bezbednost, operacionalizacija, hibridizacija, bezbednosna arhitektura, Cloud arhitektura, Blockchain mreža.

Introduction

The concept of hybridity is often used today, but its content changes and adapts to the context depending on the field of application. Often, the interpretation of the concept depends on the expertise of the researcher and his intentions. Our idea is to use the concept of hybridisation as an expression most appropriate for the form of organisation and action that contains different organisational models within the social structure. The concept of human security is an analytical framework that we use to indicate its potential in relation to the need to include as many citizens as possible in political and institutional processes. Researching the dimensions of human security, with the possibility of quantitatively expressing the results of monitoring indicators on which the situation in a certain area depends, provides the possibility of a timely reaction to the registered changes. The research process gains quality with the largest possible coverage of the population, whose members, due to the possibilities of ICT technologies, have the opportunity to directly express

themselves on the problems they face in everyday lives. This approach allows reaching the smallest common denominator of interests of different social groups within one administrative (institutional) space without intermediaries.

Considering the nature of the work and the goal we are striving for, with the limitation related to the space available to us, we believe it is inappropriate to present here various unfounded criticisms of the concept of human security. Also, presentations of various theses on political hybrid systems, which carry an ideological charge based on neoliberal ideology regarding the role of the state and its institutions, would be counterproductive. We will try to be operational in the spirit of the title and present the potential ICT has in the realisation of citizens' interests and thus the achievement of the goals promoted through the concept of human security.

Defining the basic concepts

To prevent misunderstandings and methodological ambiguities, we should try to briefly explicate the essence of the human security concept and the original meaning of the hybridisation concept, placing them in the context of our topic. We are led by the idea to contribute to the creation of a system that would utilise the transformation of abstract notions into measurable observations, which is the essence of the process of operationalisation. In this way, we attain the tools to collect data on processes and phenomena that cannot be directly observed and analysed in real time. The operationalisation of the human security concept presumes its use as an analytical framework for a better understanding of security challenges and threats and their alleviation or elimination to gain benefits for individuals and populations at risk.

We believe that a brief explanation is necessary to avoid misunderstandings regarding the extent of the presentation of the concept of human security. Our experience as long-term researchers in this field shows that many authors write about the concept based on secondary and tertiary sources. To understand the goals of the concept and its operationalisation, it is necessary to study the original documents and publications of the UNDP or the works of its first promoters (United Nations Development Programme, 1994) (Dulić, 2006). In this spirit, it is important to note that the concept does not insist on the application of unique models but rather creates actions regarding the specific situation on the ground. Therefore, on this occasion, we emphasise the hybridisation of political systems as one of the aspects of an early warning system that can contribute to preventing the emergence of conflict or eliminate the causes of instability in a certain area.

Human Security Concept

The human security concept was promoted by the UNDP in 1994 as a reaction to the retrograde trends perceived in transitional countries, but also in

the states of the so-called victorious alliance. In the five years following the fall of the Berlin Wall, it became clear that the train of events had gone in the opposite direction from the optimistic anticipation of the progressive part of humanity.

The transitional model, based on neoconservative logic, leads to a drastic worsening of the quality of life of the population in transitional countries. Due to a wish to dispose of every single trace of the idea of communism from the area of the former USSR zone of interest, the old institutional systems end up being devastated. Social solidarity mechanisms were replaced with a managerial comprador elite, which, coupled with the local tycoons, had a good association with foreign big capital. During the nineties of the last century, the Western centres of power treated the area of the former Eastern Bloc as a reservoir of a cheap labour force and even cheaper raw materials. The collapse of a social system resulted in a drastic increase in the illnesses of addiction, which in turn induced the depopulation of this area, thus committing a particular economic genocide (Bohlen, 1992).

Simultaneously, the processes of relinquishing the model of social-economic organisation based on the concept of the welfare state were underway. The first impact on the quality of life of Western European citizens was the transition from local currencies to the Euro. The rate of exchange was 1.95 German Deutsche Mark (DEM) for 1 Euro (EUR), while the prices of goods and services mainly translated from 1 DEM to 1 EUR. Practically, this means that the citizens of Germany lost 50% of their savings value and purchasing power. With this hidden inflation, the German state was funding the cost of unification. At the same time, in the area of the former East Germany, a surplus in the labour force appeared because factories were closed and the market supply was taken over by companies from Western Germany.

On the global level, a trend of overtaking the former USSR zones of interest by the US and its NATO partners was noted. After the demolition of the Berlin Wall, there were attempts to make use of this historical period to reform the UN system and establish a new world order that would enable a more stable geopolitical situation and reduce the probability of new conflicts (Boutros Boutros-Ghali, 1992). In the beginning, the activities within the Partnership for Peace process incited hope that the attempts would be successful. On June 22, 1994, even the Russian Federation signed a treaty on accession to NATO (in 2022). However, towards the end of the 1990s, the US military-industrial complex instigated a change in US foreign policy through its lobbyists. The US began generating new conflicts and sought justification for the further existence of NATO. An adequate illustration of this thesis is the fact that the US military budget was reduced from USD 292 billion to USD 256 billion in the period 1988-1996 (the so-called peace dividend). However, in 1998, the US military expenditures rose to USD 274 billion (Mirković, 2007).

Because the US was the dominant power, US strategists paid no attention to the analyses that point to the perils of the road taken (Feffer, 1996). The UN experts who wrote the report on the development in 1994 tried to offer a

feasible analytical framework that should reinforce the arguments of the progressive part of humanity and convince the US to take the historic opportunity and establish a new international order that would guarantee peace and stability on the planet (UNDP, 1994). The idea to measure security based on the people's quality of life is not revolutionary *per se*. On the contrary, it gives opportunities for evolutionary changes in the system. Pointing out the seven areas⁴ critical for the quality of people's lives, the authors offer an analytical-methodological framework, which enables the quantification of the actual state of affairs, simultaneously identifying problems, if there are any. The concept is not biased or hostile to anyone but enables equal treatment to all inhabitants of the planet, their social status or place of living notwithstanding.

The basic premise from which the HS concept starts is that "... the world can be at peace only if the people are safe in their everyday life". In other words, security does not relate only to consequential states but also engulfs the phenomena that lead to the state of insecurity. The essence of the HS concept can be construed best in the following quotation: "Most people's sense of insecurity stems more from everyday life concerns than from fear of cataclysmic world events. Will they and their families have enough to eat? Will they lose their job? Will they be oppressed by a repressive state? Will they become victims of violence because of their choices? Will they be a target of persecution because of their religious or ethnic origin? In the final analysis, human security is a child that did not die, an infectious disease that did not spread, a job that was not taken away, an ethnic tension that did not explode into violence, and a dissident that was not silenced. Human security is not a problem of weapons—it is a problem of human life and dignity" (UNDP, 1994).

Among the numerous authors who have contributed to the development and operationalisation of the HS concept, Sabina Alkire should be mentioned here. Her idea of the protection of fundamental human rights is comprised in the syntagm "vital core".⁵ Alkire argues that "The goal of human security is to protect the vital core of all human lives from critical and comprehensive threats, not questioning, at the same time, the long-term human fulfilment" (Elkir, 2006, 91). Explaining her approach, in which there is not any textbook definition and counting the concrete human rights that make the vital core, the author says that every situation demands specific procedures and the reaction of the institutions and that the imposition of a unique form almost certainly produces a counter effect and limits adequate reaction to a certain phenomenon. For that matter,

⁴ Economy, health, nutrition, ecology, personal security and the security of a community, and political system.

⁵ The vital core is determined relative to the potential-capacity that people have and the freedom, i.e., rights in their everyday life. The rights in question are fundamental human rights guaranteed to all citizens; it is the corpus of rights on survival, bare necessities, and dignity.

international organisations, NGOs, and public institutions should determine the contents of the vital core in light of specific circumstances. The concept aims to protect people from threats that are beyond their control, such as financial crises, violent conflicts, irresponsible national policies that threaten the public services system (healthcare and education), terrorism, a shortage of clean drinking water, and chronic poverty. The unpredictability of consequences demands a proactive role of the system, which is not schematic and predicts the probable train of events and a timely reaction in compliance with the concrete field conditions. The goal is not to go by the book at any cost. It is the protection of people that depends on the actual development of the situation (Ibid., 92).

The greatest support for the idea of an alternative, analytical approach to security comes from the US's close allies – Canada, Norway, Japan, and the European Union (Ibid., 117) (Kotsopoulos, 2006). The promoters of the concept did not want a confrontation with the then-world hegemon, but their goal was to influence its behaviour and change the projected train of events. Even though there exist certain variations on the subject of human security, all aforementioned entities (the states and the EU) want to establish a new order that would increase the quality of life and decrease the possibility of new conflicts. Sadly enough, the influence of the centres of profit to which the change of the existing system is detrimental minimises the development of the idea and its practical implementation. In the beginning, the concept was ignored by the US and the UK. When it became obvious that the concept of human security was getting significant support from academic communities of other states, certain authors tried by various intellectual manipulations to reduce it to just one more in a series of academic exercises with zero chances of being implemented in practice. In this context, particularly active were some British authors, who, through their imperial logic and high-spirited intellectualisation, forcefully moulded the concept into existing patterns, bringing it to the point of absurdity.⁶

Despite all disputing and opposition to the HS concept, which is considered anti-systemic by conservatives, we can say that it is nothing more than the idea that the existing system is being changed through evolution. Therefore, the available potentials are in the function of peace, stability, and the reduction of suffering on the planet. Officially, democracy is a form of social organisation compatible with the HS concept. However, deformations occur as a consequence of the excessive accumulation of economic power in the hands of individuals. That creates a state of affairs in which the foundations of the system are compromised. Institutions of a state that are supposed to protect the interests of the majority are instrumentalised by informal centres

⁶ The dominant approach in Great Britain may be recognised in the structural violence of Johan Galtung. Namely, the authors who write about Posthuman Security are probably unaware of their possible negative impact on the academic community's relation to the HS Concept.

of power to impose their interests as general ones. This situation is the result of an uncontrolled process of globalisation in which corporations utilise the institutionally uncovered space to make enormous profits in the markets. Particularly by exploiting cheap labour and raw materials in underdeveloped countries of the third world (Đorđević, 2024). The earnings thus generated are not adequately taxed, and the power of large transnational corporations (TNCs) far exceeds that of the majority of nation-states. On the list of the largest economic entities compiled according to the GNI of national states and total sales realised by TNCs, even among the top 30, we already have TNCs that are more powerful than over 160 UN member states (Djordjević, 2024, 27-28).

At the end of this section, it should be said that there are a certain number of authors who interpret the concept of human security from the perspective of an orthodox approach to the state and its functions, thereby questioning the fundamental assumptions of the concept. Namely, HS is not in conflict with the functioning of institutions of the nation-state system if their work is in the interest of citizens living in the area under the jurisdiction of those institutions. The problem arises in situations when the work of institutions is instrumentalised for the sake of the interests of the party and financial oligarchy or foreign factors that have claims to control the area. In this context, an attempt to compromise HS with the thesis that it leads to antagonism between the state and the population causes a certain amount of distrust towards the goals of the authors of such theses (Sedra, 2022). Approaching people's problems from a neoconservative perspective can lead to discontinuity in the implementation of the basic goals of the UNDP. Instead of operationalising and further developing existing mechanisms for implementing the HS system, ideological debates are imposed. That leads to a waste of time and energy, which can result in the suffering of millions of people in conflict areas.

Dimensions of human security

The authors of the aforementioned UNDP report chose the most important aspects of the quality of people's lives to which special attention should be paid in order to bring the lives of all people on the planet to a level worthy of a human being. Through the securitisation of economic conditions, population health protection, quality and availability of food, environmental conditions, individual position in the social environment, the status of a social group in a wider environment, and political processes, an analytical framework is offered that can identify problem sources and create problem solutions. As the advocate of this idea, the UN published a methodological guide for the application of the HS concept (United Nations, 2009). The manual provides basic guidelines for conducting research and applying the HS concept during the realisation of project tasks. If there was scepticism about the applicability and possible practical effects of the concept, the mentioned publication and

the activities carried out within the UN Human Security Unit Office for the Coordination of Humanitarian Affairs should change that.

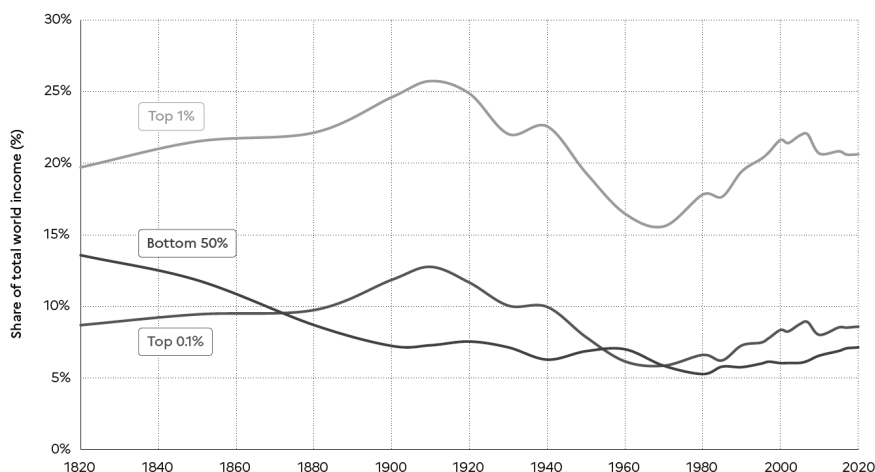
a) Economic security

The difference between managers' (capital owners) and workers' income is enormous. This pattern is global. As a consequence, a global capitalist elite, on the one hand, and a global wage labour force, on the other, are created. There are more mutual affinities between the large capitalists from various parts of the world than understanding between the local workers and their local employers regarding the position and situation of the former. In the economic dimension, the HS concept offers the possibility of a qualitative analysis of the described situation and understanding of the complexity of the problems the majority of the world population faces. Quantifying the relationships and prices of possible solutions concerning the costs of extravagant luxury in which today's big capitalists live is the way to find solutions to many problems of the modern world. A fairer distribution of social wealth would help to establish more stable social structures. Besides, by raising the educational level of the population, many challenges that contemporary civilisation faces would be more easily solved. At this point, attention should be drawn to the difference between relative and absolute poverty. Namely, the perception of personal position relative to the surroundings is far more important in developed countries than the very satisfaction of basic needs, which is the primary goal in poorer environments. Relative poverty, which manifests as the impossibility of reaching the status promoted by the media, makes people feel dissatisfied with their position. Consequently, in developed and richer countries, we have situations that provoke radical actions by dissatisfied citizens. By the logic of things, it is a phenomenon expected in underdeveloped countries. Many perpetrators of terrorist actions were born and raised in the countries of the developed West, yet they accept the extreme ideology of fundamentalists and are ready to sacrifice their lives and take the lives of other people.⁷

The data on the rise of inequality between the rich and the poor, more specifically about the fact that the rich get richer and the poor get poorer, speak about the importance of the economic dimension for human security. After a short period during which the gap between the rich and the poor decreases due to the effects of the welfare state after the oil shocks of the 1970s, the trend is to increase the accumulation of wealth in the hands of the 0.1 % of the richest inhabitants of the planet (Figure 1).

⁷ The fact that the perpetrator of a terrorist act is a domestic citizen is very often kept hidden from the public. Instead, it is suggested that he or she is an immigrant, i.e., an emigrant from another country (Mihajlović, 2016).

Figure 1. Global income disparity – top 1% and top 0.1% vs bottom 50% income shares, 1820-2020



Interpretation: The share of global income going to the top 1% highest incomes at the world level has hovered around 15-25% between 1820 and 2020 (20% in 1820, 26% in 1910, 16% in 1970, 21% in 2020) and has always been substantially greater than the share going to the bottom 50%, which has generally been of the same order of magnitude as the share going to the top 0.1%. Income is measured per capita after pension and unemployment insurance transfers and before income and wealth taxes.

Source: Lucas Chancel, Thomas Piketty, Emmanuel Saez and Gabriel Zucman, *World Inequality Report 2022*, World Inequality Lab 2022, <https://wir2022.wid.world/>, 59, 21/11/2024.

b) Health security

Health is one of the basic conditions for the security of every person. Expectations from economic development included, among other things, raising the level and availability of health care for all people on the planet. However, health care is extremely commercialised. So much so that many services are inaccessible to the poorer part of the population. In public space, there has never been more talk about concern for public health. At the same time, we have today over a billion inhabitants in the world living with below the minimum health care (WHO and WB. 2021).⁸ Even in the very centre of the capitalist world (US), millions of residents are without basic health care.⁹ Insufficient funds in the

⁸ According to the World Health Organisation and World Bank data, only 60 to 80% of the world's population has access to basic health care, that is, they live in conditions that meet international standards in this area.

⁹ According to data from the Kaiser Family Foundation in 2019, in the US, 9.2% of the population was without health insurance (KFF. 2019).

budgets of the majority of states limit the reach of educational systems in the sphere of prevention and health protection from those forms of health threats that can be avoided.

c) Food security

One of the prerequisites for the health and happiness of the population is good-quality nutrition and the availability of food in sufficient quantity. Despite a significant increase in yield per unit of arable land, the problem with the nutrition of a large part of the human population still exists. According to Food and Agriculture Organisation data for 2019, more than 820 million people on the planet were starving, and about 2 billion people were in the insecurity zone when it comes to food availability (FAO, 2019, vii). Oddly enough, concerns about food availability do not prevent 1/2 of the fruits and vegetables produced globally, in other words, 1/3 of the food in developed countries, to being disposed off (UNEP, 2022).

d) Environmental security

Our living environment is a significant factor affecting the quality of people's lives. The consequences of climate change induced by the negative effects of industrial development and excessive emissions of pollutants are such that we can justly say the current economic paradigm is more detrimental than beneficial. Although it became clear at the beginning of the 1970s that the chosen path was unsustainable, the world stayed on the same course (Meadows et al., 1974). Despite more than 50 years of debating about jeopardising the survival of all living beings on the planet, many moves inspired by profit maximisation worsen the situation even more (UN SDG, 2019/2022) (UN, 2022). Underpinning consumer euphoria, increasing engine power and size of modern cars, mining bitcoins, and many other activities inspired by profit maximisation show that in practice the system behaves contrary to declarative statements (ICPEN, 2017) (OL, 2021) (EFTE, 2013).

e) Personal security

Respect for human rights has long been promoted as the most important agenda of the foreign policy programmes of developed countries. Despite that, the situation in this area is dreadful. If we consider the situation regarding the aforementioned vital core, the majority of the world's inhabitants cannot enjoy the achievements of modern civilisation and a life worthy of a human. For many people around the world, job security and circumstances where no one is concerned about providing for their family members' fundamental requirements remain unrealistic goals. Elements of all other aspects of the quality of life intersect in this dimension. A bad economic situation is an environment where various criminal activities occur, directly affecting

people's security. Low-level criminal activities, from street robberies to breaking into people's homes, are a feature of underdeveloped and poverty-stricken regions. Poverty and underdevelopment are often favourable environments for corrupt practices by public service employees. The result of this state of affairs is that citizens are threatened by the actions of corrupt officials instead of enjoying the protection of the institutions. According to the latest UNDP data, six out of seven people on the planet feel insecure because of the risks to which they are exposed. Specifically, 1.2 billion people were situated in areas affected by various conflicts (UNDP, 2022). In 2021, 89.3 million people were exposed to forced migration, while the estimate for 2022 is that it could be as many as 100 million (UNHCR, 2022).

f) Community security

Insisting on respecting certain social groups is in collision with the previous dimension because it is the security of all people on the planet that needs to be achieved. When prioritising the rights of certain minority groups, one gets the impression that the idea is to improve their status at the expense of others and not to raise standards for everyone. Namely, it often happens that differences between social groups are used to cause instability in areas of geopolitical interest for certain centres of power.

Most of the previously mentioned five dimensions of HS have an impact on the security of the community and the social groups that constitute it. Having in mind the degree of integration of global economic activities and the established social networks, occurring as a result of ICT global networks and developed for business activities and their efficiency, we can discuss the conditions leading to the creation of a global society. Most of the challenges and threats to the security of modern people are global and, as such, require a global response. The problem lies in the disproportion between practice and institutional regulations that can control the negative effects of modern socio-economic processes. National states have lost the battle against large capital. In effect, instead of protecting the interests of citizens, institutions become part of a milieu that favours the interests of large capital. The pendulum of power is currently on the side of TNCs, which indicates the need to redefine the basic settings of the system if citizens want to maintain control over socio-economic processes. Otherwise, there is a danger that man is declared an unnecessary surplus on the planet and that TNC managers declare themselves the only ones authorised to decide the fate of the living world. Many ideas that were considered retrograde have revived and are promoted in the public space, which was unthinkable until recently (Neurath, 1994) (Георгиевич Кара-Мурза, 2005). The fact that various models of the future arrangement of the human community are introduced through informal forums is something to worry about. The academic community has been increasingly losing credibility under the pressure of commercialisation. Currently, it is unable to offer appropriate solutions.

g) Political security

The possibility of expressing political will and protecting the interests of individuals and social groups is best seen in the level of democracy of the system. The professionalisation of politics and the corruption of public services demotivate citizens from actively engaging in the struggle for their interests and the interests of the social group to which they belong. The interest in democratic processes is perceptibly diminishing. According to the findings of research conducted and published by the University of Essex, the percentage (world average) of those who went to the polls after 2010 is 67%, which is 10% less than in the 1960s (UE, 2011). The assumption is that the majority of residents who did not exercise their right to vote do not recognise the significance of institutions for their quality of life. At the same time, it is not a rare phenomenon that institutional mechanisms serve the purpose of disciplining disobedient social groups and states, i.e., free-thinking intellectuals.

Many transitional countries have lost confidence in democratic processes because of their experience during the transition from communism to capitalism and are now leaning towards authoritarian systems (EBRD, 2011). For the rest of the world, the period after the global economic crisis of 2008, which culminated during the COVID-19 pandemic, is particularly problematic (IDEA, 2021). In the period of the pandemic, many democratic achievements were sacrificed for the sake of the higher national interest. This retrogradeness is alarming because history teaches us that it is arduous to restore the rights of citizens usurped by the so-called experts who take over the authority of regular institutions in a state of emergency.

Hybrid systems

The etymology of the word “hybrid” is twofold: Greek and Latin. Although some dictionaries indicate only the Latin origin of the word, Milan Vujaklija, in his Dictionary of Foreign Words and Phrases, presents both roots: the Latin *hybrida*, which primarily refers to mixing different species, and the Greek *hybris*, which means arrogance and violence (Vujaklija, 1980). From today’s perspective, we can say that the Latin meaning, which refers to mixing – crossbreeding different types or elements of different origins – is dominant in literature. In the Latin version, this term has a more positive connotation, while in the Greek version, it represents a negative phenomenon of unnatural crossbreeding of different species. In general, the term refers to phenomena that involve different constituent elements, regardless of whether the crossbreeding is biological, technical, or belongs to the realm of social science.

In the context of our work topic, hybrid systems and hybridity imply a combination of different system solutions in the field of security and socio-economic processes. Elements of the official state structure that we associate with informal forms of civil activism and/or traditional authoritarian systems

are on one side. Additionally, we should draw attention to the fact that there is no place for the politicisation of the process in our text, which appears in the syntagm hybrid warfare (Ćirdei, 2017). We leave that part to experts for special forms of warfare. In the work, *The Hybridisation of Security Systems as a Function of the Human Security Concept*, we present our idea of how, at first glance, two incompatible phenomena can be synergistic in raising the level of human security (Djordjević and Dzigurski, 2019). The emphasis is on the idea that in the new democracies the previous forms of organisation and functioning of socio-economic systems should be used. We cannot expect a sudden transition from authoritarian systems to communities functioning in compliance with the highest democratic standards. However, for example, the authority of the tribal chief can be used to implement new organisational models that will contribute to raising the quality of life of people in transitional communities.

In the aforementioned paper, we presented a theoretical approach that enables the operationalisation of HS through the establishment of Hybrid Security Systems. Namely, numerous organisations in the field of HS address various dimensions of security and function, to a large extent, independently of each other. The consequence of that is a waste of time and resources. The idea is to create an institutional environment that will enable a partnership between formal institutions and the NGO sector, i.e., informal social networks. The result of the partnership of several sectors through the hybrid security system contributes to the synchronisation of the dynamics of security strategies and the security function implementation in both directions, from formal institutions to citizens and vice versa. The most common causes of instability and disruption in the field of human security are inconsistency in the dynamics of the functioning of elements and delays in making decisions and/or their execution through the state administration system. We tried to contribute to the solution of the problem of stability in the functioning of complex managerial systems by way of analysis and methodology based on hybrid security systems concepts.

Considering the previous work and the space limitation for this text, we direct readers to review the presentation of hybrid security systems in the text, which is available at the Internet address in the bibliography. Here, we continue with the further operationalisation of the idea of applying hybrid systems to realise the concept of human security. Given that it is a complex structure, which includes a large number of elements, the successful implementation of the system requires the processing of a large amount of data collected at multiple levels and from different sources. The relevance of the information obtained from the processed data implies the system's resilience to malicious influences and possible manipulations. Therefore, in the rest of the text, we present a hybrid security architecture (based on Information and Communication Technologies – ICT) that ought to ensure the protection and reliability of data and information, on which the quality of assessment and the adequacy of access depend.

Hybrid security architecture

In the current available literature, the hybrid character of security systems is most often discussed in the context of security sector reform after major social conflicts and instability. Without denying the importance of theoretical approaches that deal with hybridisation from the perspective of post-conflict spaces and communities, we believe that it is at least equally important to take measures to prevent conflicts, that is, to eliminate the causes that lead to them. The idea that guides us is to analyse the phenomenon of hybridisation in the function of an early warning system. The following text should be one of the pieces of the mosaic in the process of creating a model that will enable the recognition of phenomena and trends indicating the risk of destabilisation of communities that, due to internal contradictions, have the potential for conflict escalation. Additionally, using the hybrid character of the system and, accordingly, creating an ICT network can contribute to the efficiency of preparations for (and response to) emergency situations. State institutions and informal structures in a given area are not necessarily in conflict, nor can they be seen a priori as partners in managing social processes. Practice shows us that there are situations when informal social structures are instrumentalised to maintain institutional systems under the control of alienated centres of power. Very often, foreign actors also appear, who, due to their lack of knowledge of local conditions, instead of contributing to stabilisation, achieve counter-effects in relation to the primary goals reasons for the failure of foreign missions can be multiple, from the desire to see the results of their engagement as soon as possible to the manipulation of the existing contradictions to realise one's geopolitical goals (Mahmoud, 2019). The worst option is that, due to ideological and/or time constraints, the real causes of the problem are consciously ignored, and a system of so-called stabilocracy is established regardless of the results of its functioning for the local population. There is certainly also the option of misunderstanding the complexity of relations and the roots of the problem, which comes as a result of the lack of researchers' capacity to understand the complexity of relations (Bagayoko and Huchthul, 2024, 15-16).

ICTs have a certain potential for democratising social processes in the function of resolving social conflicts that has not been sufficiently utilised. The majority of problems in the sphere of human security arise as a result of the abuse of the existing institutional system and social hierarchy. If we avoided intermediaries in articulating the will of citizens and expressing their needs, we would prevent the manipulation of bureaucratic structures and raise the level of efficiency of the system. Accelerating the decision-making process and reducing the risk of imposing the interests of the intermediary level of administration represent a qualitative improvement in the functioning of the system. Blockchain technologies (BT) enable the establishment of a system that guarantees the authenticity of the collected data and qualified decisions based

on it.¹⁰ The use of ICT in solving problems in unstable communities can be a significant factor in finding sustainable solutions. The importance of establishing a system of direct democracy with the greatest possible participation of citizens as the ultimate users of institutional services narrows the space for manipulation by malicious entities.

Given the basic characteristics of the concept of human security and the approach to its operationalisation that we advocate, it is necessary to establish a system that uses a combination of technologies and methods. The hybrid system we explain allows for the inclusion of a larger number of elements within the existing structure, providing greater flexibility in researching and managing various dynamic phenomena. Of course, the hybridisation of the security system also implies a hybrid political system as a form of political organisation, which is characteristic of many developing and/or transition countries (Ieraci, Fossati and Cassani, 2012). Regarding the existing potentially destabilising factors in terms of the efficiency of state administration, the practice has shown so far that hybrid political systems can ensure the stability and resilience of complex political communities through the realisation of the goals that are in the focus of HS. That is achieved by encouraging participatory processes to obtain a synergistic effect between the formal state and informal institutions formed by citizens or part of traditional heritage.¹¹

Given the potential number of actors (all citizens living in a given area), complexity is a fundamental feature of hybrid political systems. The amount of data that needs to be processed in the shortest possible time calls for the use of available ICT tools, such as artificial intelligence. Given the specific situation, it is necessary to create an adequate ICT system in line with the specific circumstances. Information system creators should be aware that their applications are used in different environments to provide a structure that enables the efficient and secure performance of all elements of the system. That is a process that requires synergy between ICT management, political scientists, and experts familiar with the characteristics of local communities. Only in this way can an information product be obtained that will meet the

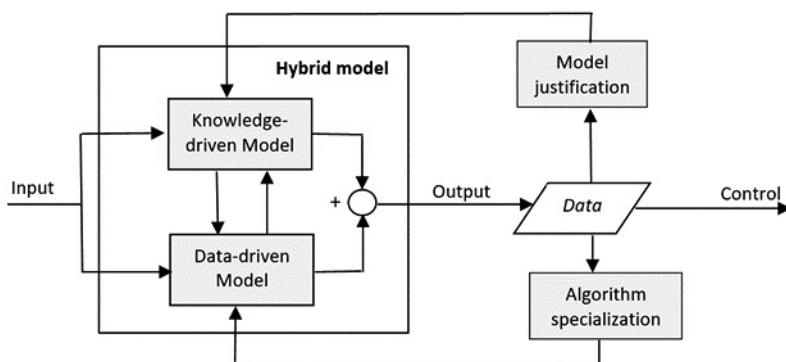
¹⁰ A technology that allows monitoring the authenticity of data within the system from the moment it enters the network. Due to the nature of the network configuration and the characteristics of the blockchain, any covert intervention in the data within the system is impossible. Therefore, it is important to ensure the authenticity of the data at the input, which is controlled by applying appropriate techniques and methods.

¹¹ We suggest that readers who are interested in learning about the practice and various aspects relevant to understanding the functioning of hybrid political and security systems read the following sources: Mariam Bjarnesen 2023. "Hybrid security governance in Liberia in the aftermath of UN intervention". *Conflict, Security & Development* 23 (1): 1-22. 10.1080/14678802.2023.2178100; Ariel Ahram, Ranj Alaaldin, Andrea Cellino and Roberta Magg 2022. *Sovereignty, Responsibility and Reform: Navigating the Complexities of Hybrid Security Orders*, DCAF, and LSE, "From Hybrid Peace to Human Security: Rethinking EU Strategy towards Conflict - The Berlin Report of the Human Security Study Group". 2016. London School of Economics and Political Science. <https://library.fes.de/pdf-files/bueros/london/12373.pdf>. 22/5/2025.

requirement for the delivery of timely and uncompromised information. When establishing ICT support within hybrid political systems, care should be taken to ensure efficient management of network resources so that access points with an intuitive interface are available to users of different profiles.

The ICT architecture consists of physical infrastructure and software applications that enable the required services. Data processing is carried out in data centres and so-called clouds.¹² To preserve the integrity of data, its exchange should be carried out according to protocols that ensure this. So far, practice has shown that BT provides the best guarantee for the integrity of information. Given the number of users and the network's breadth within a hybrid system, it is necessary to adhere to the general principles of organising complex structures. That specifically means the existence of two separate components or subsystems: analytical and executive (Figure 2). The analytical component involves collecting a large amount of data from the end users of the system and processing it to obtain information. Based on this information, decisions are made in accordance with scientific principles from specific areas (Mei et al., 2019).

Figure 2. Algorithm of a Security Managing Model



Source: According to Zaiwu Mei, Jianwan Ding, Liping Chen, Ting Pi and Zaidao Mei, "Hybrid Multi-Domain Analytical and Data-Driven Modeling for Feed Systems in Machine Tools", *Symmetry*, 11, 2019, 1156, <https://doi.org/10.3390/sym11091156>.

¹² In our work, cloud technology involves the use of virtual servers, first for access to user applications in order to collect data from citizens, and then for delivering this data to databases that serve for their processing. The public cloud, in this context, assumes access to all interested citizens who want to express their opinion on a certain social phenomenon. From the moment the data is entered into the public cloud, the further process takes place in the protected mode of the so-called private clouds, which enable the transfer and collection of data from multiple public clouds with the application of appropriate security measures to protect the integrity of the material.

The knowledge-based part of the system is formed based on theoretical and expert knowledge in the field of security and related scientific disciplines, focused on solving problems and monitoring processes. The data-driven part of the model uses the in-depth analysis of a large amount of data (big data) with the help of artificial intelligence (AI), which contributes to improving efficiency when facing security challenges and threats. The results of the entire model performance are superimposed and thus used for integral action, the aim of which is to control the situation and forecast the future course of events. The analytical potential of the described structure enables the monitoring of the situation along the dimensions of HS as well as their projection in the future, which contributes to increasing the resilience of the community. In case of the existence of serious security threats and escalation of crises caused by perceived threats, the executive component of the system is used, with mandates for civil, humanitarian, and military interventions.

Considering the importance of the collected data for analysis results and their implementation in practice, it is necessary to take all measures to make the system resistant to malicious interventions in the process of data collecting and processing, as well as concluding. That is why it is necessary to create a hybrid decentralised computer network with multiple levels of access – restrictive and public. One component is the Blockchain network with closed access intended exclusively for organisational, operative, and expert staff. In addition, for the needs of public access for those interested in relevant data from the field of HS, a network is built in the form of a Hybrid cloud architecture.

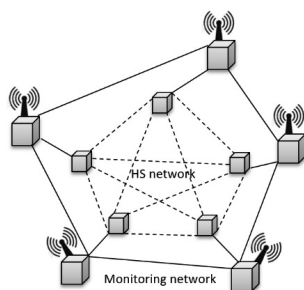
Blockchain network

Given that the operation of the hybrid structure presented here requires a high level of efficiency in the transfer of large amounts of data (big data) and that there is a need for a high degree of their protection, the ICT network should be built on the principles of BT. A network based on BT contains a distributed registry in the form of a blockchain of data used to record data transactions on multiple computers simultaneously so that no transaction record can be retroactively modified without being registered. In this way, a high level of cybersecurity is achieved, and it is practically impossible to compromise data within the system (Bruyn, 2017).

Due to the reliability and efficiency of the BT-based network architecture, its use is widespread as an ICT support for the management of sophisticated and complex systems in real time. These systems are used when there is a need for a large number of access points distributed over a wide area, as is the case in hybrid political systems. Blockchain architecture is most evident in the control and supervision of complex production systems and the management of complex urban systems (smart cities) (Sharma and Park, 2018).

Based on all of the above, we believe that an ICT network based on blockchain technology and the HS concept as a framework for analysing collected data is a way to raise the quality of life of people in a certain area. Collecting data from a large number of community members allows for a realistic insight into the situation and a timely response. Of course, for the successful and efficient operation of this system, the principles that ensure the integrity of the system and the protection of the privacy of its users should be respected. For the above reasons, the network architecture consists of two units: the network core and the peripheral network units. (Figure 3). The network core performs functional operationalisation based on data obtained from peripheral workstations.¹³

Figure 3. Blockchain for HS and monitoring network



Source: authors.

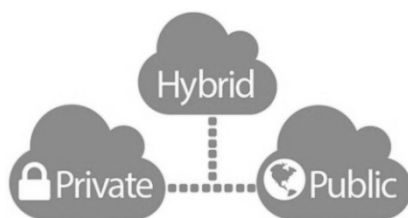
From Figure 3, we can see the principal scheme of the functioning of an ICT network that enables data collection through workstations whose distribution allows insight into the situation over a wide area and registration of citizens' attitudes and needs in relation to current processes. The anonymity of users guarantees honesty in the users' statements in relation to social and political processes, i.e., the state of the living and working environment. Due to the reliability of the data collection and the processing system based on their processing within the analytical unit (network core), it is possible to monitor changes in indicators within each of the dimensions of human security. The obtained results of expert analyses can serve as a basis for implementing measures (field operatives or competent persons within institutions) to take specific steps to eliminate the causes of negative trends. The described system can also be used for emergency response in emergency situations, but also to eliminate shortcomings in the preparation phase for responding to them.

¹³ Workstations can be applications on mobile phones, computers, tablets, or measuring devices that register changes in parameters on which the safety of the population in an area depends.

Applying the system in practice

The practical implementation of the system presented here at a theoretical level involves an ICT network that allows access to as many interested citizens as possible, while simultaneously providing a fast flow of data and information. Of course, the integrity of the system is assumed, i.e., the system is resistant to malicious activities from the outside and the inside. An ICT network based on a hybrid cloud architecture allows for the combination of data processing centres (which in this case play the role of private clouds) with public clouds that are accessible to a larger number of users, with secure channels for sharing data between them (Figure 4) (Turney, 2021).

Figure 4. Hybrid cloud architecture



Source: authors.

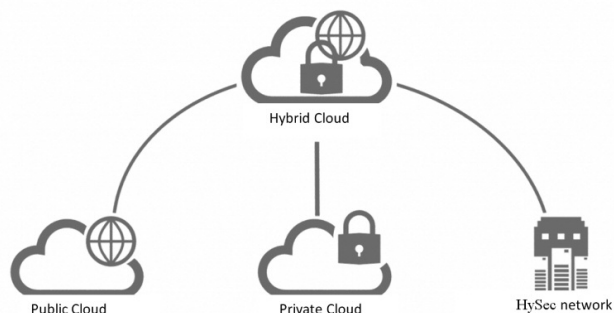
In the context of operationalising the concept of human security, the Hybrid Security Architecture, HySec, contains three subsystems (Figure 5):

1. Public cloud—connected via blockchain to local users. Thanks to interfaces (applications or monitoring devices), it provides local technological and social monitoring. The data is further used within the HySec network. (Figure 3).

2. Private cloud—based on data obtained from public clouds, it enables the development and implementation of national policies and strategies that affect the improvement of the quality of life and safety of the population in the area covered by the HS state analysis.

3. HySec Network—based on the information received, it coordinates the work of the state and local levels to raise the level of efficiency of security management in all dimensions of HS in the area it covers.

Figure 5. Hybrid cloud security architecture – HySec



Source: authors.

The presented approach (Figure 5) to operationalisation in the field of HS presents the HySec concept as a general hybrid model for security management in all dimensions of HS. Due to its comprehensiveness, the general hybrid model is complementary to the holistic nature of the concept of human security.

One of the assumptions for designing an efficient system is the use of appropriate statistical tools. We do not have space in this paper for a broader elaboration of multivariate analysis, but we recommend the doctoral dissertation of Sukanya Misre, which is dedicated to researching the impact of population density on citizen safety and whose statistical model is a sound basis for further research (Misra, 2014). For insight into the practice and specific application of the blockchain architecture, any publication of ICT companies specialising in this field can be used (Prosegur Research, 2024). For the beginning of further research, we suggest the already cited text entitled *Blockchain – an introduction* (Bruyn, 2017).

Conclusion

Contrary to scepticism and challenges, the concept of human security has demonstrated its analytical potential in practice and marked the work of UNDP in the decades after the fall of the Berlin Wall. The course of current events around the world shows that there is still a need to analyse the causes and eliminate the consequences of the application of the neoconservative model of regulating socio-economic processes in many countries of the world. The concept of human security as an analytical framework provides the opportunity to determine and quantify the causes of the problem. ICT, in this context, enables the establishment of an early warning system that would prevent the emergence of new conflicts and the exacerbation of old ones

between different social groups. As a technical solution, BT prevents manipulation within the process of collecting and processing data, thereby contributing to the realisation of the full potential of the concept in relation to the interests of citizens living in a certain area.

The implementation of national policies and strategies that have an impact on HS follows the top-down principle. On the other hand, operationalisation, that is, the realisation of security activities at the level of citizens, requires the bottom-to-top principle and a quick reaction in real-time. The disadvantage of this process is that state strategies rarely change and often do not take into account the reality that changes over time at lower levels. At the strategic level, the state, as a slow and inert structure due to delays in decision-making, is unable to react promptly in compliance with the requirements of the situation to protect the interests of citizens. In practice, that leads to instability and problems in the efficiency of the implementation of activities that contribute to the security status of citizens in the part solved at the local level (Djordjević and Dzigurski, 2019).

The perceived deficiency can be overcome by involving a larger part of the population in the work of institutions through citizens' associations, i.e., traditional forms of organisation (tribes, brotherhoods, etc.). However, this form of intermediary democracy can also be abused in order to realise the interests of informal centres of power. Therefore, a direct form of communication with citizens is irreplaceable in the process of learning about their needs and solving the problems they encounter in their immediate environment. Modern ICTs enable the creation of hybrid networks for communication between citizens as end users of the work of the institutional system and the centre of the system in which strategic decisions are made. Thanks to technical systems that provide access to a large number of users with reliable and fast communication, we can get closer to the ideal of direct democracy. Theoretically, it is possible for all citizens to participate in the processes on which the quality of their lives depends.

Changes in the functioning of the political system in terms of human security create adequate structural changes in the security sphere. Therefore, we can say that with the inclusion of new elements in the work of institutions, we also obtain appropriate changes in the security system. A situation is created in which state and non-state actors in the field of security coexist and act interactively. In this way, harmonisation between state and non-state actors is functionally achieved, which contributes to raising the level of security and human rights at the level of local communities and vulnerable categories of the population.

A timely reaction to a change of circumstances on the ground implies monitoring the situation in real-time. Achieving the ideal in the functioning of institutions concerning the interests of citizens implies the establishment of a system that collects and processes large amounts of data from the area under the jurisdiction of those institutions. The existing state structures are

bureaucratised, inert, and often staffed with incompetent employees who are not up to their social and political functions. That is why the limited personnel base is seeking solutions that do not depend on the assessment of local offices and personnel. In practice, local structures can prevent the flow of information to higher levels of the system, hiding their incompetence. Today, it is possible to establish a system that enables data collection and their flow from citizens and their associations to the highest authorities, owing to the potential of ICT networks. Directly or through their associations, citizens can express their attitudes and point out certain anomalies in the system's functioning. A very important moment in this process is securing the right to anonymity to get as objective a picture as possible, that is, to avoid the fear of retaliation from criticised elements of the system or individuals within it. Data collection and processing are possible with minimal risk of compromise because blockchain and cloud technologies enable protected communication at all stages of transmission and processing. Well-placed algorithms guarantee reliable information based on processed data and qualified decision-making in the process of solving detected anomalies in the system.

Finally, we emphasise that not everything is about technology and its potential. Certain prerequisites must be met for the technology to produce sound results. The functioning of the proposed system implies a certain level of social awareness of citizens and their willingness to actively engage in solving the problems they face in practice.¹⁴ It is also necessary for institutional structures to recognise the potential of ICT networks and artificial intelligence. The reliability of the system is ensured by eliminating the possibility of malicious interventions by interested parties. That specifically means that when designing the system, the full potential of blockchain technology and the cloud architecture are fully utilised to protect the system from external intrusions. Besides, the successful operation of the system, as already mentioned, implies the engagement of experts in the field of HS, that is, experts for each of the dimensions, to select relevant indicators that will, ultimately, make qualified decisions.

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¹⁴ This problem is solved through the educational content incorporated in the compulsory institutional education programs.

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