Security, Resilience and Sustainability of the European Union

Edited by
Anna Molnár – Éva Jakusné Harnos
– Mónika Szente-Varga

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Handbook

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Foreword

The development of this handbook was realised in the framework of the "EUSecure: Interdisciplinary Training on EU Security, Resilience and Sustainability" project. EUSecure is a project financed by the European Union Erasmus+ Strategic Partnership in Higher Education Programme (budget: 335,070 EUR, timeframe: 01.09.2020 – 31.08.2023). The core of our project is the development of a Simulation Supported HEI-level Massive Open Online Course entitled "Interdisciplinary Training on EU Security, Resilience and Sustainability" (EUSecure SimMOOC) – that also appears as an accredited elective in the partner universities' curricula. The main goal of this project was to use an innovative transdisciplinary approach to EU Security studies by complementing in-class learning with interactive blended learning activities and especially a blended simulation exercise.

The curriculum development centred on three areas: a handbook, class plans with activities and knowledge assessment for each module and a SimMOOC. The selection of topics for the handbook chapters took place after a needs analysis, during which our university students ranked the following six threats at the top of security risks: 1. Terrorism; 2. Deception and fake news; 3. Illegal migration; 4. Cyber threats; 5. Pandemic; 6. Natural disasters. This security perception was used in the first phase of our work for writing a situation analysis on each of the major threats ranked in the needs assessment and added by the experts of the participating universities. The intellectual outcome of the second phase was the Handbook of the EUSecure Project, which can be used by the students of the course for self-study. We intend to train students to be able to respond to the complex challenges of rapidly developing societies but also to understand European values and to train students to understand key issues of security, resilience and sustainability.

The Handbook chapters develop the topics of the Situation analysis volume further, extending the academic scope. We have used the most up-to-date academic sources as well as the documents of the European Union and other international organisations. The professors' work groups aimed at providing security analyses in the broadest sense. Thus, our handbook chapters cover the topics of global trends (Megatrends), multilevel governance (EU power in a multipolar world; International governance: multilateral institutions, norms, regimes). New dimensions of security are included (Cybersecurity and the risks of AI; Social media issues and fake news; Critical infrastructure protection; Climate security) as well as geopolitics related issues (Maritime security; Water security and water geopolitics). The perspective of human and social security is taken in discussing the impact of risks on the population of not only Europe but of the whole world (Public health). Besides presenting the current and possible dangers, the chapters offer an overview of current efforts by the European Union and other international organisations to cope with the security challenges (Sustainability, resilience and development; The political economy of international development cooperation; Humanitarian action and crisis management). The final chapters of the handbook are intended to enable

students to conduct research into areas of interest identified during studying the modules (Qualitative methodologies) and to prepare them for the simulation exercise (Transdisciplinary simulation exercise). The EUSecure LITE module was added for familiarising secondary school students with the transdisciplinary approach of current security issues through topics and activities fit for their age (Social media issues and fake news; Public health). In the last phase of the development of the handbook, an energy security chapter was added in order to update the range of security problems and highlight the effects of the Russia−Ukraine war.

A class plan with activities belongs to each chapter of the handbook. The class plans and activities for each module inspire the students to discover problems and possible solutions on their own, thinking and acting critically. On the one hand, they are encouraged to use multiple sources, on the other, to follow methods of cooperative and collaborative learning. Most modules include a role play or a simulation game whose objective is problem solving. The priority of the curriculum developers was to take a positive tone despite the sometimes worrying topics in order to awaken students to the fact that their talent and their actions in the future may be the solution. At the end of each module, a list of compulsory and recommended sources can be found so as to make independent student research easier to start. The digitalised version of the modules allows online, on-site, or blended use of the course.

Éva Jakusné Harnos and Anna Molnár

Anna Molnár – Tamás Csiki Varga

EU Power (Strategic Autonomy) in a Multipolar World

The aim of this chapter is to provide an overview on the international role of the European Union (EU) and on the debate referring to the concept of strategic autonomy. The discussion on creating/strengthening/restoring European strategic autonomy has gained visibility and significance after the European Union issued its first Global Strategy in 2016, calling for "an appropriate level of ambition and strategic autonomy" to strengthen "Europe's ability to promote peace and security within and beyond its borders". This has been triggered by external pressures, namely the deterioration of the EU's security environment and the fragmentation of the international order against which the EU should have more action potential for promoting its own and hedging others' interests. External pressures included subsequent crises since 2008, the U.K. leaving the Union (Brexit) and the transformation of Transatlantic relations. This concept paper highlights the conceptual elements and key practical aspects of European strategic autonomy not only in the traditional defence-oriented sense but in the wider, global perspective, which we need to study to gain a thorough understanding of the ways and means of creating/strengthening/restoring European strategic autonomy in these fields.

Keywords: European Union, strategy, autonomy, multipolarity, foreign security, defence policy

Acronyms

CARD	Coordinated Annual Review on Defence
CFE	Treaty on Conventional Armed Forces in Europe
CFSP	Common Foreign and Security Policy
CSDP	Common Security and Defence Policy
EC	European Communities
EDAP	European Defence Action Plan
EDF	European Defence Fund
EDU	European Defence Union
EEA	European Economic Area
EEAS	European External Action Service
EEC	European Economic Cooperation
ENP	European Neighbourhood Policy
ESDU	European Security and Defence Union
EU	European Union
EUHR	EU High Representative for Foreign Affairs and Security Policy
GS	Global Strategy
HR	High Representative
IPA	Instrument for Pre-Accession Assistance
MPCC	Military Planning and Conduct Capability
MS	Member State

PESCO	Permanent Structured Cooperation
TEU	Treaty on the European Union
TFEU	Treaty on the Functioning of the European Union
UK	United Kingdom
VP	Vice President

Introduction

Since its creation, the European Union (EU) has been described as a sui generis international actor. According to this concept, the European Union is neither a federation nor a confederation, not even a mere intergovernmental organisation, but a separate, sui generis form of integration, which cannot even be considered a state (Bogdandy 2012). To some extent, the EU can be described as a hybrid, state-like, sui generis international actor. Sui generis is a Latin expression, it means that something is unique ("of its own kind"). The EU has its own legal order, which is an integral part of the legal systems of the member states, and in this relationship the EU law has primacy over national law (EUR-Lex s. a.a).

The dynamics of the European integration process have been defined by the duality of intergovernmentalism and supranationalism. In some areas of external actions, e.g. in case of common commercial policy, the EU decision-making processes are supranational, based on the community (or union) method. This supranational method is not applied to the Common Foreign and Security Policy (CFSP). In this latter field, intergovernmental cooperation remains the decisive form of decision-making processes. While the community method (or union) is based on ordinary legislative procedure (that is, the adoption of EU legislation is made by the European Parliament and the Council with Qualified Majority Voting), the intergovernmental method is characterised mainly by unanimous decisions of the Council. In the latter case the Commission's right of initiative is shared with the EU Member States, the European Council plays a key role in decision-making processes and the European Parliament has mainly only a consultative role (EUR-Lex s. a.b).

This duality encouraged the development of the European Union as a hybrid political organisation which has the characteristics of a supranational entity. The Common Foreign and Security Policy, which is an integral part of the external actions of the Union, has remained a very sensitive area for Member States.

The political character of the EU

Defining the political character of the EU as an international player has triggered disputes among analysts, experts and politicians since the beginning. At the two distant points of this ongoing political debate are the final goals of the integration process: firstly, the traditional "intergovernmental" union of "European States" (Confederation) and, secondly, the federalist vision of Europe (i.e. "the United States of Europe") (Gazdag 2011). In our days,

Europe is at the crossroads of a more federalist vision and a more sovereignist position. Although this division is rather simplifying, it highlights the duality of the political nature of the EU itself.

The federation would require a real, bottom-up constitutional process, while in a confederation which is based on more intergovernmental co-operation, sovereignty would remain clearly at member state level. It is important to emphasise that the EU long ago surpassed the state model of a confederation, but it did not become a real federation. Thus, the EU is no longer a simple international organisation, but it cannot be considered a State.

In the process of creating an ever closer union, through international treaties establishing the European Communities (EC), and then the European Union, the Member States have limited their own sovereignty, but have not hitherto intended to create a real state based on a new federal constitution. Although, according to the neo-federalist model of European integration, with every step of integration the Union is getting closer to federation, but until a federal constitution is drafted and put in place, a new federal state will not be created. Altiero Spinelli, who was a Euro-federalist politician and thinker, was convinced that a federal Europe must be created through a real constitutional process (Molnár 2022).

In 1985, the European Communities was described by Jacques Delors as a kind of "unidentified political object" (UPO), i.e. a political "UFO", in his speech during the Luxembourg Intergovernmental Conference (Delors 1985). Of course, we can further list the different definitions: according to Wallace (1983), it is "less than a federation, more than a regime", and to Ruggie it is already "the first truly postmodern political form" (Ruggie 1993; Schmidt 2004). In 2016 V. A. Schmidt defined the EU as a "region-state" or a "regional union of nation-states" which is a form of supranational state-like entity. On the basis of the latter definition, the EU cannot be regarded as a supranational state or a true United States of Europe (Schmidt 2016: 17).

According to Robert Cooper, the European Union can be defined as a postmodern system. "The characteristics of this world are: the breaking down of the distinction between domestic and foreign affairs; the mutual interference in (traditional) domestic affairs and mutual surveillance; the rejection of force for resolving disputes and the consequent codification of rules of behaviour. These rules are self-enforced. No one compels states to obey CFE limits. They keep to them because of their individual interest in maintaining the collective system. In the same way the judgements of the European Court of Justice are implemented voluntarily, even when they are disliked, because all EC states have an interest in maintaining the rule of law; the growing irrelevance of borders: this has come about both through the changing role of the state but also through missiles, motor cars and satellites. Changes of borders are both less necessary and less important; security is based on transparency, mutual openness, interdependence and mutual vulnerability" (Cooper 2002; Cooper 2003). According to Cooper's definition, the EU in itself is based on the rule of law. We must take into consideration that Cooper's concept was elaborated just before the big bang enlargement (2004) of the EU, when mainly post-communist countries (e.g. not postmodern) became members of the European Union. In our days we

can observe that these countries are still in political transition, and they were not fully prepared for this postmodern structure.

Due to this dichotomy, a rather complicated situation has arisen: for example, the EU both has and does not have its own "Foreign Ministry". In 2010, the European External Action Service (EEAS) was established, but it is not even an official European institution. The position of the High Representative of the Union for Foreign Affairs and Security Policy (HR) is also double-hatted. He or she is the vice-president of the European Commission and presides over the Council of Foreign Affairs. Following the Lisbon Treaty, the intergovernmental and community methods are often interconnected, for example, in case of the EU's migration policy, which also has had external and internal dimensions. The tensions have become clear during the policy debates regarding the management of the migration and refuge crisis. In this case a clear conflict of competences can be observed between the Member States and the EU institutions.

The characteristics of the EU's external relations

Following the unsuccessful initiatives (European Political Community, European Defence Community) of the post-war period, it was obvious that traditional diplomacy and foreign relations would stay in the member states' competences in order to protect one of the most important part of their sovereignty (Gazdag 2005). At the creation of the European Economic Cooperation (EEC) in 1957, there was no hint at common foreign policy in the Treaties. The customs union and the common market, however, resulted in an increasingly significant network of external relations. The European integration began to develop according to the functionalist approach, which focused on economic aspects, and in that context, the first integration organisations (European Coal and Steel Community, European Economic Community and European Atomic Community) had not yet received traditional foreign policy competences.

During the eighties, the European Communities (EC) developed as an economic giant, and parallel to this, intended to have a political role in international relations, as well. Later, the realisation of this was hindered by the lack of real common foreign policy. With the process of the European integration, the need to establish the framework of cooperation in foreign policy became obvious. However, with the creation of the European Economic Community, and the shift of foreign relations towards economic issues, the EC, as a major player in world economy, started to exercise ever greater influence on its external environment.

Since the creation of the European Union by the Maastricht Treaty in 1992, the CFSP has always been characterised by intergovernmentalism. The decision-making processes of Common Foreign and Security Policy and Common Security and Defence Policy are still dominated by the member states, as decisions are taken unanimously. Due to the fact that these are very sensitive policy areas, the realisation of real common policies in these areas belongs to the most difficult fields to be unified in a fully coherent way.

The wars in former Yugoslavia, in Ukraine and in the Southern Mediterranean areas showed that the EU should act more efficiently to become a real global player. Without effective tools and without the reform of decision-making processes, it has only a lower level of influence on international relations. As the EU is a normative or soft power (Nye 2005; Manners 2002), it has laid much emphasis (with more or less success) on the representation and dissemination of its shared values and the protection of universal human rights signing agreements, building foreign relations and executing its development policy.

Following the establishment of the CFSP, this policy started to develop rapidly. Although the successive modifications of the EU Treaties led to the establishment of the CSDP and new positions and bodies (HR, or the EEAS) were created, until recently the EU has not been seen as an effective global player due to the different foreign policy interests and viewpoints of the MSs. It is still hard to speak in one coherent voice and thus play a role of greater influence in international relations. The general rule of unanimity in the field of CSFP makes the EU slower and in some cases ineffective.

Nowadays the external relations network of the EU can be described as the continuous interplay and development of at least eight fields: 1. common commercial policy; 2. development policy; 3. economic, financial and technical cooperation; 4. aid policy; 5. the process of enlargement; 6. association agreements (like the EEA [European Economic Area] or ENP [European Neighbourhood Policy]); 7. diplomatic relations; and 8. the CSFP/CSDP. This system of external relations has been institutionalised through diplomatic, economic and trade relations and agreements between the EU institutions and various international organisations, as well as with non-EU countries.

The legal basis of external relations and policies

The legal basis of external relations and policies are laid down in the EU Treaties (Treaty on the European Union [TEU] and the Treaty on the Functioning of the European Union [TFEU]):

1. Common commercial policy (Article 207 TFEU, exclusive EU competence)
2. Association Agreements (Article 217, 218 TFEU)
3. Development cooperation (Article 208 TFEU)
4. Economic, financial and technical cooperation (Article 212 TFEU, e.g. IPA)
5. Humanitarian aid (Article 214 TFEU)
6. Enlargement policy (Article 49 TEU)
7. Diplomatic relations: Union relations with international organisations and third countries and Union delegations (Title VI of the TFEU)
8. Common Foreign and Security Policy (Article 37 TEU), Common Security and Defence Policy (Articles 41–46 TEU)

The EU's commercial policy and its external relations are closely linked to EU development policy, to the enlargement process and to CFSP. The decision-making processes and institutional systems of these external policies vary considerably. The common

commercial policy falls within the Union's competencies, while the CFSP continues to operate on an intergovernmental basis. Development assistance and aid provided by the EU to developing countries are inseparable from the practices carried out by each Member State.

One of the most significant features of the Lisbon Treaty (2007) was that it promoted a more transparent separation of competences between different levels of governance. This new contractual framework also achieved results in the separation of the competencies of external policies. By abolishing the pillar system of the Maastricht Treaty, the CFSP is no longer clearly separable from other external actions, yet it remains a special policy which is an exception to all the general rules of functioning of the EU. The strong connection between the two areas is nonetheless ensured by the European Council with its orientation role, the Foreign Affairs Council (i.e. the Council of the Union in charge of foreign affairs and chaired by the HR), the European Commission, the European External Action Service and the High Representative of the Union for Foreign Affairs and Security Policy. The HR has had an increased political role being also Vice-President of the European Commission and leading the European External Action Service.

Despite the worsening security environment and the different foreign policy interests of member states since the entry into force of the Lisbon Treaty, the EU has become a kind of unique, postmodern and also sui generis foreign policy player of the international system. Since the beginning of the 2010s, the EU has faced internal and external threats and challenges (Arab Spring, Ukrainian and Syrian crises, weak statehood, refugee and migration crisis, growing Euroscepticism, Covid pandemic crisis, etc.). The weakness of the EU's responses to these challenges contributed to the acceleration of the integration process in the field of security and defence.

Conceptual diversity, from civilian to normative power

The European Union has been defined as a 'civilian' (Duchêne 1973; Stavridis 2001), or a 'soft' power (Hill 1990). Later, Manners described it as a 'normative' power (Manners 2002; 2006). During the last decades, it has been conceptualised as an ethical (Aggestam 2008) or liberal power (Wagner 2017) in international affairs. However, sometimes the hybrid power character of this foreign policy actor still provokes dispute (Tocci 2008). In many cases, concepts related to the EU cannot be separated sharply, but these are often overlapping. In the literature, it is not uncommon that the "normative, civilian" or even "soft" adjectives are used as synonyms of each other.

In 2010, Andrew Moravcsik claimed that the EU has become a certain superpower which is "able to exert global influence across the full spectrum of power, from "hard" to "soft". Europe is the only region, besides the United States, that projects intercontinental military power. And European countries possess a range of effective civilian instruments for projecting international influence" (Moravcsik 2010: 91). In October 2016 Federica Mogherini, High Representative for Foreign Affairs and Security Policy, also called the EU a superpower which is able to emerge as a global player relying on its

economic power. She emphasised that: "Because sometimes we don't realise but we are already a super-power as a European Union. Every time I say super-power together with the European Union, I see a lot of sceptical faces but you look at the numbers and we are the first economy in the world, we are the biggest market in the world, we are the biggest provider of foreign investment in the world, we are the biggest humanitarian aid provider and we are the biggest development cooperation provider in the world" (European External Action Service 2016a). In 2015 the HR/VP claimed that the EU is not only a big free trade area, it can be defined as a foreign policy community, a security and defence provider outside and inside the Union (European External Action Service 2015a).

According to Roberto Baldoli and Claudio Radaelli, the power character of the European Union was examined through a "non-violence" lens (Baldoli–Radaelli 2019). The EU's official texts make similar claims about the Union's role in world politics: "A contributor to peace, responsible neighbour, development partner, human rights defender, partner to the United Nations, force for global security, crisis response and humanitarian aid provider, advocate of action on climate change, trading bloc and an expanding union" (European External Action Service 2019). In defining the EU's own role, the liberal-based normative approach, which focuses on multilateral relations, is clear.

One of the basic questions is whether the EU can be regarded as a "power" in the traditional sense of this word. In the absence of its own military power, the European Community was defined by Duchêne as a "civilian group of countries long on economic power and relatively short on armed force" (Duchêne 1973: 19), which concentrates on the proliferation of "social values of equality, justice and tolerance" (Duchêne 1973: 20). The civilian power is "non-military, and includes economic, diplomatic and cultural policy instruments" (Smith 2005: 1).

Since the 1990s, this non-military civilian power (Duchêne 1972; 1973; Stavridis 2001; Juhász 2014: 34) or soft power has started increasingly to become a real normative power, and subsequently this is the most widespread EU-related concept (Nye 1990; Nye 2005; Ashton 2011; Manners 2011). The EU, as a normative power conducting and implementing its foreign policy system (aid policy, neighbourhood and enlargement policy and the EU civilian missions and military operations and via the association, partnership or cooperation agreements), has placed great emphasis on the protection, spread and voluntary acceptance of its principles and shared values by third countries. The normative nature of the EU, thus, the promotion of universal norms and shared values was effective in supporting the democratic transition of the former socialist countries in the period following the disintegration of the bipolar international system. Among the main foreign policy tools of the EU, we can mention enlargement policy, neighbourhood policy, foreign trade, aid and development policy.

The Global Strategy for the European Union's Foreign and Security Policy (the Global Strategy or GS), adopted in 2016, also refers to the EU's civilian or soft power character, but it also underlines that this soft power is not enough: the EU must enhance credibility in security and defence. Commitment to stability is a second priority of the EU's GS, which is declared in strengthening the state and social resilience in the Eastern and Southern Neighbourhood (European External Action Service 2016b: 44). The GS

represents a more pragmatic approach, focusing on the state and societal resilience of the Neighbourhood. According to Sven Biscop, the Global Strategy signals a return to Realpolitik, and a balance between "dreamy idealism and unprincipled pragmatism". The GS speaks of "principled pragmatism". Compared to the previous security strategy of the EU (2003), the GS takes into account its barriers, and it is less optimistic about the success of democracy transfer (Biscop 2016). The priority placed on the state and societal resilience of the southern neighbours clearly shows the turn away from the EU's pure normative role.

It has become clear that the normative and soft power offered by the EU is insufficient compared to the goals set by Article 21 of the Treaty on the European Union for its external action and CFSP. The EU had only a limited impact on the transition processes of the countries in the closest region (e.g. the strengthening of civil society). It is obvious that in the future, the EU must use both soft and hard foreign policy instruments in the framework of the comprehensive approach elaborated in 2013 and the integrated approach introduced by the Global Strategy. In 2016 Jean-Claude Juncker noted in his State of the Union speech: "Soft power is no longer enough […] in the EU's increasingly dangerous neighbourhood." It is not coincidental that following the review of the ENP supporting stabilisation became a top priority (Joint Communication 2015).

The EU has a long history of ambitions but in reality it provided unsuccessful and insufficient plans for its Neighbourhood. It is not surprising that the Global Strategy adopted in 2016, which tried to find a perfect balance between idealism and sometimes inconvenient reality, has introduced the approach of "principled pragmatism" (European External Action Service 2016).

Enlargement policy can still be considered the most effective normative "foreign policy" instrument of the European Union. Through the perspective of EU membership, the EU has the greatest possible Europeanisation effect on countries outside its territory, that is, on the domestic politics of the countries willing to join the EU. This process is triggered by a kind of positive constraint. The European perspective clearly offered to each country (the possibility of accession) results in real institutional, political and economic changes. The countries which wish to become a member state are under the process of Europeanisation. The process of joining the EU covers all major civilian tools from trade policy to development policy (Manners 2015).

However, this instrument is limited by geographical reasons, and it does not have the same effect in the Southern Neighbourhood. Having a magnetic normative power for the pre-accession countries, the European Union and its member states served as a model of modernisation during the Eastern enlargement and as a stabilising force in the Western Balkans. In the area of neighbourhood policy, where the influence of other international actors is dominant, the EU has been able to show fewer real results. We can also mention the case of Ukraine, which is intersected by spheres of influence of the EU and Russia. In this case, needed political and economic reforms can be required if the unprovoked Russian aggression is over and the EU offers a realistic European perspective. It is not a coincidence that Ukraine was granted the EU candidate status by the European Council in June 2022.

The future of European hard power

During the last few years, the acceleration of Europe's security and defence cooperation has been caused by at least five processes and factors. Firstly, the aggression of Russia in Ukraine, secondly, the mass illegal/irregular migration and refugee crisis, and thirdly, the deteriorating EU−USA relations during the presidency of Donald Trump can be mentioned. The result of the referendum on Brexit, and then the British exit from the European Union is the fourth reason behind this process. Finally, the changing global environment should not be forgotten, in which the existing global order is threatened by the rise of new powers, which can lead to a new arms race (Molnár 2022).

In December 2013, the European Council held its first thematic meeting dedicated to defence, identifying priority actions for stronger cooperation (European Council 19–20 December 2013, Conclusions). In 2014, the candidate for President of the European Commission, Jean-Claude Juncker, highlighted the need to introduce enhanced cooperation in the defence sector, particularly in the area of procurement (European Commission 2021). The idea that attracted most public attention was Juncker's announcement in March 2015. The President of the European Commission called for a common European army to face external threats (Welt 2015; Juncker 2016a). Juncker's announcement provoked an intensive debate among experts and politicians of MSs. While some were sceptical about the idea, others considered it food for thought for further debate (European Parliament 2015: 5).

In 2015, the report on 'More Union in European Defence' coordinated by Javier Solana[1] and Jaap de Hoop Scheffer[2] recommended the creation of a European Defence Union (EDU) as the ultimate goal of integration in the field of defence. The report outlined that due to the absence of a core group of member states, there are different regional or geopolitical clusters of cooperation. According to the report, this model of cooperation is based on the principle of variable geometry, namely on the different interests and political will of the Member States. The authors of the report also proposed the use of the Lisbon Treaty's potential, such as Article 44 TEU and Article 46 (PESCO) (Blockmans–Faleg 2015: 7–8).

The terrorist attacks in Paris in 2015 also served as an incentive for further deepening, as, following the events, France asked for the activation of the EU treaty's mutual defence/assistance clause (Article 42.7 TEU) in order to be provided assistance in its "war" against the so-called Islamic State (ISIS). On 21 January 2016, the European Parliament welcomed the decision of all Member States to help France. The EP adopted, of course, a non-binding resolution on the need to go further and to create a European Defence Union. According to the document, the process could lead to the creation of a European army in the long term (European Parliament 2016a). The resolution was non-binding as the European Parliament has only very limited competences in the field of CFSP and CSDP.

[1] Former High Representative for Foreign Affairs and Security Policy and NATO Secretary General.
[2] Former NATO Secretary General.

In 2016, the result of the referendum on Brexit significantly accelerated the integration process in this area. The Global Strategy for the European Union's Foreign Affairs and Security Policy, adopted in June 2016, just a few days after the British referendum, expressed the goal of strategic autonomy and strengthening the EU as a security community (European External Action Service 2016b). After years of immobility in the field of defence integration, Federica Mogherini, the EU High Representative for Foreign Affairs and Security Policy (EU HR/VP) successfully presented the Global Strategy to the European Council and the implementation of the strategy started.

In 2016, Germany, France, Italy and Spain were the most committed supporters of closer integration in the field of defence among the EU Member States (Bundesregierung.de 2017; Partito Democratico 2018; Grevi 2016). The United Kingdom's withdrawal from the European Union has created a new situation. On the one hand, British politics did not hinder further deepening of integration in this area. On the other hand, it meant further reduction of European defence expenditure, as the U.K.'s defence budget accounted for 20% of all Member States' defence budget. Following the Brexit referendum, France and Germany have increasingly taken the lead in the reform process of the integration. In an open letter on 27 June 2016, four days after the referendum, the French and German Foreign Ministers emphasised the need to establish a European Defence Union (Koenig–Walter-Franke 2017; Ayrault–Steinmeier s. a.). In September 2016, German and French Defence Ministers presented their plan for implementing the Global Strategy. They proposed to build an EU headquarters, strengthen Eurocorps, rethink the Athena system, establish security and defence partnerships with African countries, develop a European research agenda, strengthen relations with NATO, revitalise the battlegroup concept and realise the potential of the Lisbon Treaty, in particular the implementation of Permanent Structured Cooperation (PESCO) (Koenig–Walter-Franke 2017; Molnár 2018; Molnár 2022).

In September 2016, at the Foreign Affairs Council in Bratislava, Federica Mogherini presented the main steps of implementing the Global Strategy (e.g. the European Defence Action Plan (EDAP), NATO–EU cooperation and the European Defence Fund (EDF) (Informal Meeting of Foreign Affairs Ministers 2016). In September 2016, concerning the plans, European Commission President Jean-Claude Juncker, in his annual speech on the State of the European Union emphasised, inter alia, the need for closer integration in the defence area, such as the establishment of a single headquarters for EU missions, the realisation of the EDF and the PESCO (Juncker 2016b). Although the EP lacks real decision-making roles in the field of CSDP, this institution also supported these propositions. According to the resolution of the European Parliament in 2016, the EDU should provide guarantees and capabilities to EU Member States beyond their individual ones and it proposed the establishment of a Council format for defence ministers (European Parliament 2016b).

In 2017, the European Commission published the "Reflection Paper on the Future of European Defence", highlighting that "the foundations of a European security and defence union (ESDU) are gradually being built" and the ESDU "should encourage a stronger alignment of strategic cultures, as well as a common understanding of threats

and appropriate responses. It will require joint decision-making and action, as well as greater financial solidarity at European level" (European Commission 2017: 11). In September 2017, Jean-Claude Juncker, in his annual speech on the State of the European Union expressed that by 2025 the EU needs to become a fully-fledged European Defence Union (EDU) (Juncker 2017).

Although the definition of the ESDU or EDU is still not clear, the gradual realisation of deeper European defence cooperation began after the adoption of the Global Strategy. Since 2016, this long process has been built on at least five pillars: the establishment of the Permanent Structured Cooperation, the introduction of the Coordinated Annual Review on Defence (CARD), the establishment of the Military Planning and Conduct Capability (MPCC), the creation of the European Defence Fund and the establishment of the European Peace Facility. It is worth mentioning that the MPCC created a permanent command structure for EU (non-executive) military operations, and with the creation of the EDF, it became possible to fund research and the joint development defence projects from the EU budget, in both cases for the first time. These achievements were unimaginable just a decade ago (European Commission 2016).

Although the 2018 State of the Union address did not mention the idea of the European Defence Union, it highlighted that due to the geopolitical situation, the moment of European sovereignty had come. Juncker stated that it was time for Europe to take its destiny into its own hands and to play a role, as a Union, in shaping global affairs as a more sovereign actor in international relations. According to his vision, European sovereignty is born of Member States' national sovereignty and does not replace it. Sharing sovereignty makes them stronger. He also emphasised that this process does not mean the militarisation of the European Union; it means becoming more autonomous and living up to the EU's global responsibilities (Juncker 2018).

An important predecessor of the EU's concept of strategic autonomy can be found in the 1994 French White Paper (Livre Blanc sur la Défense 1994) and in the 1998 Franco–British Joint Declaration in Saint-Malo (CVCE 2015). The 2016 Global Strategy clearly articulated the need for the strategic autonomy of the EU (European External Action Service 2016b). Not only the deteriorating international security environment and Brexit, but also the fact that U.S. attention turned to the Asia-Pacific region over the past decade intensified the debate regarding strategic autonomy (Biscop 2016; Béraud-Sudreau–Pannier 2021; Krotz–Schild 2018; Molnár 2022).

To this day, a formal definition of the concept of strategic autonomy has not yet been developed at EU level. The concept can be summarised as the EU's ability to ensure its security and to act autonomously on land, in air, at sea, in space and in cyberspace, to project power, to respond to external crises, and finally, to decide independently in the field of defence policy (Biscop 2019; Varga 2017; Sutter 2020). Member States have different interests and views on the concept (Weitershausen et al. 2020; Grüll–Lawton 2020; Recchia 2020; Silva–Zachary 2020). So far, the EU launched several initiatives to strengthen European defence capabilities and autonomy (PESCO, CARD, EFD, MPCC), however, in terms of size and ambitions, none of these developments fully met the initial high expectations (Molnár 2022).

In 2019, the new President of the European Commission, Ursula von der Leyen, proposed to lead a 'geopolitical Commission' and Josep Borrell, the new High Representative of the Union for Foreign Affairs and Security Policy/Vice-President of the European Commission (HR/VP), expressed that the EU needs to "learn the language of power". Although the historical connotations of geopolitics are controversial, the new Commission embraced the concept. According to Fiott, it would not be easy for the EU to survive in the world of Mackinder or Mahan where "the ideas such as the military control of the 'heartland' or mastery of the seas are decisive" (Fiott 2020).

Although the 2020 State of the Union Address of Ursula von der Leyen did not mention the establishment of EDU or strategic autonomy (Leyen 2020), the process continued. The Member States' governments and institutions elaborated the first threat analysis in a 2-year process, which led to the adoption of the Strategic Compass in 2022. According to Fiott, the Strategic Compass hopefully "gives concrete politico-strategic guidance for the existing level of ambition so that it can deliver on operational deployability and capability development" (Fiott 2020: 7). In February 2021, the President of the European Commission at the video conference of the European Council emphasised the necessity of creating the EDU on building blocks such as the PESCO, supported by the financial resources of the EDF (European Commission 2021; Molnár 2022). In 2021, the State of the Union Address referred to the need for the European Defence Union and it stated that, although the EU has started to develop a European defence ecosystem, there is still room to proceed (Leyen 2021). The Russian aggression in Ukraine created more deteriorating security situation in Europe. In 2022, the EU adopted its first ever military doctrine, the Strategic Compass.

Why does the European Union need (more) strategic autonomy?

The discussion on creating/strengthening/restoring European strategic autonomy has gained visibility and significance after the European Union (EU) issued its first Global Strategy in 2016, calling for "an appropriate level of ambition and strategic autonomy" to strengthen "Europe's ability to promote peace and security within and beyond its borders" (European External Action Service 2016b: 9). This has been triggered not primarily by the organic internal institutional development of the union (further deepening of the integration), but by external pressures, namely the deterioration of the EU's security environment and the fragmentation of the international order against which the union should have more action potential for promoting its own and hedging others' interests. However, as a consequence of adopting such an ambitious agenda that characterises a capable great power, we could see important steps towards both streamlining and deepening cooperation in policy fields that should underpin European strategic autonomy, such as economic policy, technology and innovation, civilian crisis management, defence capability development, sanctions policy, etc.

External pressures have unfolded during the past decade with growing impetus. On the one hand, the global shift in power brought about the relative weakening of the West,

including both European countries and the United States versus returning (Russia) and emerging great powers (China, India) and regional powers (Iran). This does not mean the inferiority of Western countries to emerging powers, but a new rivalry across the power spectrum and all policy fields. However, it is important to properly evaluate the effects of this change as the weakening hegemonic role of the United States and the formation of a new multipolar world order (Murray–Brown 2013), which not only create strains but also offer opportunities. For Europe, this shift causes the transformation of bilateral relations across the Atlantic, as well as more room for manoeuver within multilateral relations to other great powers. In other words, the widening of the international arena takes place where the EU should be a capable actor (Dee 2015). On the other hand, the fragmentation of the international order brings about the demise of the liberal world order set up after World War II, the emptying of norms, legal frameworks and those international institutions that were devised to prevent and moderate international conflicts. Great powers challenging Western (U.S.) hegemony not only criticise the rules, structures and institutions of the liberal world order but effectively undermine it through their actions, sometimes also offering alternative conduct and formats. Therefore, it is imperative that the European Union be ready and capable of influencing international relations along European interest through developing its own capabilities of strategic autonomy and counterbalance such challenges.

During the last decades, significant changes have taken place in the international system: great power competitions and politics, characteristics of the former bipolar international system, have intensified again. The nearly two decades of U.S. hegemony began to be eroded by an economically and militarily growing China and a much more ambitious Russia than before. The weakening of the liberal international world order has brought about the upset of the hitherto established but already fragile balance. As a result, the liberal international system based on cooperation and interdependence in the Western-inspired multilateral framework seems to be tearing apart (Haass 2017; Ikenberry 2018; Kundnani 2017; Fukuyama 2020; Helwig–Siddi 2020).

Further incentives were added to the debate on European strategic autonomy by the series of crises European countries have witnessed since 2008 on the continent and in its immediate neighbourhood: the Russo–Georgian War (2008), the financial and economic crisis (2008–2009) and its consequences, the Arab Spring (2010) and its aftermath, such as the Libyan (2011–) and Syrian (2011–) civil wars, the emergence of Daesh – 'Islamic State' (2014) and a subsequent wave of terrorism (2015), the illegal annexation of Crimea (2014) and Russian-induced armed conflict in Eastern Ukraine (2014–), the migration and refugee crisis (2015), the outbreak of the coronavirus (Covid-19) pandemic (2019 –), and the 2nd Nagorno-Karabah war (2020). A common element of most external crises was that the European Union had only limited or no role in managing these – for various reasons, but mostly due to the lack of political consensus of the member states upon what action should be taken. In these cases, either the EU stood by, vulnerable to their effects, or European member states managed to influence events by participating in ad hoc formats, such as the Global Coalition to Counter ISIS or the 'Normandy Format' (Germany, France, Russia and Ukraine to resolve the war in Donbass). Reaching the necessary consensus

was not easy in case of internal crises either, but in this regard the union proved to be a somewhat more capable actor.

The relation of the EU towards two key allies has also altered since the Global Strategy had been adopted, strengthening the calls for stronger EU strategic autonomy. After the election of Donald Trump as U.S. President in 2017, an unprecedented transformation of Transatlantic relations took place, questioning the security guarantees Washington had been providing for Europe for decades. Even though some realignment in style is expected to take place under the Biden Administration, the strategic processes of U.S. pivot towards the Indo-Pacific and the resulting shift of forces and commitment away from Europe and the European neighbourhood will not change for the better. By 2021, the Brexit process that started in 2016 had also been concluded, depriving the EU from one of its most capable member states in terms of political, diplomatic, economic and military power, as well as in the field of technology and innovation.

Among these circumstances and upon adopting ambitious strategic goals, the 2020s will set the stage for the EU to create the indispensable political, institutional and material pillars of its autonomous ability to act in its own way, as termed by High Representative Josep Borrell: to realise Europe's *Sinatra Doctrine* (Borrell 2020).

Defining and conceptualising European strategic autonomy

The concept of 'strategic autonomy' in the European context has evolved throughout the past six years, revealing a complex nature upon identifying its various aspects under several names, such as 'strategic responsibility' (Brattberg–Valásek 2019), 'strategic sovereignty' (Leonard–Shapiro 2019) and 'open strategic autonomy' (Hogan 2020). While there is no generally agreed common definition, shared elements can be identified in the relevant literature, moving from a narrow defence-oriented conception (Fiott 2018) towards global understanding both in terms of meaning and geographical focus (Lippert et al. 2019).

For a suitable working definition, strategic autonomy in a general approach means the ability of an actor to independently determine its goals and priorities of international action, undertake decisions and realise them, including all their institutional, political and material aspects. In the broadest sense, strategic autonomy entails the capability to (trans)form, change and enforce the rules of the international order – as opposed to an obligatory (forced) consent to following the rules determined by other actors. As such, the opposite of strategic autonomy in the current international order would be the adoption of the rules defined by the United States, Russia and China or others.

In one of the most recent analyses, Niklas Helwig offered a conceptual overview, summarising the broad understanding of strategic autonomy as the following (Helwig 2020: 6):

Table 1: The broad understanding of strategic autonomy

	Conventional perspective	Global perspective
Strategic autonomy for…	Security and defence	Security and defence, trade and industry, digitalisation, climate, health
Strategic autonomy from…	United States	United States, China, other emerging powers and economies
Strategic autonomy to…	Act militarily in Europe's neighbourhood, protect Europe	Promote European interests and values
Drivers	U.S. structural pivot, transatlantic uncertainties	Rise of China and rivalry with U.S., technological change
Inter-organisational relations	NATO	NATO, UN, WTO
Alternative concepts	Strategic responsibility, ability to act	Open strategic autonomy (trade), European sovereignty (tech, industry)
Principal dividing lines	Differing threat perceptions among EU member states and ties to the U.S.	Political economy / Free market vs. state intervention

Source: Helwig 2020: 6

We can clearly see that the global understanding of strategic autonomy goes beyond security and defence issues, primary ties to the U.S. and NATO, and encompasses those means of power in which the EU can indeed play a global role: economy and trade (the common market), technology, as well as multilateralism in global institutions. In the practical sense, other policy areas in which member states and EU institutions should join their efforts to act strategically include energy policy, intelligence, development and aid, civilian and military crisis management, sanctions policy, arms control, immigration and refugee policy, grey-zone conflicts and defence. This approach refers to strategic autonomy as "an essential enabler of Europe's shaping power" (Grevi 2019).

Helwig also suggests three dimensions within which the capacity of the EU regarding its strategic autonomy should be evaluated: institutional, material and political aspects (Helwig 2020: 8):

Institutional autonomy – Distinct structures and instruments for the planning and implementation of policies

Elements:

- Decision-making structures: The EU and its member states have structures in place that facilitate the shaping and taking of joint decisions.
- Planning capacities: The EU has capacities to facilitate the preparation of joint decisions and support member states in their implementation.
- Power transfer: The EU can enforce the implementation of decisions, for example through a transfer of competences or a sanctioning mechanism in case of member states' non-compliance.

Material autonomy – The technological, industrial and military capacity to independently implement decisions

Elements:

- Pooling and sharing: Member states share or jointly use critical goods and capabilities (e.g. military) in the implementation of policies.
- Capabilities and supply security: The EU and member states ensure the availability of capabilities (e.g. military) and critical supplies needed to implement policies through joint procurement, diversification, or stockpiling.
- Domestic industries: The EU and member states develop industries in strategic sectors through R&D efforts, financial incentives, or regulatory measures.

Political autonomy – The ability to independently define common priorities and take decisions

Elements:

- Joint assessment: Member states seek a common understanding of the challenges and options regarding a threat or international development.
- Policy convergence: Member states actively engage in a process of formulating a joint response (consultations, bargaining and leadership).
- Strategic culture: Member states can base their response on a common set of norms, strategic evaluations and behavioural patterns that facilitate joint action.

These three dimensions constitute the building blocks of EU institutions' and member states' ability to act, around which political and expert debates also revolve. In the institutional dimension one must understand to what extent the EU's structures and processes, including their general and joint authorities, are fit for supporting collective action based on sovereignty sharing and sui generis EU competences. In the material domain, the question is to what extent do member states provide the necessary resources, goods and capabilities for the EU to execute the jointly agreed decisions and realise their shared goals. While in the political domain the key question is to what extent can member states form consensual decisions to enable the EU to take action at all, which has very often been the most fundamental obstacle to take any action on behalf of the EU throughout the external crises of the past decade.

We can summarise very briefly that the European Union can reach more robust strategic autonomy in the next decade on a global scale only if its member states increase their efforts to cooperate, consent to effective sovereignty sharing, and underpin their joint endeavour with resources. Apart from some key EU institutions, such as the Commission that is to function with a 'geopolitical' mindset, or the External Action Service, which is, by definition, the driver behind many foreign policy initiatives, the EU apparatus itself and member state representatives as well as national governments and strategic communities should also adopt a strategic culture that drives common thinking and action towards the above-mentioned directions. The elaboration of the Strategic Compass kick-started by the German Presidency in 2020 to be concluded during the French Presidency in 2022, might serve as a key tool in this process.

Conclusions

The European Union cannot be defined as a military power in the absence of its own European army. Although Jean-Claude Juncker called for the creation of a European army, the EU remains primarily a civilian, soft or normative power relying on its own economic strength and democratic values. This is underlined by the fact that one of the most important instruments of EU external actions is the common commercial policy. This policy plays a primary role in preserving the EU's global economic weight in a growing international economic competition. The development and aid policy plays also an important role in shaping the EU's external relations, as well as being a contradiction of the sanction policy. Although the EU can rely on military tools (CSDP missions and operations) in a crisis management situation, the contradictions and shortcomings that still exist will continue to hinder a truly successful joint action.

If the Member States are able to implement the ambitious plans for the defence union consistently and if the EU is able to use its various (economic, political, diplomatic, military, etc.) assets in external actions, the EU can become a real "smart power". Without a real political will, the current momentum can be lost, ambitious plans will remain on paper or reforms can only bring partial results.

It is clear that following the aggression of Russia in Ukraine, the referendum on Brexit and, partly, due to the controversial policy of Donald Trump towards the EU, the process for deepening integration in defence and security has been accelerated.

Nowadays, European societies expect EU institutions to provide effective responses to the management of emerging crises inside and outside the EU. The migration and refugee crisis, terrorism and armed conflicts in the immediate neighbourhood have exposed shortcomings in Europe's foreign policy system. The weaknesses of the intergovernmental mechanisms, the conflict of interests between Member States and the lack of defence union all contributed to the weakness of the EU's responses. Although we have noticed that cooperation between the EU institutions and major players has been steadily improved over the last few years, societies are becoming more and more impatient, there is growing frustration and dissatisfaction with the EU in the various forms of Euroscepticism.

However, in order to deal with these high expectations, the European integration should be deepened. Spinelli pointed out that, although national governments were generally conservative, in the face of a crisis or a challenge, that is, in periods of "creative tensions", they were able to renew and reform the European institutional structures, overcome their own limitations (Spinelli 1972).

Following the financial-economic and migratory-refugee crisis the EU is at a crossroads: to further deepen or at least to maintain the level of integration ("Make it or break it?") (Bruni et al. 2017). Several questions have been raised concerning both the deepening and the enlargement of the EU. However, it is clear that the integration process has got over the deadlock and many reforms were launched or are expected to start. In parallel with negotiations on Brexit, the United Kingdom long hindered the preparation of small-scale reforms in the area of security and defence.

The contradictions regarding the EU's role as a global player primarily stem from the fact that, at the time of rivalry between great powers, the EU is expected to act as a great power on the international stage but it is not a great power. It is well known that the age of the great powers did not carry the values that the EU intends to convey as normative power. In line with the principled pragmatism of the Global Strategy, the EU wishes to defend liberal and democratic values and support multilateral institutions in the world order. On the other hand, decision-makers on EU level are increasingly aware that the EU cannot advance its interests without a realistic approach.

Member States themselves are not able to shape world politics, there is a need for the EU as a capable international player. In the absence of military force, the EU cannot become a real global player. Its external credibility is contested by both internal crises and capacity limitations. The question still remains whether all these contradictions will be resolved in the future (Molnár 2022).

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Boglárka Koller – Attila Marján

Megatrends

The proposed chapter introduces some of the underlying and long-term developments – megatrends – (societal, economic, geopolitical and technological) that are key to the thorough understanding of the world we live in. Appreciating the importance of megatrends is also necessary for making predictions regarding the future. Analysing issues regarding security – understood in the broadest possible sense, in line with the approach chosen by EU Secure – should also be embedded in the general framework of megatrends studies. Therefore, this introductory chapter will guide learners through several topical issues in megatrend analysis, such as the ongoing geopolitical shift, demography and ageing, migratory pressures and their potential long-term consequences. Environmental sustainability, water security and climate change, coupled with overpopulation and overconsumption are serious challenges in the post-industrial world and long-term worries for scientists, policy-makers and the population alike. Artificial intelligence is, on the other hand, an emerging issue that (with mass robotisation) will have major security related consequences. This chapter has no capacity to detail all relevant megatrends, therefore it focuses on political and institutional issues that determine EU security and its existential dilemmas.

Keywords: megatrends, geopolitical shift, sustainability, demography, ecological transition, European Union, identity, artificial intelligence

Introducing the conceptual framework and its historical development

The term megatrends was coined by John Naisbitt in the early 1980s in his most referenced book (Naisbitt 1982). The term since then has been used by several authors and its scope has also been broadened. There is no uniform and globally accepted definition, but, simply put, megatrends are those often long-term developments that shape the world and have major impact on the future (OECD 2016; United Nations 2020). Social scientists, economists, futurologists have been examining megatrends mostly focusing on a selected area (demography, technology, ecological changes, etc.) (Prakash 2017). Some put this concept to the test and analyse the robustness of this term regarding its ability to describe or foretell global developments. Slaughter, for instance, pondered the value and usefulness of the concept and its reliability in deriving global changes from it (Slaughter 1993). Allahar studies the practical aspects of megatrend analysis, namely, how decision-makers could or should use it for policy purposes (Allahar 2014). While acknowledging the raison d'être of each definition, in this chapter we use the OECD (Organisation for Economic Co-operation and Development) definition as a basis, which defines megatrends in the broadest sense focusing on their future impacts.

Key factors

The ongoing academic discourse on the concept itself is in any case not the main concern of the proposed module. Rather, its intention is to provide a general overview of the most important megatrends and support learners to acquaint themselves with, and apply an approach to study global security affairs seeking to also understand the underlying major developments as root causes.

The international system is undergoing a rapid and historic transformation: key actors are reconsidering their role, their geostrategic possibilities and also the toolsets to achieve their geopolitical interests. New geopolitical realities are emerging, the actors and the international system are being reorganised around new nodes that are connected at various levels of their existence. Khanna in his *Connectography. Mapping the Future of Global Civilization* argues that, since the new Millennium, geo-economic systems have been organised into new types of geographic networks, and these operate on the basis of new kinds of methodological principles. According to Khanna, in this new formation, the direct and indirect interconnections of various infrastructures, even at great distances from each other, arise globally (Khanna 2016). As a result, new political realities emerge including major shifts in the political systems and in the list of key global actors, including regional and non-governmental actors as well as the states. The role of macro-regions and inter-regional ties are being redefined (Voskressenski–Koller 2019). The focus of the global political agenda is also changing rapidly. Issues such as technology (AI) and its societal consequences, or sustainability in a broad sense (encompassing environmental, climatic and also fiscal and demographic aspects), the disruptive societal role of giant technological companies, and the general societal frustration with democracy in the West, among other things, have come to the forefront. A new generation of Westerners has appeared: the crisis generation, including the political elite that must navigate from one crisis to another with contestable rate of success (Tsatsanis et al. 2021). New and important players have appeared and some of the traditional forces face rapid decline. These disruptive changes are often instigated by underlying changes in the global context whose effects extend beyond the Western political (democratic) cycles; therefore, decision-makers would need to apply many longer-term political agendas that are most of the time challenging or impossible. Therefore, the gap between 'should' and 'done' is widening.

Global trends (especially the so-called megatrends, whose transformative power has started to be felt recently by both political forces and societies through the stubborn emergence of different types of crises) by definition defy political reactions, political agendas of short and medium term, therefore are very difficult to manage by will. Thus, understanding global trends and their game-changing impact on geopolitics, economy and societal developments is the key to ponder the different possible paths international politics and the global order may follow (Eilstrup-Sangiovanni–Hofmann 2019; Toffler 1990).

The European Union (EU), and Europe more generally is particularly exposed to the potential adverse effects of unfolding megatrends which have stark security consequences for European states and also for the integration itself. The EU as a unique,

sui generis form of regional integration, is becoming a differentiated political system (Koller 2012). The unsustainability of several aspects of the economic, political and social constructs on the continent is ever more visible. Unsustainability as presented by Marján serves as the starting point of the analysis that has to consider ecological, demographic, budgetary aspects and also politico-institutional considerations that all have considerable security repercussions (Marján 2010).

The radical increase (doubling in hardly more than a generation) of the dependency ratio (ratio of retirees over the active population) in every EU member state is one of the most powerful and highly underrated trends that impacts not only the labour market, but the general budgetary stability and in the medium-term the sustainability of the European social model but also the political system of the European Union.

The inherent instability of the European demographic situation (persistently low fertility rate – way under the minimal 2.1), the unprecedented demographic ageing of the society, coupled with ever more evident policy failures related to labour force import by immigration is also a game changing phenomenon in the long run. Unless tackled efficiently, the negative demographic trends in the European Union will result in further erosion of societal peace and security (Marján 2011).

Looming ecological and climatic trends (including their repercussions such as the increase of the migratory pressure from Africa) is another historical challenge that will have to be tackled against the backdrop of shrinking European budgetary and geopolitical clout.

Migration from insecure and poor regions of the neighbourhood is a long-term reality for Europe. The stark difference of the age pyramid and the level of security and wealth between Europe and most of its immediate neighbouring areas will guarantee that the migratory pressure on Europe will be sustained for several generations. Migration and its potential mismanagement remain a direct and indirect security challenge for the EU and most of its member states.

In the course, our aim is to approach megatrends also from the perspective of the 'self', the individual in the complex, multi-layered international system. Basing our argument on Fukuyama's thesis that the need for the recognition of the individual's identity is the key to understanding the political, economic and social processes in the world (Fukuyama 2018).

As already stated, there is no uniform and globally accepted definition for the term megatrends, but, simply put, megatrends are those, often long-term, developments that shape the world and have major impact on the future (OECD 2016). The elements of the megatrend concept have been continuously evolving and, as societal and technological changes emerge, the issue list under analysis has become widened. From a methodological point of view, trend analysis plays a central role in understanding the concept. This, to some extent, also allows scenario mapping to forecast possible future developments. Trend analysis is the process of comparing data over time to identify any consistent results or trends and to extract underlying patterns and the dynamics of social, technical, economic, environmental and political ("STEEP") trends. Scenario mapping also provides the possibility of trying out possible outcomes by simulation games.

This chapter does not aim at, nor has the capacity to present all megatrends that are relevant for the European security beyond giving a short introduction to them. It will rather focus on the political and institutional impacts on the EU. Otherwise the following issues merit analysis in the framework of European security and sustainability: the major geopolitical developments: from Post Pax Americana (Kupchan 1999) towards the age of black swan events (Taleb 2009) – meaning unpredictable, not normally expected series of occurrences; global and regional demographic trends and their geopolitical consequences; ageing and demographic unsustainability; global overpopulation and the risk of pandemics; global migration trends and the probably sustained, long-term migration pressure on Europe; environmental sustainability, water security; climate change and climatic migration; the economic and societal consequences of the emergence of artificial intelligence and robotisation (Asaro 2007); the changing perception of politics and policy making, the functioning of democracy and shifting identities in the West; megatrend-driven political, economic and institutional challenges for the EU.

From the geopolitical side, the most important megatrend is the major and somewhat surprisingly quick realignment of global balance by the rapid rise of China as a hegemonic contender and the decline of the USA as an uncontested global leader. This latter perception was spectacularly amplified by the chaotic Western withdrawal from Afghanistan in the summer of 2021. The world has entered a very unpredictable post Pax Americana order, in which the previous global hegemon has no power, nor the will to guarantee global stability and its uncontested global leadership. This forces the EU to seek ways to build its strategic autonomy both in soft and hard power factors. This recognition by European leaders and strategists is quite recent, a lot remains to be done in practice. Moreover, it seems that major geopolitical decisions must be taken regarding the EU's positioning vis-à-vis the emerging new world power but also its potential and – for the EU – more aggressive partner, Russia. A rapidly changing world order also increases the level of global and regional unpredictability (see 'black swan events'), which forces the EU to either further lose its global political clout and face a higher level of internal security or to put in place institutions and capacities that can adequately face these new challenges, in the form of a more powerful common foreign policy, better internal security coordination and/or more joint military capacities. In some ways, the outbreak of an epidemic, such as Covid in 2019 or Russia's military aggression against Ukraine, were also unexpected and unpredictable.

Apart from the rapid shift in the geopolitical order whereby Western hegemony is contested, there are deeper underlying developments that are shaping the future of our planet, including that of the EU.

A dedicated chapter will discuss climate change (tenth chapter, 167–182), which is clearly a game-changer both for international relations and global sustainability but also for European societal, economic and political developments. Hereby we underline one related element which is climate related migration to Europe from those regions where the degradation of the climate situation and water supply will force masses to migrate to places where these conditions are much better, namely Europe. The possible rise in climate related migration in the coming decades will further increase the sustained

migratory pressure on European shores and borders that are already overwhelmed even if more and more EU border nations decide to erect fences to check illegal migrants from Africa and the Middle East. The Earth could experience a greater temperature increase in the next 50 years than it did in the last 6,000 years combined. By 2070, the so-called extremely hot zones could represent a fifth of the global surface (presently it is 1%), potentially putting one third of the global population under climatic conditions that are climatically inappropriate for human existence. The implementation of the European Green Deal also raises questions (Szulecki 2020).

The 2018 Global Compact for Safe, Orderly and Regular Migration by the UN International Organisation for Migration was the first-ever negotiated global framework on migration that recognises that migration in the context of disasters, climate change and environmental degradation is a reality, and makes commitments to support both migrants and States (IOM 2018).

The global population has been exploding in the last hundred years but according to projections it will stabilise later in the 21st century. Between 1950 and 2018, average annual population growth was 1.6%. Recently it is 1% and will decline gradually. The population of the earth is projected to stabilise at around 11 billion. Even if the global population stabilises around that figure, unsustainability both economically and environmentally seems a real issue.

At the same time, the global population is ageing on average: the share of the population over age 65 will rise from 5% in 1950 to 15% in 2050 and further up to 25% by 2100. 2018 was a global demographic turning point: the planet had more people aged 65 years and over than children under five for the first time in history. Having said that there is considerable diversity across regions: Europe, Japan and the United States are ageing most rapidly, thereby losing their labour-force base at a quick pace.

Countries with shrinking labour forces contribute to 90% of today's global economic growth. The main centres of continued population growth are in the Indian subcontinent and Sub-Saharan Africa, and this latter will account for over a quarter of total population growth for the rest of the 21st century. The portion of the world living in high income countries will fall from 32% in 1950 to 10% by 2050 (Open Mind BBVA 2019). These trends point to a sustained and long-term migration pressure on European countries.

Europe is particularly vulnerable regarding demographics, unless a radically different policy approach to the old-age pension systems is established. Otherwise, the European pension systems and in a broader sense, the European social model will most probably prove to be unsustainable. The recent experience of complex difficulties with the integration of third country nationals into the European labour market and the new waves of immigration impose additional burdens on states and the European Union. The general trend of overpopulation, and radically different age composition of EU and African countries, coupled with climate unsustainability and the possible emergence of regional conflicts around its border puts a massive and complex security pressure on Europe both at EU and nation state level.

The rising probability of climatic and environmental unsustainability coupled with ever-growing global mobility indirectly increases the emergence of pandemics that will

put pressure on European economies and health systems but also on political institutions as we saw it from the recent Covid-19 experience.

From the technological side, the most important megatrend is the emergence of Artificial Intelligence (AI) (European Economic and Social Committee 2018; European Commission 2020a). AI systems are disrupting markets, legal rules and principles that could be used so far (Bostrom 2014). AI will have major impacts on the global labour market, as well. According to psychologist Robert Sternberg (Gregory 2004: 472) there are as many definitions of artificial intelligence as there are experts who have been asked to define it. It is important that the concept of AI is precisely defined so that it can adapt flexibly to technological progress while at the same time ensuring legal certainty. The Council of Europe defines AI as a set of sciences, theories and techniques whose purpose is to reproduce by a machine the cognitive abilities of a human being. The development of common sense, reasoning and problem-solving skills in machines is a very difficult task, which is why AI combines research in a wide variety of fields (Gregory 2004). John R. Searle (1980) introduced the definitions weak AI (Artificial Narrow Intelligence, Weak AI) and strong AI (Strong Artificial Intelligence). In case of weak AI, intelligence is only a "semblance", but we do not know whether it has a mind or not. A strong AI is a system that really thinks, has an independent consciousness. By 2050, we should expect human-like AI robots to "live" with people in many areas. It will be in the interest of mankind to live in harmony and work with it.

The effects of the rapid development of AI in the field of regulation by international law are also given great attention, and the paradigm shift has begun in the field of legal culture. In the legal regulation of artificial intelligence technologies, in addition to a wide range of rules on legal responsibility, a number of open issues remain: the benefits and risks of its use, what ethical issues arise in the case of a malfunctioning AI, who is responsible, whether the protection of privacy can be ensured, whether the full spectrum of risks and damages can be covered by legal mechanisms, whether AI can be considered a legal entity from a moral and practical point of view, etc. The recognition and wording of application problems puts lawyers under "coercion of legal development" (Keserű 2020). More than twenty-five states announced their AI strategy or published plans for future strategies, including the United States, Russia, China and India. Many plans focus on maintaining a competitive advantage in the emerging AI market, although many also take into account the ethical and security aspects of promoting AI (Nash 2019).

As regards political and institutional aspects, megatrends shall be approached also from the individual point of view in the complex, multi-layered international system. As Fukuyama argues in his recent book on identity, "the inner self of dignity seeks recognition" (Fukuyama 2018). All human beings continuously fight for recognition by others, i.e. for the recognition by the surrounding communities. "Individuals demand public recognition of their world", which results in the growing importance of identity politics. "Identity politics encompasses a large part of the political struggles of contemporary world, from democratic revolutions to new social movements, from nationalism and Islamism to the politics of contemporary American university campuses" (Fukuyama 2018; 10). If we intend to understand how individuals act in their collective communities

such as the local vicinity, the regions, the cities, the nation and the supranational entities (e.g. the European Union) and also in global context, we have to enquire into the nature of their collective attachments and their motivation behind the political, economic and social mega processes. All of the collective communities and their opinion-leaders (politicians of various levels of governance, NGO activists, lobbyists, media representatives, etc.) act as the "identity constructors" (Hobsbawm–Ranger 1983) of imagined communities (Anderson 1991) and work on holding the communities together through the identification of individuals, so it is a priority for them to invent new elements of identity and strengthen them in order to clearly mark the boundary of the particular community. Since the individuals are members of various collective communities at the same time, they are affected by identity politics from several directions (both in space and time as well as in virtual and cyber communities). Identity and identity politics, therefore, are unquestionably among the most important concepts (Greenfield 2009) for understanding megatrends in the world and also in Europe.

In an increasingly politicised European Union, where the European citizens are becoming political actors, it is essential what they think about their Europeanness, whether they share common European values and what their ideas and proposals are on certain policy issues, institutional and political questions. A political system is legitimate if it is based on legality and democracy and is accepted by its citizens. The EU's legitimacy is also dependent upon its citizens who not only rationally understand and accept the procedures and the institutions of the polity they live in, but also emotionally relate to it. They like or dislike it. They do or do not identify with it. Do European citizens understand the European Union? Do they support the project? Do they like it? Do they identify with it? Euroscepticism is strengthening all over Europe. Understanding its nature is also crucial both for having a picture on the possible scenarios of the future of Europe and for better understanding Member State politics.

The constructed European identity has fifty years of history (Koller 2006; 2011). European elites initiated the gradual establishment of European identity in the 1970s and since then the European Community/European Union has made great efforts to establish the legal and political framework, a common cultural policy as well as the symbols for the sake of a common identity. Beyond the structural elements, as, for example, the citizenship of the Union and the Charter of Fundamental Rights that became binding when the Lisbon Treaty entered into force, the European Union strived to create the symbolic elements of the common identity. The blue flag with the golden stars 'representing the union of the peoples of Europe'; the anthem, Beethoven's 9th Symphony; 'Europe Day' on 9 May; and the common currency, the Euro all symbolise a sense of belonging to the EU. The European identity has many constructed elements, both structural and symbolic. The establishment of the European identity, however, should be looked at as not only a construct but also an outcome of a socialisation process. "It is wrong to conceptualize European identity in zero-sum terms, as if an increase in European identity necessarily decreases one's loyalty to national or other communities" (Risse 2005; 291–309). Collective identities of Europeans can only be imagined in a more differentiated structure. For individuals, the immediate vicinity, the town or village where

they live, the region, the county, the nation, the European Union all signify one of their geographical attachments. Nevertheless, for a long time the prevalent opinion was held that there is a certain hierarchy between these collective allegiances and national identity has a peculiar and superior place among these attachments. "National identification possesses distinct advantages over the idea of a unified European identity" (Smith 1997: 322). Although the majority of theorists accept the concept of multiple identities, they differ in understanding its content. The concentric circles of identities, the "matryoshka of identities" (Salazar 1998), the "many-storey house" (Konrád 1997) metaphors all try to show the multiple layers of the collective attachments. European identity can be best interpreted as an identity net (Koller 2006). The identity net signifies the dynamic co-existence of individuals' collective attachments and also includes the time dimension. According to functionalist logic, the individuals regularly decide which aspect or junction of their identity net they activate in their everyday lives. Individuals are capable of changing their collective attachments regularly as well as their respective ranking and intensity.

Establishing and strengthening European identity is one among the key factors of the future existence of the European Union. More than nine in ten Europeans (92%) agree that EU citizens' voice should be taken more into account for decisions relating to the future of Europe (+5 since the summer of 2020), which is a clear sign that European citizens care about the current challenges in Europe and they are ready to respond to them (European Parliament 2020).

One of the most important issues of our time is the faith in democracy and sustainability of the democratic systems. And in this respect we have to be familiar with global megatrends. After acknowledging the difficulties of classifying regimes as well as defining and measuring democracies, Larry Diamond analyses the trends of democracies since the 1970s, and argues that "the world has been in a mild but protracted democratic recession since about 2006" (Diamond 2015: 145–155).

Examining democracy in the European Union is one of the key topics of our time. How democratic is the European Union? How democratic are the Member States? Are there any new trends in this respect? As Arató and Koller argue: "The European Union would not be admitted to the European Union on the basis of its current political system. This thesis sentence refers to two factors. On the one hand, it indicates that the European Union's political system leaves much to be desired in terms of democratic characteristics, and on the other hand, it points out that the EU imposes conditions on candidate countries that would like to join the EU as a requirement for democratic principles compliance" (Arató–Koller 2019: 197).

It is important to note, however, that in European integration, the issue of democracy has only gradually become the focus of interest. In the blooming years of integration, mainly in the 1950s and 1960s, the European Community, and its regulatory activities, which mainly encompassed economic activities, did not raise any serious issues of democracy or legitimacy. At the time of the technocratic take-off of European integration, in the period of "permissive consensus", the European public was not particularly interested in the European Community. This, however, changed in the 1990s with the Maastricht Treaty entering

into force and establishing the European Union. Since the nineties, the political system of the EU has transformed into multilevel governance (Marks et al. 1996) and turned away from its previously dominantly technocratic character and has become a politicised community where the European citizens and political parties are more actively involved in policy-making decisions. This also resulted in the changing character of the political system (for more see Hix–Høyland 2011; Nugent 2010). Signs of "constraining dissensus" (Hooghe–Marks 2009) became everyday experience at EU-level and Member States' politics and political-type debates occur more often. Two effects of this can be highlighted. First, politicisation means that more EU policy issues have been raised at both EU and member state levels. Second, policy debates that were formerly conducted in technocratic circles started to generate wide-ranging political discourses involving European citizens and political parties. Some authors argue for the emergence of a European demos (Weiler 1997) while others emphasise the non-existence or at least weak existence of a European demos (see, for example, Schöpflin 2019). Nevertheless, interpretation of politicisation could have both positive and negative aspects. Politicisation, on the one hand, can be interpreted as a positive process, contributing to bringing the EU political system closer to citizens. But it also results in policy decisions becoming more difficult and in the failing of some policy initiatives due to the intra- or inter-Member State political battles.

At this point, the concept of democratic deficit has to be mentioned (Arató–Koller 2019: 197–209). According to Weiler, the Member States' executive power are "overweight" in the European Union's decision-making processes referring to the Council with the representatives of the Member States and also the Commission whose members are non-elected individuals although they are meant to represent the European interest. Further, the European Parliament as co-legislative institution is extremely weak compared to the full legislative powers of national parliaments. The EP elections are not 'European', the candidates are not campaigning with European programs and there is not a European party system. Moreover, the EU's political system is too far away from the European citizens (Weiler et al. 1995; Hix–Hoyland 2011: 132–137; Arató–Koller 2019: 199).

Turning to the other side of the coin, the functioning of Member States' democracies also raises concerns. The provisions of the Lisbon Treaty, which currently refer to the principles of the European Union, are set out in Articles 2, 4 and 7. Article 2 transforms the principles listed in the Amsterdam Treaty into values such as human dignity, freedom, democracy, equality, the rule of law and respect for human and minority rights, as well as pluralism, non-discrimination, tolerance, justice, solidarity and equality between women and men, complemented by the Charter of Fundamental Rights. The provisions of Article 2 are nuanced by Article 4 of the Treaty of the European Union (TEU), which states that the European Union shall respect the identities and the political and constitutional structures of the Member States (Arató–Koller 2019: 197). Recently, the Article 7 procedure and the so-called 'nuclear option' is in the centre of both political and academic discourse. According to Article 7, "the Council, acting by a qualified majority, may decide to suspend certain of the rights deriving from the application of the Treaties to the Member State in question, including the voting rights of the representative of the government of that

Member State in the Council" (Article 7 of the Treaty of the European Union). The latter has never been applied yet, but Article 7 procedure was initiated first against Poland in 2017, then against Hungary in 2018. Since then the European Union developed a rule of law review mechanism and published the first Rule of Law Country Reports in 2020 (European Commission 2020b). While the reports list reforms and acknowledgments in several Member States, concerns and issues to be solved are also highlighted in the reviews. Despite the comparative approach, the methodology, the data collection, the aspects of analysis and conceptualisation – even including a consensual definition of the rule of law – all remain subject of both heated political and academic debates.

All this shows that in Europe, concepts such as the rule of law and democracy that were formerly considered non-questionable terms are recently being questioned and relativised by Member States according to their own interests and values. In a 'sui generis', hybrid political community such as the European Union, where the EU and the Member States have shared competencies in several policy areas, this has resulted in political debates, tensions, divisions and also deadlocks in negotiations which threaten the future existence of the community.

Conclusions

In the last fifteen years, the European Union faced numerous crises both internally and externally: an economic and financial crisis, an institutional crisis, a political crisis, a refugee crisis and currently the Covid-19 crisis. The outer environment of the EU has also changed significantly. Megatrends are shaping the international systems in various aspects. The international system is undergoing a rapid and historic transformation; key actors are reconsidering their role, their geostrategic possibilities and the toolsets to achieve their geopolitical interests. New geopolitical realities are emerging; the actors and the international system are being reorganised around new nodes that are connected at various level of their existence. Since the new Millennium, geo-economic systems have been organised into new types of geographic networks, and these operate on the basis of new kinds of methodological principles. The direct and indirect interconnection of various infrastructures, even at great distances from each other, arise (Khanna 2016). As a result, new political realities emerge including major shifts in the political systems and in the list of key global actors, including regional and non-governmental actors as well as the state (Voskressenski–Koller 2019). The role of regions and interregional ties is being redefined. The European Union and its role in the reshaped international system and in a rapidly changing world needs to be redesigned. Europe needs to reinvent itself in order to be able to provide effective responses to these trends. The Strategic Foresight Reports launched first in 2020 and since then every year aim to "explore, anticipate and shape the future" and be able to provide a platform for reaching policy goals that can only be done by applying a wider perspective and being aware of the megatrends (European Commission 2020c; 2021; 2022).

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International Governance: Multilateral Institutions and the European Union

With reference to the political framework of international security, this chapter is structured along two main axes: global governance and the European Union as a structure of regional supranational governance. In the first part, the chapter discusses the multilevel structure of global governance, multilateralism and its expression in the United Nations system, and briefly introduces the global agenda. In the second part, the text addresses the European Union, focusing on its institutional system and on competences and policies. The chapter ends with the proposal of an exercise on European active citizenship, an up-to-date topic of European governance.

Keywords: global governance, international organisations, multilateralism, United Nations system, European Union

Acronyms

CEU	Council of the European Union
CFSP	Common Foreign and Security Policy
ECOSOC	Economic and Social Council
EC	European Commission
ECA	European Court of Auditors
ECB	European Central Bank
ECSC	European Coal and Steel Community
EEC	European Economic Community
EMU	Economic and Monetary Union
EP	European Parliament
EU	European Union
FAO	Food and Agriculture Organization of the United Nations
FDI	foreign direct investment
GA	General Assembly
GATT	General Agreement on Tariffs and Trade
ICJ	International Court of Justice
IMF	International Monetary Fund
IO	international organisation
MEP	Member of the European Parliament
MLG	multilevel governance
NATO	North Atlantic Treaty Organisation
SC	Security Council
UN	United Nations
UNESCO	United Nations Educational, Scientific and Cultural Organization

WHO	World Health Organization
WTO	World Trade Organization
WW II	World War Two (Second World War)

Global governance and world security

The structure of international politics has substantially changed since the Second World War, which marked also a major change in geopolitics. Simply put, the world moved from state-centrism and fierce political-military competition into a progressive opening to multilateralism and international cooperation. This did not mean, of course, the immediate end of competition or war, but paved the way towards the acceptance of multilateralism as the way out of the many conundrums the world had fallen into in the wars and interwar period of the first half of the twentieth century (Baylis et al. 2020).

The creation of the United Nations (UN), back in 1945, was the institutional landmark of this process. The fact that it carried two major goals in its mission – peace and development – also inaugurated a worldwide political agenda, despite the fragility and the shortcomings that can be identified in its history. The gradual development of the United Nations system with its constellation of agencies, programmes and funds created a global institutional setting never seen before. This is complemented by organisations of regional dimension and different scopes of action, notably the European Union (EU) (Karns et al. 2015; Weiss–Daws 2018; Weiss–Wilkinson 2018).

The whole structure, however, does not build into absolute coherence and integration, in its overall functioning, nor does the entire world share the same values, nor did the states become 'equal' entities in balance of power terms. Right after the Second World War, the new world order emerged under bipolarism, which was both an ideological and power politics structure. At the time, international security had to be balanced within that framework. Regional organisations for military cooperation were created – the North Atlantic Treaty Organisation (NATO) and the Warsaw Pact – conceived as 'defence alliances' and not as 'collective security structures' as the United Nations. After 1989, with the fall of the Berlin Wall, unipolarism and then multipolarism emerged, along with a new typology of threats to security, from terrorism to environmental hazards, which remain without full solution so far, in spite of 'global governance' and multilateral cooperation efforts (Baylis et al. 2020).

The structure of global governance

What is global governance? It is a concept coined by International Relations theorists to explain a post-state-centric world order, overcoming the classical but now anachronic idea of the anarchic international system. It is, in Rosenaus's words, "governance without government" (Rosenau 2008), i.e. a multiple institutional structure relying on several different types of actors (both governmental and non-governmental), some shared values and some joint capacity for normative action; but not a constitutionalised, hierarchical,

all-encompassing polity. International governmental organisations (IO) are one of its more formally established agents, but informal networks, ad hoc arrangements, global conferences, non-governmental organisations, the private sector and the transnational civil society are also considered part of the setting. International law is quite obviously one of its fundamental pillars (Levi-Faur 2012).

The model of multilevel governance (MLG) applied to global governance describes the extant nested levels of governance in the world, from the sub-national to the national, to the regional supranational and to the global level. Although theoretically developed for the European Union level first (Hooghe–Marks 2001), the model has also been considered relevant for the broader global scenario (Zürn 2018). The definition of the levels relies firstly on territorial boundaries associated with layers of political authority and is therefore a model of authority dispersion. There are also horizontal relations within the layers, and there is a cut-across civil society level that can neither be territorially framed nor politically bounded.

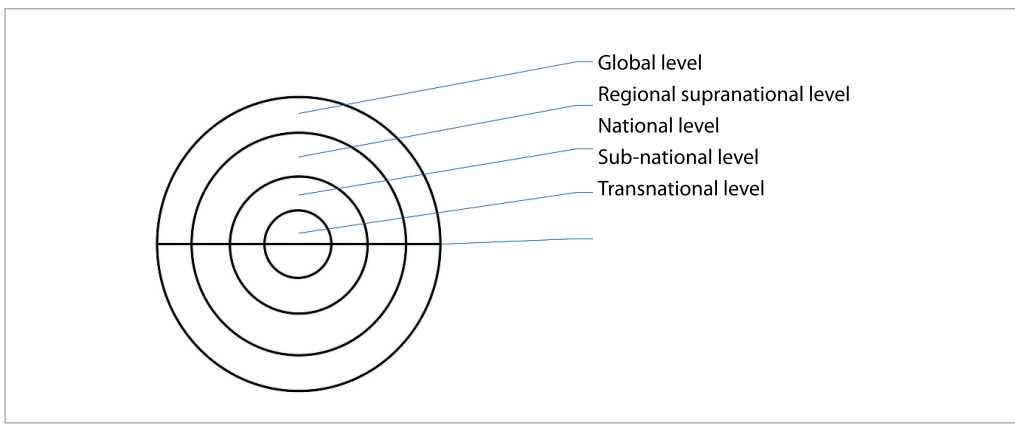

Figure 1: Global governance layout
Source: Compiled by the authors

The model must, however, be adopted with caution, because a layout of concentric circles may actually not portray the not-strictly hierarchical nature, may oversimplify the diverse realities within each level, may be at odds with the increasingly transnational dimension of civil society, and will ignore the void areas. MLG does indeed pose the problem of the articulation between the levels and of the associated political power resources (Piattoni 2010; Zürn 2018).

Unlike federal models, where the distribution of authority is expected to be clear along a constitutionalised structure of mutually exclusive jurisdictions, lack of clarity and overlapping instances will occur in global MLG. Under democratic theory, the pattern would normally be that of subsidiarity (i.e. decentralisation), but democracy is far from a universal value and thus cannot organise the whole system.

Furthermore the 'system' is not hierarchical, meaning that the structure of political authority is uneven inside and across the levels. Neither can hard and soft power bounda-

ries be ignored. In many cases, hard power largely remains with the states, while IO and other international actors need to adopt means other than binding rules and constraining power, and thus often rely on persuasion, socialisation, peer reviewing and horizontal cooperation (Hurd 2020; Nye 2005). In practical terms, this means that the broader territorial levels (IO, for instance) are endowed with 'weaker' political authority than some of their member states. This paves the way to debates on hegemony, and conflicts with a flat conception of international cooperation, thus giving arguments to neorealist approaches to post-state-centrism.

Horizontally, the levels encompass a diversity of members also. Even in the EU the sub-national level cannot be fully compared; but for the global scale, this truly means an exercise in political-cultural framing of the concept of 'regional' or 'local' authorities. Power unevenness in between states is self-evident, as according to evidence provided by indexes on state fragility (e.g. the Fragile States Index published by the Fund for Peace in 2021). The regional supranational dimension encompasses both intergovernmental and supranational organisations. International (intergovernmental) means between or among nations: an international organisation is a system where states cooperate to common goals. The will of the organisation is the result of internal procedures aimed at putting together the will of the largest number of states, as expressed by representatives of states. Supranational, instead, means over the nations: a supranational organisation is over and beyond the authority of states. It expresses its own will: the decisions are adopted through majority vote; they are binding; bodies made up by individuals interact with bodies representing states, the rule of law and the respect for the decisions are guaranteed by courts – such is the case of the EU. The global level encompasses major intergovernmental organisations (the UN system), which aim at universal membership, but it refers by no means to a 'world government'.

The transnational dimension of private sector and civil society actors denies by definition the geometry of territorial boundaries and is characterised by its cross-border activities. Looser but also lighter than conventional political authority, it has been brought into the pattern of global governance under what is normally presented as a liberal approach to 'governance'. Transnational corporations, non-governmental organisations and social movements are often visible in international politics: negotiating FDI regulations, striving for humanitarian causes, implementing policies in partnership with IGO, protesting… the array of activities is vast.

Void areas are those areas where there is a lack of legitimate political authority, be them territories or policy issue areas. A state undergoing collapse, any 'pariah' state, states opting out from an international Convention or giving up membership of a certain IO, all create 'void' areas, discontinuities in the global political order. Furthermore, the dynamics of globalisation introduced rapid change and quite often new realities emerge in a normative void.

Despite all the problems, MLG describes reasonably well the framework in which multilateralism unfolded, a way of overcoming state-centrism in international relations, one that largely relies on peace, mediation and negotiation, and trade and cooperation among sovereign states.

The role of IGOs: The UN system and multilateralism

The UN provides a unique forum for international dialogue and multilateralism, since it is the only universal international organisation that has clear political objectives. The fundamental purposes of the UN cover broad areas: to maintain peace and security; to bring about by peaceful means the settlement of international disputes and situations which might lead to a breach of the peace; to develop friendly relations among nations based on the respect for the principle of equal rights and self-determination of peoples; to foster economic and social cooperation and to promote respect for human rights and fundamental freedoms for all persons (Article 1 UN Charter).

In the immediate aftermath of the Second World War, the maintenance of peace and security was a crucial issue for international cooperation, as the experiences of the war proved that unless serious restraints were put on violence, the world would face serious catastrophes. The organisational structure of the UN was designed in a way to reflect that primary goal, offering an open forum for discussion for all states, while reserving the most important decisions for the great powers: the structure and procedures of the Security Council (SC) guarantee a decisive role to them. The UN was founded by 51 states, the winners of the Second World War and their allies. Later, the former defeated states and with the increasing number of former colonies that gained independence also joined the UN during the past decades, reaching 193 member states in 2011. Based on the UN Charter, membership is open to all "peace-loving states" which accept the obligations contained in the Charter and are "able and willing to carry out these obligations" (Article 4). The procedural requirement for joining the organisation is to obtain the favourable recommendation of the SC and the confirming vote of the General Assembly (GA).

The Security Council and the General Assembly are the two principle bodies of the UN. All member states are represented in the GA, each having one vote. The GA has a very broad competence, as it may discuss any matter that is in any way relevant to the UN. The nature and limits of this wide competence are often debated; what is sure, whenever an issue relating to peace and security is being handled by the Security Council, the GA's competence is subject to procedural restraints (under Article 12). The GA takes decision on "important questions" (listed in Article 18.2) by two-third majority of the member states, while other matters are decided by a majority of members. We shall make a distinction between matters on "internal affairs" (such as adopting rules of procedure, apportioning UN expenses among member states, appointing the Secretary General, electing members of various other bodies, like the SC, etc.) and "external affairs" that do not relate to the organisational life of the UN. The resolutions, recommendations, declarations adopted by the GA are not legally binding *per se,* except for decisions concerning "internal affairs".

The SC is composed of 15 members, five permanent (the post-WWII Great Powers: China, France, Russia, the U.K. and the USA), and 10 others elected every two years by the GA. The SC holds primary responsibility for maintaining international peace and security. Its decisions, except for those on procedural questions (and on the election of members of the ICJ), may only be taken with an affirmative vote (or at least

the abstention) of the five permanent members (the so-called veto power) and by a vote of nine members. They may be either recommendatory in nature or legally binding. The SC has special competencies under Chapter VI (peaceful settlement of international disputes) and Chapter VII (threat to the peace, breaches of the peace, acts of aggression), but rule decisions under Chapter VI usually cannot be legally binding, while decisions under Chapter VII are legally binding. However, in most cases the SC does neither specify the legal basis nor the obligatory nature of its decision, leaving a large margin for political interpretations. According to the UN Charter, the SC was to be assisted by the Military Staff Committee that was to be responsible "under the Security Council" for the strategic direction of the military contingents that member states were expected to put at the disposal of the SC for enforcement actions. In practice such 'UN army' was never realised, and military actions based on the decision of the Security Council are executed by the voluntary contribution of member states. During the Cold War it was extremely rare that a consensus was reached in the SC (both the Soviet Union and the USA used their veto rights for their strategic goals), and a more co-operative atmosphere emerged only after 1990, resulting in an increasing number of obligatory SC decisions on sanctions and military actions.

Besides the two most important bodies, the Secretariat, headed by the Secretary General (appointed by the GA) was set up to provide instrumental help to the UN bodies. Three other main bodies were to fulfil specialised functions: the Economic and Social Council (ECOSOC) was established to enhance cooperation in economic and social matters, the International Court of Justice (ICJ) was created to take decisions or offer advisory opinions in legal disputes, and in some colonial questions the Trusteeship Council was entrusted to take decisions. ECOSOC consists of 54 member states elected by the GA for three years, its main responsibility is to discuss, propose, recommend studies, co-ordinate the actions of specialised agencies (like the UNESCO, FAO, WHO, etc.) and set up subsidiary bodies in the fields within its competence. In 2006 – without modifying the UN Charter – the GA established the Human Rights Council (composed of 47 member states elected by the GA) strengthening the promotion and protection of human rights around the globe and for addressing situations of human rights violations and make recommendations on them.

The UN system was a revolutionary innovation in 1945: forcible self-help, traditionally a characteristic feature of the international community was restricted; the legal possibility of collective action by the five Great Powers to maintain peace and stability could be seen as a stabilising element in international relations. For the first time it made possible – at least in theory – to decide whether a specific instance of use of force was lawful or not, and the SC was vested with the necessary competencies to effectively intervene in violent conflicts to restore peace. However, since a "UN army" has never been set up, the operationalisation of the execution of SC decisions is difficult – even if the Great Powers reach a consensus. Another problem is that the UN Charter only banned the use of force in "international relations", so it was consequently allowed in "internal affairs" (e.g. against rebels, etc.) leading to an increasing number of situations where the use of force may be at the discretion of individual states even if they lead to open armed

conflicts. On the other hand, however, the institutional design of the UN and the participation of almost all states in the work of the UN helped to create a constructive forum for promoting human rights, economic and social cooperation, the codification and progressive development of international law. Assessing the successes and failures of the UN system it needs to be underlined that the UN's organisational structure is rather based on a "Kantian model" of international relations, focusing on cooperation and promotion of common values, while the prevailing paradigm of the "Grotian model" (anarchical society consisting of self-centred actors, pursuing short term interests) characterises the international community at large.

The global political agenda: Contents, mechanisms and controversies

The concept of international regime, defined as "a set of implicit or explicit principles, norms, rules and decision-making procedures around which actors' expectations converge in a given area of international relations" (Krasner 1983: 2), has been the subject of much academic debate and some controversy (Hasenclever et al. 2008). Regimes are therefore conceived as a consequence of regular cooperation among states for issue-specific policy areas (hence the connection with the topic of the agenda) which may even evolve into the formation of new IOs, i.e. formal governmental structures of international governance. There has been reasonable consensus on the adoption of the terms, for instance, for "human rights", "free trade" and, increasingly, for "environment". The human rights regime largely draws on international law instruments adopted in the framework of the UN and creates a universal normative framework on the rights of the individual. Problems emerge not so much from the definition of rights as from their implementation by the states. The international trade regime stemmed from the market-oriented perspective underlying the General Agreement on Tariffs and Trade (GATT), first, and then the role of the World Trade Organisation (WTO) in world trade regulation. Furthermore, its grounding principles extend into political options on cooperation, notably in the action of the International Monetary Fund (IMF) and the World Bank. Reaching consensus on environment has been a longer and tougher process than for the abovementioned regimes, and very much remains to be regulated. In this case, international networking relies mostly on global conferences and, for the time being, less on formal organisations (O'Brien–Williams 2020; Stone–Moloney 2019).

At present, the world's political agenda is dominated by the "consensus" reached in the United Nations around the sustainable development goals, a set of seventeen all-encompassing policy goals that were adopted for the period 2015–2030 and which aim at merging the world agenda by tying together the developed and the developing countries under the broad umbrella of sustainability, a concept deeply entrenched in the idea of mutual dependency (cf. the ninth chapter of this volume, 149–166). Their implementation heavily relies on the multilayered structure of international politics and indeed their definition, subsequent establishment of specific goals and indicators have already meant an unparalleled process of global negotiation. It is an ambitious project,

grounded on the assumption of shared worldwide policy goals and mutual involvement in their implementation (UN 2017; UN 2020). However, the reach of the agenda is limited by the capacity of implementation of each of the levels involved; moreover, by the scepticism towards the UN approach to sustainable development by some of the UN members.

Last but not least, the normative framework under which the global agenda is conceived is often subject to criticism, based on the bias towards "western" liberal values. This is also a major question of debate: from the political point of view, because it reintroduces the topic of hegemony; and from the cultural and philosophical point of view, because it reposits debates on universalism and cultural relativism (Zürn 2018). However, recent political changes have proven that the "West" is not a static category either, and have brought about mounting criticism to and even opting-outs from multilateralism, in some "western" countries.

The European Union as regional supranational governance

Historical background

After the end of Second World War political leaders of a group of Western European countries realised that a peaceful setting for the incoming years required a different approach to politics and to the relationship between European nations. The creation of the European Coal and Steel Community (ECSC) in 1952 followed this rationale. The management of member states' resources of coal and steel was transferred to the ECSC. The likelihood of wars between the founding member states of the ECSC (France, Germany, Italy, the Netherlands, Belgium and Luxembourg) vanished. The ECSC was a promising experience of enduring peace for Europe (Dinan 2014).

The successful experience of the ECSC motivated the founding member states to create two additional European Communities six years later: the European Atomic Energy Community (also known as Euratom) and the European Economic Community (EEC). From sectoral integration, the experience moved into overarching economic integration when the customs union was launched with the EEC. Free mobility of commodities among the member states was the hallmark of European integration in the early 1960s. The outcome of the gradual development of European integration was other freedoms of mobility (persons, capital, services and companies). Step after step, the European Communities/European Union were transformed into a single market (1 January 1993) and an Economic and Monetary Union (EMU) (1 January 1999) (Gillingham 2003).

Enlargement is also important to grasp the history of European integration. More countries applied to the European Communities/European Union. Before the United Kingdom left the European Union (EU) in 2020, the number of member states rose to twenty-eight. This might be considered the evidence of how successful European integration is (Sedelmeier 2020).

Theoretical aspects

European integration is a multidimensional undertaking. It addresses the several stages of economic integration on the one hand. On the other hand, it covers the nature of the EU as a polity. The literature widens the possibilities, as many theories of European integration surfaced and widespread discussion among scholars prevents a consensual definition of what the EU is. Liberal intergovernmentalism and neo-functionalism are two leading and contrasting theories (Moravcsik–Schimmelfennig 2009). While the former emphasises how European integration is instrumental to member states' interests, the latter points out how the EU emerged as an autonomous polity, thereby isolating from member states' influences (Niemann–Schmitter 2004). Liberal intergovernmentalism includes the EU within the array of conventional international organisations. Neo-functionalism envisages the EU as a supranational organisation.

Despite the fact that analytical tools will be provided so that students become aware of the different theories and theoretical approaches, we argue that the EU is (largely, but not 100%) a supranational organisation. Autonomy vis-à-vis member states is a cornerstone of European integration: the institutional system, clear-cut competence assignment between the EU and member states, the decision-making process involving the EU institutions, and the legal system of the EU are the manifestations of this autonomy.

The institutional system of the European Union: From autonomy to path-dependency

An overview of the institutional system

When the three European Communities were created, a rather paradoxical institutional system existed. A single European Parliament (EP) and a single European Court of Justice (ECJ) existed alongside three European Commissions (EC) and three Councils of Ministers (CM). This anomaly was soon corrected. The 1965 Merger Treaty established a single institutional framework for the three European Communities: the EP, the ECJ, the EC and the CM.

The institutional system of the European Union (EU) is prone to evolution. Throughout the years, not only the membership of EU institutions changed (notably after the accession of new member states) but also the number of institutions increased. The European Council was legally recognised after heads of state or government decided to meet on summits on a non-regular basis to discuss fundamental political issues concerning European integration. The Single European Act (enacted in July 1987) provided the legal recognition of this institution.

Other EU treaty amendments modified the institutional system of the EU. The Maastricht Treaty (November 1993) promoted the European Court of Auditors (ECA) to institution. The ECA was created in 1977 as a consultative body. Similarly, the Lisbon Treaty (December 2009) recognised the European Central Bank (ECB) as the 7th institution of the EU, whereas before the ECB acted only as a consultative body (Dehousse–Magnette 2017).

A very important aspect of the evolution of the institutional system was the 1977 inter-institutional agreement that made the direct election of the EP possible. In 1979, European citizens were able to choose their representatives in the EP through elections. Hence, the democratic legitimacy of the EP was considerably strengthened, which in turn had a positive impact on the democratic legitimacy of the European Communities (and later the EU) as well.

How do institutions play? Competences and interests represented

EU institutions are assigned different roles so that no institution is given the possibility to concentrate a single power. The ECB is the exception (see below). The institutions play different roles. The EP, the CM (later renamed Council of the European Union – CEU) and the ECB are decision-making institutions. Yet, their input to the decision-making process is different. While the ECB is limited to the monetary policy of the ECB (Hodson 2017), the EP and the CEU have broad decision-making powers that cover all other policy areas assigned to the EU (Shackleton 2017; Hayes-Renshaw 2017).

The EC and the European Council act as institutions of oversight. They nevertheless perform different roles. The EC is responsible for legislative oversight. It submits legislative proposals to the EP and the CEU (and to national parliaments after the Lisbon Treaty, although they only monitor whether the legislative proposal complies with the subsidiarity principle). The EC has a very important power of agenda-setting, since negotiations between the EP and the CEU are conditioned by the legislative proposal of the EC. Three cases are excluded from the EC's legislative initiative: a) the monetary policy of the Eurozone relies on the ECB's decisions only, given that this institution is politically independent; b) Common Foreign and Security Policy and Justice and Home Affairs (in the latter, only when decisions require unanimous voting) have a specific nature, as they are politically sensitive and therefore are crucial for national interests; c) legislative initiative is triggered by the CEU when the subsidiarity principle assigns the decision to the national (or sub-national) level (Peterson 2017). Political oversight is assigned to the European Council. The institution delivers a sense of political leadership in the EU, which is consistent with high-profile membership: heads of state or government are among the most relevant actors. Major issues with sensitive political ramifications are discussed by the European Council. Also, political guidelines about the future of European integration require an input from this institution (De Schoutheete 2017).

The ECJ and the ECA are non-political institutions of the EU. They act as institutions of control. The ECJ's role is to take care of legal control. The court issues rulings on cases where the application of EU law is at stake. In addition, the ECJ plays a role similar to member states' Constitutional Courts: its jurisprudence is a very important source of interpretation of the EU law; also, it has been the source of important developments of European integration (Schuibhne 2017). The ECA is responsible for budgetary control. It monitors the legal compliance of spending and revenues of the EU budget (Laffan 2017).

Another way of looking to the EU institutions is to recognise the interests they represent based on their membership. Most institutions represent supranational interests (or the interests of the EU as a whole). That is the case of the EP, the ECB, the EC, the ECJ and the ECA. Apart from the EP (MEPs are elected by European citizens), national governments have the final say on the appointment of other institutions' members. Nevertheless, they are not accountable to national authorities. They are expected to act with impartiality as it regards influences exerted by member states. Differently, members of the European Council and the CM represent national interests. Indeed, they are, first and foremost, members of national governments.

The interplay between the institutions involved in decision-making: An example of mutual coordination

Different standards, as far as interests represented are concerned, is the evidence of how the functioning of the EU requires cooperation between institutions. The dynamics of decision-making is paradigmatic. The three institutions involved interact at different moments of the decision-making process. The legislative proposal emanates from the EC. It is a reasonable solution: the EC represents supranational interests, and it encapsulates the broad perspective of what is reasonable for the legislative action of the EU.

Two other institutions interact on the legislative proposal of the EU: the EP and the CEU. Both institutions have several possibilities of providing their input to the legislative proposal. The decision is approved if the EP and the CEU agree on the final version of the legislative proposal. Since the EP represents supranational interests and the CEU national interests, the decision-making system of the EU deliberately seeks a compromise between two institutions that encompass different approaches not only to European integration in general, but also to a specific legislative proposal. Compromise is the keyword for the development of European integration, and of how a balanced outcome for the interests of the EP and the CEU is the precondition for the approval of legal acts (Best 2019).

Competences and policies of the union: Principles and catalogues

The competences of the Union are defined in Articles 2–6 of the Treaty on the Functioning of the European Union (TFEU).

The EU has only the competences conferred on it by the Treaties (principle of conferral). Under this principle, the EU may only act within the limits of the competences conferred upon it by the EU countries in the Treaties to attain the objectives provided therein. Competences not conferred upon the EU in the Treaties remain with the EU countries. The Lisbon Treaty clarifies the division of competences between the EU and EU countries. These competences are divided into 3 main categories: exclusive competences; shared competences; and supporting competences.

Competences are exclusive, if only the Union may adopt binding acts and States are allowed to adopt only enforcement provisions or exercise delegated power. They may be shared if both the Union and its member states may adopt legislative powers. They can also be intended to support, coordinate or supplement the action of the member states.

The first category of competences is foreseen by Article 3 TFEU, it includes a customs union; competition rules necessary for the functioning of the internal market; monetary policy for the member states whose currency is the euro; the conservation of marine biological resources under the common fisheries policy; common commercial policy; the conclusion of international agreements when their conclusion is required by a legislative act of the EU or their conclusion is necessary to enable the EU to exercise its internal competence or if their conclusion may affect common rules or alter their scope.

The shared competences are listed in Article 4 TFEU; the list comprises most of the Union's policies: the internal market; social policy (as defined in the TFEU), economic, social and territorial cohesion; agriculture; environment; consumer protection; transport and trans-European networks; energy; an area of freedom, security and justice; common safety concerns in public health matters, limited to the aspects defined in the TFEU; research, technological development and space; development cooperation and humanitarian aid.

When competences are shared, both the EU and its member states may adopt legally binding acts in the area concerned, yet the member states can do so only where the EU has not exercised its competence or has explicitly ceased to do so.

Furthermore, the initiative of the Union is limited by two fundamental principles laid down in Article 5 of the Treaty on European Union:

- proportionality: the content and scope of EU action may not go beyond what is necessary to achieve the objectives of the Treaties
- subsidiarity: in the area of non-exclusive competences, the EU may act only if – and in so far as – the objective of a proposed action cannot be sufficiently achieved by the EU countries but could be better achieved at EU level

In accordance with the procedure laid down in the Protocol on the application of the principles of subsidiarity and proportionality (no. 2), national Parliaments may send to the EP, the CEU and the Commission a reasoned opinion on whether a draft legislative act complies with the principle of subsidiarity. If a significant number of them express a position of non-compliance, the draft must be reviewed.

A third category comprises the competences to support, coordinate or supplement actions of the member states listed in Article 6 TFEU. These are: the protection and improvement of human health; industry; culture; tourism; education, vocational training, youth and sport; civil protection and administrative cooperation. Legally binding EU acts in these areas cannot imply the harmonisation of national laws or regulations.

According to Article 5 TFEU, the EU can take measures to ensure that EU countries coordinate their economic, social and employment policies at EU level. So these are national competences, but specific procedures for coordination are set up by the TFEU.

The EU's common foreign and security policy (CFSP) is characterised by specific institutional features, and it is regulated by the Treaty establishing the European Union (TEU), in its title V CFSP is an intergovernmental policy, as this is made evident by the limited participation of the European Commission and the EP in the decision-making procedure and the exclusion of any legislation activity. This policy is defined and implemented by the European Council (consisting of the Heads of States or Governments of the EU countries) and by the CEU (consisting of a representative of each EU country at ministerial level). The President of the European Council and the High Representative of the Union for Foreign and Security Policy represent the EU in matters of common foreign and security policy.

Citizens' Europe: Active citizenship

In debating regional supranational governance in the EU, the role of the citizens in the European integration path is a necessary discussion. The multilevel system of governance implies the contribution of many national and supranational actors in the EU decision-making power. Besides, a supranational organisation enjoys its own legitimacy, derived directly from citizens, as stated in Article 10 TEU:

1. The functioning of the Union shall be founded on representative democracy.
2. Citizens are directly represented at Union level in the European Parliament. Member States are represented in the European Council by their Heads of State or Government and in the Council by their governments, themselves democratically accountable either to their national Parliaments, or to their citizens.

As aforementioned, the EU has evolved from the initial pattern of IO into a sophisticated supranational polity, at the level of which the debate on democratic legitimacy, i.e. the input of the citizens, has to be considered. The debate also runs on the democratic legitimacy of IO in general, but the depth reached by European integration makes it all the more important. There has been a long dispute over an alleged 'democratic deficit' of the Union. Although meanwhile various measures were introduced to allow an effective participation of EU citizens, namely direct elections to the EP, a right to petition the EP, a right to complain to the European Ombudsman and the legislative initiative of citizens, the citizens seem to still keep afar from the increasingly complex political process of the EU.

The Conference on the Future of Europe (2021) takes place from 2021 to 2022 and the practical activity here proposed is inspired on it. It is an invitation and a challenge for the students to develop both critical thinking and team work on such an up-to-date topic. Students are therefore invited to participate in a discussion on the role of citizens as active participants in the future model of EU governance. The forum will consider the following contents:

- trust in the EU institutions
- participation and democracy in the EU

- the Conference on the Future of Europe: why it matters
- perspectives and proposals for the future of Europe

Conclusions

With reference to the political framework underlying international security, this chapter and the related module of the course are structured according to the multilevel theory of governance. Two main levels have been highlighted: global governance, with particular reference to the United Nations and the United Nations system; and the European Union as a structure of regional supranational governance within which European security has to be explained (cf. the first chapter of this volume, 9–31). Therefore, in the first part, the chapter discussed the multilevel structure of global governance, the United Nations system, and briefly mentioned the global agenda (cf. the ninth chapter of this volume, 149–166). In the second part, the text addressed the European Union, focusing on its institutional system and on competences and policies. The chapter ends with the proposal of an exercise on European active citizenship, an up-to-date topic of European governance.

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Maritime Security and the EU

Piracy, terrorism, illegal trafficking, state disputes and climate change constitute significant threats to international maritime security. The EU participated in missions in Bosnia, Northern Macedonia, Kosovo, the Democratic Republic of Congo and elsewhere. Nevertheless, it was not involved in maritime operations for years, although the 2003 European Security Strategy clearly states the likelihood that Member States' warships could be involved in areas such as the Mediterranean or the Black Sea. This situation was reversed in November 2008 when, with Operation Atalanta (EU NAVFOR), the EU provided distinct signs of presence and action against piracy and sea terrorism. It could be said that this initiative in naval operations, including the safe delivery of humanitarian aid to the Horn of Africa, has added another dimension to the EU's role in international military missions. Until recently, the EU stood behind NATO's institutional role in relation to security operations in the region. Despite this, it seems that today the European Union, as regards the protection of sea routes, is gaining confidence and its own independent role and military activity in the international security issues of Europe, Africa and Asia.

Keywords: European Union, maritime security, piracy, terrorism, military activity

Acronyms

A2AD	Anti-access/area denial
AShM	anti-ship missiles
ASEAN	Association of Southeast Asia Nations
EEAS	European External Action Service
EEZ	Exclusive Economic Zone
MS	Member State
n.m.	nautical mile
SAM	surface-to-air missiles
UNCLOS	United Nations Convention on the Law of the Sea
UNODC	United Nations Office on Drugs and Crime

Introduction

There is no commonly accepted interpretation of what "security" means in international relations (Baldwin 1997: 5–6). However, most studies focus on the political priorities of states in their attempt to define this concept, where in these cases the threat that each state or alliance of states face is considered a matter of security (Brown 1977; Matthews 1989: 162–177; Ullman 1983: 129–153; Romm 1983; Tickner 1995: 175–197; Booth 1991: 313–326).

With the end of the Cold War, this assessment seems to have been treated with scepticism by some scholars and has been redefined, especially by those who consider that the safety of the individuals themselves should be given priority. Rothschild, for example, believes that throughout human history security has had to do primarily with the safety of individuals (Rothschild 1995: 53–98).

Another view focuses on the security of human societies (Shaw 1994: 159–176), while, according to a different opinion, the issue is approached from the security of the individual himself first, then proceeding to human communities, societies, organisations, states and ending with the international system (Buzan 1991). An additional point that has appeared recently prioritises the protection of the planet, rather than the people who live on it, giving priority to ecology and the position that humans are a part of nature which they must protect for their safety (Homer-Dixon 1999).

When the discussion comes specifically to maritime security, as a part of international security, the fact is interesting that it considers all the dimensions presented earlier; meaning state, individuals, societies and ecology. Moreover, taking the fact into consideration that almost 80% of the world's trade is transported by sea and the percentage of industries that rely on safe and clean waters, it is obvious that an international actor wishing to play a central role in international developments should focus on the safety and protection of the sea routes and securitise every aspect arising from Maritime Security. In such a context of Maritime Security, the main features of the peaceful resolution of international disputes are also pertinent, especially taking into account aspects of general international law and the law of the sea.

The strategic position of Europe, surrounded by the Black Sea, the Mediterranean, the Atlantic Ocean and the Arctic, in accordance with the changes that the 9/11 attack brought to the perspectives of international security, as well as the financial competition between the big economies of the Northern Hemisphere (the USA, Russia and China) are signals for the necessity of the EU to act more independently in order to protect the wellbeing of its citizens and of its member states.

Law of the Sea

The European Union (EU) has long expressed the hope that the United Nations Convention on the Law of the Sea (hereinafter: UNCLOS), which was adopted by the Third United Nations Conference on the Law of the Sea and opened for signature (together with the Final Act of the Conference) at Montego Bay, Jamaica, on 10 December 1982, has the potential of becoming a useful means for promoting co-operation and stable relations between all countries in these fields, governing all aspects of ocean space, such as delimitation, environmental control, marine scientific research, economic and commercial activities, transfer of technology and the settlement of disputes relating to ocean matters (UN 1982). More specifically, with a view to the maintenance of peace, justice and progress the EU has formally endorsed the UNCLOS since 1998 and, despite any deficiencies and flaws requiring rectification, the European Economic Community has declared on signing

the UNCLOS that it constitutes, within the framework of the Law of the Sea, a major effort in the codification and progressive development of international law in the fields to which its declaration pursuant to Article 2 of Annex IX of the UNCLOS refers.

In particular, the UNCLOS proceeds from the basic principle that the states which are parties will settle any dispute between them concerning its interpretation or application by peaceful means in accordance with the UN Charter and, to this end, it further confirms that disputes relating to the UNCLOS must be settled in accordance with justice. Importantly, the scope and exercise of the competence that the EU Member States have transferred to the EU under the EU Treaties with regard to rules and regulations under the UNCLOS is, by its very nature, subject to continuous development with the EU itself having exclusive competence for certain matters while only sharing competence with its Member States for certain other matters.

States' disputes

Maritime security constitutes a complex dimension concerning the security of states (and other non-recognised autonomous/sovereign regions and entities). The reason for this is twofold. First, the nature of the maritime environment in which a state strives to exercise some form of sovereignty – the waters of the seas – and, second, the economic, social, political, logistical and environmental incentives and risks that access and proximity to the world's seas presents. As such, competitive dynamics abound in the maritime realm within the traditional context of hard security, with maritime territorial disputes at the centre of flashpoints and frictions between the major and lower tier powers of the world. The confidence that the EU builds, through operations at the high seas, seems to be expanded also in operations that have to do with states' disputes in order to protect vital interests of the member states.

To understand the importance of territorial and sovereignty issues for states and other state-like actors, we must first understand the importance of the maritime environment. The seas of the world comprise almost three quarters of the Earth's surface and aside from some closed or easily closed-down features, create in practicality a vast global highway of connectivity. This domain is exploited by states in a variety of aspects, as avenues for trade, for economic output (fishing, mining, etc.), for logistics and for military purposes. However, it is distinctly different from other physical spaces where states can exercise their territorial sovereignty in that it is not hospitable for human life and also virtually void of any distinctive features, which comes from the "uniformity of its surface" (Speller 2018: 17). The exercise and further exploitation of territorial and other sovereignty thus becomes highly more complicated than the practices of sovereignty on land surfaces that sub-state, state and supra-state entities have come accustomed to. It relies on complex and often costly – and as such, highly valuable – platforms created specifically to practice and protect a state's sovereignty in the maritime domain, such as surface and sub-surface vessels, stations or rigs and other forms of platform-based presence in the environment that the seas and the oceans of the world present. Incentives for the economic exploitation

of a state's sovereign access to the maritime domain come in many forms – fishing, mining – but the most important of them is the nature of the world oceanic highways as an avenue for trade.

Water, as a medium of transportation holds two important advantages, namely, the access it provides to the economic centres of the globe and the means of highly energy-efficient transportation for large quantities of cargo. The latter stems from the physical characteristics of water as a means of transport, as it can support the logistical movement of large quantities of immensely heavy cargo with the fraction of the energy needed to move such quantities on land and especially by shipping. Most significantly, almost two thirds of the world's crude oil and petrochemical supplies are transported by sea. The geographic location of economic and population centres also highlights the importance of maritime connectivity as more than 40% of the world population live within a 100 km radius of the coastlines of the globe and – especially in the developed world – the largest centres of urban and economic concentration are within this coastal swath (UNR Seas 2007). Understandably, access to and, potentially, the denial of access to other entities of the maritime domain have traditionally been at the centre of greatest power strategic traditions and parallel to this, normative and other efforts to guarantee safe and prosperous access to all of mankind based on the rule of law have permeated discussion on the world seas as global maritime commons.

The area of the maritime domain over which a state may exercise some form of sovereignty – both coastal and offshore, such as distant islands and adjacent waters – are thus of vital strategic importance and as such, many actors would strive to maximise their possible access to the sea. Not surprisingly, interstates dispute with aspects of some form of maritime territorial control such as the sovereignty over offshore islands, for example, are abundant in the international system. The most important aspiration to mitigate these contested phenomena and manage them under circumstances governed by norms and the rule of law, have been the UN Convention on the Law of the Sea (UNCLOS). Interestingly enough, by codifying and extending the territorial sea to 12 nautical miles (22.2 km) a further 12 n.m. contiguous zone (24 n.m., 44.4 km) and the 200 n.m. (370 km) Exclusive Economic Zone (EEZ), the UNLOS has greatly increased the surface of the world oceans legally under some form of state sovereignty. Also, by providing the 12 n.m. territorial sea (and the 24 n.m. contiguous zone and EEZ) based in some cases on the shoreline of offshore islands, it has vastly increased the legal enclosing of the seas (Speller 2018: 21), and, as such, the political and strategic value of such distant island features for actors striving to create ever larger areas of the maritime domain under their sovereignty.

The contemporary international system is home to a high number of inter-state disputes that have relevance to the maritime domain, such as disputed islands, disputed maritime territory and certain demarcation lines or even the specific naming of a body of water (i.e. the Republic of Korea vs. Japan dispute over the use of the Sea of Japan or the Yellow Sea). There are ongoing disputes over maritime territory, sovereignty of islands and other issues in every part of the globe; we can find such issues regarding countries of all continents as well as the complex demarcation of territories of the Arctic and Antarctica. There are, however, stark differences in how intensive, risk prone and disposed

towards potential escalation each regional maritime dispute might be. Disputed maritime sovereignty issues in Europe and especially between EU member states do exist, such as the Gulf of Piran dispute between Croatia and Slovenia, or the uninhabited Rockall islands off the coast of Ireland and the United Kingdom (where Denmark is also a claimant in the dispute), but are managed within the frameworks of legal arguments and arbitrations under the rule of law and common norms for settling such disagreements. Some maritime disputes are present in the regional neighbourhood of the EU, such as islands, features and the territory of the Sea of Azov between Ukraine and Russia, or maritime disputes in North Africa, the disputes between Turkey and Greece, also involving Cyprus, as well as disputes between Turkey and Israel. However, as evident with the Ukraine–Russia disputes, most of these maritime state disputes are either part of a larger issue of territorial and other conflicts between states or are marginally intensive disputes, making them less pressing issues of regional security in close proximity to the EU. Some EU member states do have maritime disputes in their territories outside of Europe, a remnant of colonial past, one obvious historic example would be the Falkland Islands debate – although the U.K. is no longer a member –, but in recent decades these lingering disputes have not presented major possibilities for escalating security crises on the terms of threatening the territorial integrity of Member States. There are some instances where the EU can be a highly proactive player in security issues with a dimension of maritime domain centred on state actors. Since the uprising of 2011, Libya faces an ongoing conflict and instability posing a threat to the security of the region. On 17 February 2020, the EU's Foreign Affairs Council decided to launch a new operation in the Mediterranean focused on the implementation of the UN Security Council Resolution on the arms embargo on Libya. The operation named IRINI (Greek for peace) was launched in March 2020 and is mandated to carry out inspections of vessels on the high seas off the coast of Libya implementing the UN arms embargo on the country (EEAS 2020b).

There are, however, some major maritime inter-state disputes in some regions outside of Europe that do present a significant risk regarding not only regional, but global stability. The two most significant areas are the South China Sea and the East China Sea disputes, most of which are between the People's Republic of China and other claimants or de facto sovereign holders of disputed islands, features or maritime territory. In the East China Sea, the most significant dispute is centred around the uninhabited Senkaku/Diaoyu islands, claimed by Taiwan and China, but under the sovereignty of Japan. The decades old dispute has developed into a complex conflict with the use of naval, coast guard and other, "hybrid" forms of state-on-state pressure, mainly by China, to contest the Japanese sovereignty over the islands, fuelling a strategic reconfiguration of Japanese defence policy towards limited maritime deterrence (Bartók 2020). In the South China Sea, Beijing articulated a claim based on historic grounds with the "nine-dash-line" demarcation, in practicality claiming sovereignty over the entirety of the South China Sea, putting China in conflict with the coastal countries of the Association of Southeast Asian Nations (ASEAN), such as Vietnam, the Philippines, Malaysia and Indonesia. While East Asia is geographically distant from Europe, the EU has noticed the destabilising potential of these maritime disputes and the strategic focus of the EU towards the region has

articulated that the economic prosperity of Europe is tangent on the peace and stability of the East Asian region (Bartók 2019: 152–153).

Maritime disputes between states present varying levels of destabilising potential, some of them, however, are right at the centre of global great power competition, especially in East Asia, where China is in dispute with a host of U.S. allies in the maritime domain. As such, these maritime disputes between states of East Asia will be at the heart of future developments of global security issues. The factor that merits some degree of caution is the ongoing arms race between East Asian countries, fuelled by the shifting military balance between China and the United States. This arms race is highly focused on naval platforms, coast guard vessels, aircrafts A2AD[1] weapon systems and situational awareness capabilities, all of which increase the potential risk of escalation when it comes to maritime inter-state disputes.

The EU as a mostly distant and outside player has a very important role as a normative actor in shaping dispute settlement norms within the framework of a rules-based order. As such, the most important challenge for Europe is how much influence it can have in global maritime disputes in order to help prevent the escalation of disagreements into "hybrid" or other forms of conflict.

Piracy, armed robbery and the potential for terrorism

The necessity for the EU's presence in security operations could be seen as part of a broader framework of changes in security issues created at the end of the Cold War. The pressure of other international actors, like the USA, for example, for a stronger European presence is explained as imperative or necessary to protect Western interests and to change the views that the EU will remain under the auspices of NATO not being able to develop an independent defence and security policy.

Possible problems with shipping, especially oil tankers, could pose significant problems to Western economies and could prove a potential parameter of extremist movements. During the last decade, the activities of piracy have increased the likelihood of terrorists being involved in such operations. The possibility of a terrorist attack at sea, as it is an area without clear boundaries and rules, has preoccupied researchers of violence (Murphy 2007). Some scholars identify pirates with terrorists as "enemies of humanity", as they operate outside the bounds of legal behaviour (Thorup 2009: 401–411). However, in the conclusion of their research, they do not suggest an absolute identification of the pirate with the terrorist, as the two acts – piracy and terrorism – are not identified mainly due to the intentions of the perpetrators behind each act. That is, while piracy was originally a form of private use of force, it could be part of general terrorism as a means for financing activities. Moreover, the sea has not historically been a main area of terrorist activities (Wilkinson 1986; Jenkins et al. 1986).

[1] Anti-access/area denial weapon systems – mostly defensive devices like anti-ship missiles (AShM), or surface-to-air missiles (SAM).

However, Abu Musab al-Suri, one of Al-Qaeda's leading ideologues, in his book *Global Islamic Resistance Call* speaks about the need to hit ships in the Mediterranean not only because of the strategic and economic importance of the region but also because of the importance of the following seas to the West (Strait of Hormuz, Suez Canal, Bab al-Madeb, Strait of Gibraltar/Maḍīq Jabal Ṭāriq) (Al-Suri 2007). There were also reports of suicide attacks on Western-interest shipping in the Mediterranean using small tanker boats in the Strait of Gibraltar and yachts carrying tourists from Israel to Turkey (Percival 2005: 9; Sezer 2005; The New York Times 2005).

Further, the kidnappings of EU citizens and the deaths of some of them have identified piracy with terrorism, leading to the British Government's view that "ransom is not paid to terrorists" (BBC News 2008). Sharing the same view, French President Nikolas Sarkozy authorised the French Special Forces to attack pirates inside Somali territory after the abduction of the ship "Le Ponant" in April 2008 (Radio France Internationale 2012).

Moreover, on 6 October 2002, the suicide bombers' attack against the French oil tanker "M/V Limburg" in the Gulf of Aden caused a short-term collapse of navigation in the Gulf, an oil price rise of 40 cents per barrel and a cost of 3.8 million to the economy of Yemen (Sheppard 2003: 55). This is an example that causes worries as for the capabilities of extremist groups to cause extensive damage to specific countries' economies. Also on 12 October 2002, an Al-Qaeda attack against the USS Cole in the port of Aden killed 17 U.S. Marines. Finally, sea attacks coming from Tamil Tigers against the authorities in Sri Lanka, as well as sea attacks of the Free Aceh Movement in Indonesia contribute, in some cases, to the further identification of piracy with terrorism.

At the height of the Piracy crisis in 2011, some 736 seamen were held hostage at one time and 32 ships remained seized off the coast of Somalia (EEAS 2020a). These developments constituted great challenges to the EU's role on issues of international security. A significant development for the EU was the implementation of Operation Atalanta in 2008. It was the first Maritime operation of the EU in which individual Member States united under the EU flag. In the context of the operation violence can be used, within an institutional framework, at sea on the national waters of other countries in order to protect the interests of the European Member States but also to protect the local population in order to secure humanitarian aid (EEAS 2020a).

Finally, and as for what concerns the high seas crime, Yury Fedotov, Executive Director of the United Nations Office on Drugs and Crime (UNODC) has recently stated that: "Maritime crime involved vessels, cargoes, crews and illicit money flows from many regions. With its reach spanning from sea to coast guard offices, courtrooms and prisons, the Office works to curb cocaine trafficking in the Atlantic, heroin trafficking in the Indian Ocean, migrant smuggling in the Mediterranean, and piracy and armed robbery at sea in the Gulf of Guinea. These crimes pose an immediate danger to people's lives and safety, they undermine human rights, hinder sustainable development, and as this Council has recognized, they threaten international peace and security" (UN 2019). Following the UN's efforts, the EU supports maritime security programs in the Gulf of Guinea and security efforts at the Horn of Africa.

Environmental issues

Conflicts and political violence

Another dimension has to do with the connection between climate change and illegal activities that affect the commercial sea roots. Climate change has gradually more negative impacts on the livelihoods of many countries and regions through water and land scarcity, food insecurity and migration. This dimension makes the affected population vulnerable not only to climate alterations but also to recruitments by illegal and violent groups. These groups can present alternative ways of life, economic motivations and a significant response to political anger and dissatisfaction (Charalampopoulos 2020). This does not imply that there is a direct link between climate change and politics-related violence and conflict. However, large-scale environmental change, such as water scarcity, land scarcity and climatic change contributes to creating an environment in which these groups can thrive (Nett–Rüttinger 2016).

Further, violent groups are using natural resources as a weapon of war. In unstable environments these groups can use water, and other resources as a weapon of war and a means of political pressure. This tactic creates a dynamic for these groups taking into consideration the fact that the scarcer the resources become, the more power is given to those who control them (Nett–Rüttinger 2016).

Moreover, studies show that, as the climate is changing, so too are the conditions within which organised crime groups operate. As it was said before, this does not imply that there is a direct link between climate change and the violence and conflict that comes from those groups. However, large-scale environmental and climatic change contributes to creating an environment in which those groups can better develop their strategies.

Low levels of rural development, environmental scarcity, reliance on sensitive crops and the reduction of the global fish stocks make people vulnerable to the impacts of climate change, pushing them towards illicit activities like piracy, organised crime and recruitment by criminal groups.

Ice melting and security dilemmas in the Arctic

In August 2007, a submarine submerged at the North Pole and hoisted the Russian flag on the seabed. The activity upset the surrounding states and other international players (The Guardian 2007).

Rising temperatures have affected the ecologically sensitive area and are expected to have adverse effects if the polar ice cap and glaciers continue to melt at the same rate. On the other hand, companies and industries involved in mining natural resources (minerals, crude oil and natural gas), shipping, fisheries and tourism are positive about the effects of climate change in the Arctic in order to expand their business there, as the melting ice allows them to exploit natural resources in an area to which they did not have access earlier.

Three of the eight members of the Arctic Council are members of the EU. European countries pay considerable attention to the prospect of finding and exploiting Arctic resources. The European Security Strategy recognises the need to find more natural resources to meet needs (European Council 2009: 14).

According to NATO Secretary General Jens Stoltenberg, with China and Russia expanding their military presence in the Arctic, melting ice could increase geopolitical tensions between different powers in the world. The reopening of Soviet military facilities in the Arctic (Reuters 2013), of a NATO base in Norway (Waterfield 2020), and the increasing Chinese presence in the area change the security landscape of the region (Koh 2020).

Conclusions

The new international security challenges oblige international actors to play a more central and independent role in global developments. The interesting factor about Maritime Security is that it considers individuals, societies, states, international organisations and climate. Despite the fact that until recently the EU stood behind NATO's institutional role, in relation to security operations, it seems that on the occasion of the protection of the sea routes it is constructing a more independent and confident role. It is worth mentioning that this role is being developed within the frames of the United Nations Convention on the Law of the Sea (UNCLOS). The EU has long expressed the hope that UNCLOS has the potential of becoming a useful means for promoting co-operation and stable relations between all countries in these fields. The EU has a very important role as a normative actor in shaping dispute settlement norms within the framework of a rules based order. Maritime disputes between states present varying levels of destabilising potential, some of them, however, are in the very centre of global great power competition. The most important challenge for Europe is how much of an influence it can have in global maritime disputes. Further, and as the activities of piracy, during the last decade, have increased the likelihood of terrorists being involved in such operations, the necessity for a stronger European presence to protect Western interests in the open seas is clearer than ever. The security threats concerning Maritime Security are becoming more hazardous when one adds the factor of climate change. Violence, new sea routes in the Arctic Circle and environmental catastrophes are some of the issues a global power has to deal with. Beside the difficulties and the challenges, the European Union is constituted by Member States and civilisations which, taking advantage of the open sea and the strategic position of Europe, wrote some of the most important chapters in the history of mankind. Maybe it is now time for the European States to act together and find, once more, the sea current which will lead them to new glorious chapters of history.

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Foteini Asderaki – Eleftheria Markozani

The Securitisation of Migration

This chapter will analyse the securitisation of migration by the European Union (EU). Whereas relevant literature has specified that the securitisation of the issue of migration in the EU has begun since the establishment of the Schengen Area, this work focuses on the policy actions developed during and after the outburst of the recent refugee crisis in 2015. The chapter will analyse the securitisation theory, elaborated by the Copenhagen and the Paris Schools of security studies, and the principle that an issue is defined as a security threat either by speech acts or by practices. It will, then, examine the policy choices made by the EU institutions for the control of migration flows. Specifically, it assesses EU policy initiatives on external border controls such as the reinforcement of the Frontex Agency, the initiation of the EU naval mission Operation Sophia, the cooperation of the EU with the North Atlantic Treaty Organisation (NATO) and the initiation of the EU–Turkey Deal.

Keywords: migration, security, securitisation, Frontex, CSDP maritime operations

Acronyms

AFSJ	Area of Freedom, Security and Justice
CEAS	Common European Asylum System
CFSP	Common Foreign and Security Policy
CSDP	Common Security and Defence Policy
EUNAVFOR	European Union Naval Force
EUROSUR	European Border Surveillance System
ISIS	Islamic State
MARCOM	Maritime Command
NATO	North Atlantic Treaty Organisation
PESCO	Permanent Structured Cooperation
RABITs	Rapid Response Teams

Introduction

During the recent so-called European migration and refugee crisis, the Syrian conflict, the Libyan civil war, the elusive situation in the Middle East and Afghanistan generated an unprecedented influx of irregular migrants. In 2015, the EU registered 1.35 million asylum applications, a momentous double increase compared with 627 thousand in 2014, while most of the migrants originated from Syria, Afghanistan and Iraq, stricken by outbursts of war and conflicts (Frontex 2016). The increased number of irregular migrants and, at the same time, the terrorist attacks in France, Belgium, Germany and the U.K. in 2015–2017 called the attention to the interrelation of terrorism and security threats with

irregular migration (Schmid 2016). The security–migration nexus and the consideration of migration as a security issue has been widely studied (Huysmans 2000; Geddes 2003; Faist 2004: 3; Léonard 2010; Estevens 2018).[1]

Since the establishment of the Schengen Area in the 1990s, migration has been correlated with security threats in the EU (Brochmann 1999). Thus, the Schengen Agreement (1985) was supplemented by the Dublin Convention (1990) and additional measures aiming at creating a 'fence' against irregular flows or as it is usually mentioned the 'Fortress Europe' (Bigo 2004). The preventive policies against irregular migration have been based on three interrelated policy areas: the Common European Asylum System (CEAS); the external agreements on re-admission of non-eligible for entry migrants and the management of migration flows and, finally, the external border controls (Asderaki–Markozani 2016). The process of securitisation has been accentuated since the terrorist attacks of 9/11 in the USA and the terrorist bombings in Madrid (2004) and in London (2005). Moreover, the threats of the so-called "Islamic State" (ISIS) augmented the feelings of insecurity in Europe but also pointed up the concomitance of the growing threat of terrorism with irregular migrants. European policy makers accentuated the link between migration and internal security (Boswell 2007; Moreno-Lax 2018). European decision-makers had long ago attempted the securitisation of irregular migration, producing a preventive and multi-dimensional policy which included a rather complex and strict asylum system, close cooperation with third countries on the management of migration flows and control of irregular cross-border crossings (Huysmans 2000). Nevertheless, after the outbreak of the 2015 refugee crisis, the EU intensified the securitisation, implementing aggressive means to fight the problem of irregular migration (Ceccorulli 2019; Asderaki–Markozani 2021). Therefore, the EU has oriented its migration policy to a security strategy, passing a part of the migration agenda from the policy Area of Freedom, Security and Justice (AFSJ) to the Common Security and Defence Policy (CSDP).

Background: Theory

On the theoretical level, the concept of the securitisation of migration was initially developed by Barry Buzan and Ole Wæver, establishing the Copenhagen School of security studies (Buzan 1991; Wæver et al. 1993; Wæver 1995; Buzan et al. 1998; Wæver 2000). According to this school, the concept of security is wider, including, apart from military threats, political, economic, societal, environmental and religious ones (Buzan et al. 1998). Conceptualising security as a procedure of social construction, they explained that a security threat is defined as such through speech and discourse: "Security is the speech act where a securitizing actor designates a threat to a specified referent object and declares an existential threat implying a right to use extraordinary means to fence it off" (Wæver

[1] This work is based on Asderaki–Markozani 2021: 179–198.

2000: 251). In this context, an issue is politically delineated as a security threat by the use of respective language publicly which legitimates extraordinary measures (Wæver 2000). No subject can be regarded as a security threat a priori but, instead, it is constructed as such only if it is "written and talked into existence" (Huysmans 2006: 7). Political actors are those who perform "the securitizing act attempts to convince" (Wæver 2000; Buzan et al. 1998: 41). As Neal suggested the concept of securitisation consists of "a commonly used way to understand how 'security' is invoked to legitimize contentious legislation, policies or practices that would otherwise not have been deemed legitimate" (Neal 2009: 335).

The process of securitisation includes three complementary but compulsory stages which need to be fulfilled so that securitisation can be completed (Buzan et al. 1998: 6):

a) the definition by speech of a security threat by a public actor
b) the acceptance of the issue as a threat by the audience which entails the detachment of the established norms and
c) the implementation of extraordinary measures against the perceived threat once they are legitimised

Political actors in Europe, such as politicians and institutions regarded migration as a cultural nuisance, an economic risk and a threat to society's safety and survival from the 1990s onwards (Huysmans 2000). The use of phrases in public speech such as "managing immigration effectively means addressing also different issues linked to the security of our societies. […] This requires fighting illegal immigration and criminal activities related to it…" (European Commission 2008: 3), correlate migration with cross-border crimes and other security threats and therefore, securitise EU policy activities (Sperling–Webber 2019). This has been apparent in the EU policy making after the establishment of the Schengen Area which marked that "the abolition of internal border controls cannot come at the expense of security" (European Commission 2018). The promotion of security in relation with migration by the relative actors can justify the formation of a policy, based on security means. EU institutions, European leaders and policy makers are identified as the ones who perform "the securitizing act attempts to convince" (Wæver 2000; Buzan et al. 1998: 41) and take the initiative on securitising policy acts. Wæver regarded security as a valuable instrument for EU institutions: "Security is invoked in a sense that can be interpreted as a call to defend a not-yet-existing social order" (Wæver 1995: 74).

In addition to the securitisation through speech, the correlation of migration with security issues can be attained through practices of routines, as the Paris School and Didier Bigo elaborated. Relative administrative and bureaucratic routines and connections through institutional networks of agents can contribute to the securitisation of a policy. In case of the establishment of a relation, during the implementation of professional tasks and routines, between agents of a security field with professionals of another field, such as migration, can result in the securitisation of practices of the non-security field (Balzacq 2011). As a result, securitisation can be the outcome of efficiency of policy practices, mimesis or cloning (Sperling–Webber 2019). These practices include "… population

profiling, risk assessment, statistical calculation, category creation, proactive preparation, and what may be termed a specific habitus of the 'security professional' with its ethos of secrecy and concern for the management of fear or unease" (Bigo 2002: 65–66). In the context of migration policy, examples of such practices include the use of the relevant technology and databases for profiling and screening migrants, such as the European Border Surveillance System (EUROSUR) (Lavenex 2001; Bigo 2002; Huysmans 2000; Boswell 2007; Ceccorulli 2019).

Core content: EU policy practices

On the policy level, to deal with the new extensive challenges of the refugee crisis, the EU militarised its policy by reinforcing Frontex and transformed it into the official European Border and Guard Agency. In addition, European decision-makers issued specialised military naval missions for the protection of external borders in the Mediterranean.

Frontex (European Border and Coast Guard Agency)

As Bigo (2002) explained on the securitisation through practices, the role of Frontex is the control and surveillance of external borders including the screening, monitoring, identifying and fingerprinting of migrants. Until 2016, the role of Frontex was supportive and auxiliary, and intended to increase the efficiency of coordinated border controls. The main objective of the Agency has been the administrative and operational cooperation between Member States in order to implement an Integrated Management System of proper supervision, and the development of the specialised joint sea operations for the control and protection of the EU's external borders (Council of the European Union 2004). The Agency also provides expert support on training and risk analysis and contributes to the confrontation of operational emergency problems, such as a mass influx of migrants, through its Rapid Response Teams (RABITs) (European Parliament and Council 2007). Nonetheless, in 2016 after the outburst of the crisis on the EU's external borders in the Mediterranean, the EU reinforced Frontex with the right to intervene in emergency circumstances which jeopardise the integrity and security of the Schengen Area, aggrandising the Agency's autonomy (European Parliament and Council 2016: Article 19). Reflecting the extraordinary measures which are legitimised under the securitisation process, the regulation states that: "In cases where there is a specific and disproportionate challenge at the external borders, the Agency should, at the request of a Member State or on its own initiative, organise and coordinate rapid border interventions and deploy both European Border and Coast Guard teams from a rapid reaction pool and technical equipment" (European Parliament and Council 2016: Article 24). Moreover, the new Regulation doubled the number of Frontex's guards (European Commission 2016b).

On the operational level, Frontex has coordinated the joint sea operations "Triton" in the Central Mediterranean, "Poseidon" in the Eastern Mediterranean, "Minerva" and "Indalo" in the Western Mediterranean for the control of maritime borders and the rescue of migrants in the sea (European Commission 2015b). The joint operation Triton was expanded and a number of additional experts, vessels and aircraft were brought in, while, in 2018, it was re-launched under the new name of Operation Themis (Frontex 2020). Besides, Frontex has normalised the use of firearms as a means of self-defence of Frontex guards (Leggeri 2016). Frontex was further strengthened in 2019 through an amendment to its regulation which granted the agency even more autonomy on acquiring its own permanent personnel and, as a result, to stop depending on the Member States' human resources (European Parliament and Council 2019). The continuous development of Frontex's power and the militarisation of external border controls reveal the turn of the EU towards the deployment of a more offensive strategy against irregular migration (Moreno-Lax 2018).

EUNAVFOR MED and NATO

The consolidation and empowerment of Frontex has not been the sole indication of the militarisation of migration policy. The Action Plan of 10 points, launched by the Commission in 2015 and particularly the proposal for the unfolding of the military operation in the Mediterranean for the demolition of smugglers' activity demonstrated that the actions of the Task Force Mediterranean incorporated the transfer of the means for controlling irregular migration from the institutional framework of Justice and Home Affairs to the CSDP, and the binding of the European Agenda of Migration with the European Agenda on Security (European Commission 2015a). The most significant aspect of the 10-point proposal of the Commission has been the establishment of an operation of the European marine body EUNAVFOR, similar to the Operation Atalanta for locating and destroying the boats used by smugglers. The Council of April 2015 adopted all of the Commission's proposals and, in May 2015, the Decision of the Council (Council of the European Union 2015) launched the military initiative of the EU Naval Force body, EUNAVFOR Mediterranean "Operation Sophia". The objective of the operation has been the interruption of the ongoing tragedies in the Central Mediterranean, and the disruption of the smugglers' operation model through the strengthening of the EU's maritime presence. The Council and the High Representative are responsible for the political control of the operation and the Commission has been delegated with the strategic guidance (Council of the European Union 2015: Article 1). The CSDP missions and operations in the Mediterranean, such as the Operation EUNAVOR Med Sophia and the EUBAM Libya were renewed after the Malta Declaration of 3 February 2017 (European Council 2017a).

Whereas Operation Sophia has been placed in the Central Mediterranean, in the Eastern Mediterranean and on the Greek–Turkish borders, the EU has cooperated with NATO. Since February 2015, the NATO maritime force has contributed to the control of irregular migration flows from the Turkish coasts to the Greek Islands. NATO fleets agreed

to support the Greek and Turkish authorities and Frontex on the surveillance of migrant crossings. NATO's surveillance activities were incorporated into the creation of a general framework with direct links between Maritime Command (MARCOM) and Frontex (NATO 2016a). The NATO operation has been normalised under the name Operation Sea Guard (NATO 2016b). Once more, the endorsement of NATO's support and its military fleet underscore the established concept of irregular migration as a security threat. Besides, the fight against irregular migration was also incorporated in the announcement for the activation and formation of the Permanent Structured Cooperation (PESCO) (an institutional instrument, introduced by the Lisbon Treaty [Article 42(6) TEU and 46 TEU and Protocol 10]) and the deployment of joined security operations among the participating Member States. As the Conclusions of the European Council stated, PESCO has included the creation of "…a European Defence Fund, composed of a research window and a capability window, and is looking forward to its swift operationalisation […] including by cross border cooperation" in which the goal has been "…to tackle migration and to protect its external borders" (European Council 2017b).

The EU–Turkey Deal

For the EU, the refugee crisis underscored the significance of Turkey and the interdependence between the neighbouring actors in managing regional migration flows. Recognising the inability of the EU asylum system to manage the vast amount of the asylum seekers, the EU relied on its efforts with Turkey. After a special negotiating meeting of the Heads of EU States with Turkey, the first EU–Turkey Statement was adopted in November 2015, aiming at coordinating their actions for the management of the refugee crisis through a Joint Action Plan (European Council 2015). Following the closure of the Balkan route (FYROM, Slovenia, Croatia, Hungary), the EU and Turkey concluded a reinforced deal, through the Statement of the EU Heads of State and Government adopted on 18 March 2016 (European Council 2016a). According to the Statement, Greece and Turkey have agreed "to return all new irregular migrants crossing from Turkey into the Greek islands with the costs covered by the EU; to resettle, for every Syrian readmitted by Turkey from Greek islands, another Syrian from Turkey to the EU Member States, within the framework of the existing commitments" (European Council 2016a). In this framework, readmission agreements have been re-activated or signed with the EU, Greece, Bulgaria and Romania. Greece and Turkey have enabled the readmission process with the direct return of irregular migrants from the Greek Islands to Turkey (European Council 2016b). However, the readmission results between Greece and Turkey have been poor.[2]

[2] In 2017, only 1,896 irregular migrants were sent back to Turkey: 1,307 based on the EU–Turkey Statement and 589 returns based on the bilateral readmission agreement between Greece and Turkey (European Commission 2017).

In the framework of the EU–Turkey 'deal', Turkey in 2017 received almost €3 billion for the humanitarian and development needs of refugees and the creation of a refugee reception facility in Turkey through the Facility for Refugees in Turkey (European Commission 2017a). Turkey has received an additional assistance of €3 billion in 2018 under the condition that the authorities implement all of the EU requirements for the proper allocation of refugees. The establishment of reception centres in third countries for the detainment of asylum seekers is a central strategic measure of the externalisation of migration (Lavenex 2006). The European Commission monitors the implementation of the EU–Turkey Joint Plan and reports to the Member States (European Commission 2016a) through a Steering Committee consisting of one representative per Member State and two representatives from the Commission (Council of the European Union 2016). The impact of security concerns has also been apparent to the governance of external cooperation with Turkey. Apart from the financial assistance for the needs of refugees, Turkey has received almost €20 million for the improvement of the capacity of the Turkish Coast Guard to carry out search and rescue operations and €40 million through the Instrument for Pre-Accession Assistance for the support of the Border Surveillance Capacity at the Eastern Borders of Turkey (European Commission 2017b). In Gaziantep (Southern Turkey), the EU has established an EU office to coordinate its initiatives in the region, including the Rapid Reaction Mechanism for cross border operations for the support to the Syrian borders.

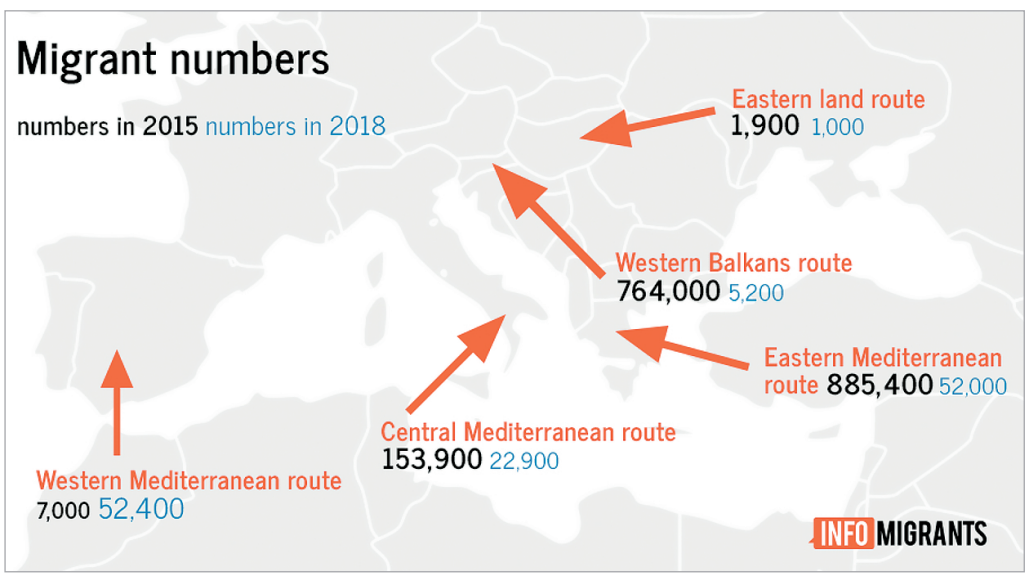

Figure 1: Migrant routes to Europe
Source: MacGregor 2019

Conclusions

Considering all, the EU policy on irregular migration has been based on the perception of migration as a security menace. This perception has led the EU to normalise the use of offensive and military means to tackle migration flows. Besides, the European Council included in its New Strategic Agenda for the EU 2019–2024 as a priority to "defend the fundamental rights and freedoms of its citizens and protect them against existing and emerging threats" which include "effective control of the external borders, fighting illegal migration and human trafficking through better cooperation with countries of origin and transit, agreeing on effective asylum policy" (European Council 2019). Apart from that, the recent Commission proposals in the framework of the New Pact on Migration and Asylum in September 2020 include a reinforcement of border controls since it requires the establishment of pre-border screenings to the irregular migrants. These screenings are expected to be performed by the frontline Member States before the migrants enter the EU (European Commission 2020).

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Cybersecurity and the Risk of Artificial Intelligence

Cyberspace is a fundamental concept in our modern world: a hotbed of escalating conflicts of power between the nations of the world, but also a preferred scene of crime, which now poses a similarly dramatic threat to members of society. We would like to provide those who wish to familiarise themselves with the problems of cybersecurity, with a brief overview and background about this strange world, which is unfolding before our eyes, but is in many ways still unknown. First we present the background against which the events of the cyber world unfold. Networking and digitalisation dramatically increase our convenience and well-being, but we have to pay a heavy price. The cyberspace where the digital economy works, where we learn, have fun, build relationships has greatly increased the vulnerability of the individual and society alike. Significant forces are loitering in this digital dimension, seeking to take advantage of these emerging weaknesses. State actors, non-state actors, groups with different motivations, and individuals with offensive intentions are all involved, threatening the online environment.

We present the wide range of these cyber actors. We also show what are the threats, different attack methods that different cyber actors operate with. We review the specific problems of cybersecurity, from intrusion detection through attribution difficulties to the topic of deterrence. We take a look at efforts that would support cyberspace security by developing a system of cyber norms. Finally, we also talk about how the latest technologies, like AI can shape cybersecurity trends.

Keywords: Artificial Intelligence, attribution, cyber actors, cyberspace, cyber threat, DDoS attack, deterrence, geopolitics, intrusion detection, malware, phishing, Tallinn Manual

Acronyms

AI	Artificial Intelligence
CCD COE	Cooperative Cyber Defence Center of Excellence
CDPF	Cyber Defence Policy Framework
CERT	Computer Emergency Response Team
DDoS	Distributed Denial of Service
DG DIGIT	Directorate-General for Informatics
EC3	Europol European Cybercrime Centre
ECCC	European Cybersecurity Competence Centre
EDA	European Defence Agency
EEAS	European External Action Service
ENISA	European Network and Information Security Agency
EU-LISA	European Union Agency for the Operational Management of Large-Scale IT Systems
GDPR	General Data Protection Regulation
GPTs	General Purpose Technologies
ICT	Information and Communication Technologies

NLP	natural language processing
NRI	Network readiness Index
NSA	National Security Agency
PESCO	Permanent Structured Cooperation
PITM	person-in-the-middle
UN GGE	United Nations Governmental Experts Group
UN OEWG	United Nations Open-Ended Working Group

Introduction

Cyber warfare, cybercrime, cyber deterrence: these became frequently used, extremely popular expressions and concepts of both the press and also of public discourse. Cyberspace, this curious new domain that is difficult to define but is felt everywhere and by everybody, became synonymous with constant confrontation, but at least the kind of threat that is always floating there. And it is true: in our technicised societies, conflicts (whether interpersonal or interstate) are slowly filling cyberspace. Or rather: cyberspace as well. After all, one of the most noticeable phenomena of the last two or three decades is the quick proliferation and intensification of societal tensions and power clashes.

A term has appeared, or reappeared, and has become at least as popular and widely used in the world of political science and journalism as the term "cyberspace" in technical and IT discourse. The word is "geopolitics". A term with a somehow fluid content, nevertheless understood by everyone. It emphasises the importance of the environment and geographical space in the life of the states. It suggests that the undisguised, sometimes downright relentless assertion of interests has once again come to the fore in the surrounding world (Blount 2019). Then these two terms clung together and gained momentum in the form of another word combination: we are already talking about the "geopolitics of cyberspace" (Riordan 2018), and we do it for a reason.

The "cyber world" that encompasses the tangled paths, wires, computers, programs running on them, and, of course, the people who work or play with them, is by no means just the habitat of cyber fighters, hackers and cybercriminals. Conflicts, of course, often strike in this still-emerging and therefore sometimes unorganised and unregulated space. The experts of cyber diplomacy are working on solving, smoothing and regulating these. Their role will be plentiful: developments in world politics show that cyber conflicts have now become a central theme of major political rivalries instead of nuclear weapons.

The European Union (securing a leading role in regulating global digitalisation issues) has also actively participated in different multilateral forums (United Nations, Organisation for Security and Cooperation in Europe) concerning the cybersecurity domain, developing its specific tools and policy actions in the field of cyber diplomacy. The EU's basic aim is to strengthen and secure a rules-based regional (or possibly global) order in cyberspace, building also cyber resilient societies, while at the same time promoting both citizens' privacy and the freedom of the global internet. A core principle of the EU cyber diplomacy philosophy is – in the true sense of multilateralism – a "collective action",

that is, to develop policy frameworks and procedural elements to a joint response against cyberattacks which may pose a threat to the Union or its member states. The practical approach is twofold: it addresses both prevention and incident management. The major achievement of the EU cyber diplomacy strategy is the so-called cyber diplomacy toolbox which is a collection of tools ranging from classic diplomatic actions to several forms of sanctions and other coercive means. It allows a very specific, targeted and highly coordinated response to any cybersecurity threat or malicious digital action against the EU or any of its member states.

Conceptual background

When we talk about "cybersecurity", we almost always touch on economic aspects as well. And vice versa: the increasingly digital, global "cyber economy" is always a kind of security topic. National security and economy are two sides of cyberspace. The cyber domain as an economic field, both a virtual and a very real area of business interests and ambitions, is still developing today: its evolution, development directions and regulatory framework are still accompanied by questions and lively international debates (Barrinha–Renard 2020).

We say "digital economy", and with a good reason: today, this phrase has become a common term in the parlance of professionals. Since the beginning of the 2000s, a phenomenon that has accelerated at a noticeably speedy pace has shaped almost every society in the world: digitalisation. In summary, this process can be described as one in which data and networks intertwine, and permeate production processes, government and personal consumption, cross-border trade and, of course, the finances that drive the economy (Filippov et al. 2019).

However, some caution does not hurt! The term "digital economy", despite its obvious meaning, is not a uniform concept in scientific terms, it does not have an accepted definition. The International Monetary Fund, which is unavoidable in global economic statistics, declares when talking about the performance of the digital economy that there is not even a complete consensus on what we mean by the "digital sector" of the economy or what should be classified as "digital products". Although the term is utterly common in professional discourse, and so we also use the term "digital economy", let us not lose sight of the fact that it is still an evolving concept with ever-expanding meanings.

Due to the difficulty of the definition described above, the figures should be treated with caution, but the performance and pace of development of the digital economy is still remarkable (Dominioni 2019). According to benchmark calculations, the share of the digital economy in the total performance of the world economy in 2017 reached 22.5%. Traditionally, at the forefront of digitisation, the U.S., with a $5.9 trillion digital economy kicks in about 33% of the country's GDP. Experts see a particularly important role as an engine of economic growth in digital investment: this resulted in an additional 2.2% GDP growth in the U.S. by 2020 (Teoh–Mahmood 2017).

In order to take advantage of the spread of digitalisation and the growing potential of the digital economy, the widespread social acceptance and absorption of ICT technologies is also essential. The World Economic Forum's Network Readiness Index (NRI) shows the ability to exploit the potential of the digital economy. According to the 2021 report, the Netherlands, Sweden and Denmark are at the absolute top, representing the most network-ready societies. Globally, this makes Europe the leading region as to the actual potential to exploit the benefits of digitalisation (with 8 of the top 10 countries indexed). The USA, however, continues to be an up-mover, ranking 5th in 2021. Singapore is the only Asia-Pacific region country figuring among the leading 10. America, on the other hand, remains the world leader regarding future technologies, another important indicator. China, however, is moving upwards, being already the leader in some key areas like e-commerce, Artificial Intelligence, 5G and education standards (Dutta–Lanvin 2021).

The coronavirus pandemic, which – due to its global reach – has dramatically affected and wildly shaken supply chains based on a "just-in-time" logistics concept and has not slowed down the expansion of the digital economy, embodied in the technologically advanced industries. On the contrary, researchers expect a further significant expansion over the next half decade (Filippov et al. 2019).

Economy, of course, is only part of a broader context. The essence of technological development is that our modern ICT tools and the Internet, are gradually interweaving our entire societies into a digital network. Our productivity, well-being and comfort increase. However, this comes at a price: the vulnerability of 21st century technology-based societies has also increased tremendously (Brangetto–Kert-Saint Aubyn 2015). At the same time, it is an opportunity, unfortunately, for the rise of cybercrime and cyber warfare.

Key concepts and problems

Terminology of cyberspace

Conceptual diversity is deep and diverse in describing the international context of cyberspace. Even the expert community is not united in naming the most important, most basic categories. We cannot undertake a systematic conceptual analysis here, but we consider it necessary to present at least some key elements in a definitive way in order to explain the phenomena.

Aside from the often theoretical debates of politics and the academia, it is clear that the fundamental expanses of geographic space, land and water are constant arenas of advocacy struggles between states from ancient times. Air, from the first third of the twentieth century, and then, from the Cold War era, has been the dimension of space joining these geopolitical arenas. As a novelty of the twentieth century, this diverse geopolitical world has been expanded to include another dimension, a brand new area of competition. Emerging cyberspace became the fifth dimension of geopolitical confrontation and advocacy.

The rapid development of informatics, computer networks and mobile technologies has given birth to this new "field of interest", so in this sense it is really a product of our time. Like so many concepts, "cyberspace" covers many interpretations, interpretive nuances (Fourkas 2004).

The term cyberspace itself is not new: it relates to a writer named William Gibson who used it for the first time in his short story published in 1982 to present a computer-generated virtual field of reality. However, it gained real popularity in 1984 through the author's next short story, *Neuromancer* (Fourkas 2004). Since then, of course, it has emerged from the imaginary matrix world of literature and is now one of the accepted terms in the fields of science. In its common professional use, it is essentially the most widely accepted synonym for the Internet (and similar technologies), the computer networks that surround the world. It is a kind of metaphor for the virtual universe of Information and Communication Technologies (ICT), which is increasingly beginning to replace the information superhighway metaphor previously prevalent for describing the Internet (and especially loved by politicians). Here it is worth highlighting a detail that cannot be ignored even in the most superficial concept of geopolitics: spaces are not something rigid, motionless, static things, but on the contrary: dynamic systems of relations in constant motion, constantly changing, interacting with their social components (Blount 2019).

The literature on the "spatial" nature of cyberspace is not uniform (Fourkas 2004). Some authors, especially experts of strategy specialising on cyber warfare, talk about the gradual (and accelerating) virtualisation of the multidimensional geopolitical environment. According to this, traditional spaces are replaced by a space that exists only in a figurative sense, without a concrete form, a kind of "spacelessness" in the context of geopolitics, with cyberspace coming to the fore as the 5th dimension of geopolitics. So much so that one of the most acclaimed contemporary representatives of strategic scientists, the American Colin Gray, defines it as a straight "counter-geographic" space, thus emphasising the elusive, plastic reality of cyberspace (Gray 2013).

On the other hand, researchers dealing with the technological aspects of the cyber complex or the social context of digitisation emphasise the spatial nature of cyberspace, that is, its very real nature, which is integrally related to physical spatial structures. In this perception, the spatiality of the concept of cyberspace appears at different levels. It is customary to peel off at least three such spatial layers of meaning in this regard. The concept first has a level of technical meaning that describes the joint technological infrastructure of a concept called cyberspace. However, the concept also has an actual geographical layer of meaning, encompassing ICT networks and the real spatial extent of their nodes. Lastly, the concept also includes a third layer of social meaning, which describes the spatial organisations of people using ICT networks. From the above, it can be seen that cyberspace, a world often called "virtual", has a very real (not just metaphorically interpretable) spatiality. It can be stated that "cyberspace" is a real spatial system: its network topology depends fundamentally on its spatial fixations, and its development is also decisively influenced by the geography of economic and technological development of the system environment.

In summary, cyberspace can be understood as a broadly common conceptual framework, as the totality of the Internet, computing devices, the software running on them, and even the users who use them and are increasingly networked (Brangetto–Kert-Saint Aubyn 2015). Its basic characteristic is that it initially appeared as a purely technical problem area, but today it has clearly changed into a domain dominated by politics, where different national and group interests, different norms and different values shape the relations. Today, not many would doubt that this cyberspace is a dimension of geopolitical advocacy, just like land, seas, air, or space. Moreover, there is a growing consensus today that cyberspace is not just one of the dimensions of conflicts of interest and advocacy, but really the defining one (Desforges 2014).

However, cyberspace is not just a new dimension of interstate conflict, where "professionals" (intelligence agents and soldiers) fight to assert their national interests (Choucri 2012). The civil sphere has also been extracting its own "cyber soldiers" for some time: by their common name, they are called "hackers" (Sigholm 2013). They, however, actually encompass very different groups of people. What they have in common is that they exploit the vulnerabilities inherent in the technical dependence of modern society. Their motivations are as diverse as the vulnerabilities they try to exploit. And their attack methods multiply by the day.

Actors of cyberspace

The "actors" of the rapidly evolving, intricate cyberspace, which is also fraught with many vulnerabilities, are those who are on the "other side" in cyber incidents and attacks. According to a strict definition, they are "states, groups, or individuals who, with malicious intent, aim to take advantage of vulnerabilities, low cyber security awareness, or technological developments to gain unauthorized access to information systems in order to access or otherwise affect victims' data, devices, systems, and networks" (Canadian Centre for Cyber Security 2020). Due to the networked nature of the Internet, intruders can launch attacks from anywhere in the world at targets anywhere else.

It is possible to classify these malicious people and groups based on different aspects; however, the motivation of the cyber actors is a particularly important characteristic in this respect (Center for Internet Security 2021). At the same time, their "expertise" and their sophistication are also important, as there are significant differences between the different categories of perpetrators in this area. Based on the intentions, incentives, i.e. motivations of the cyber actors, these persons can usually be divided into 6 main categories:

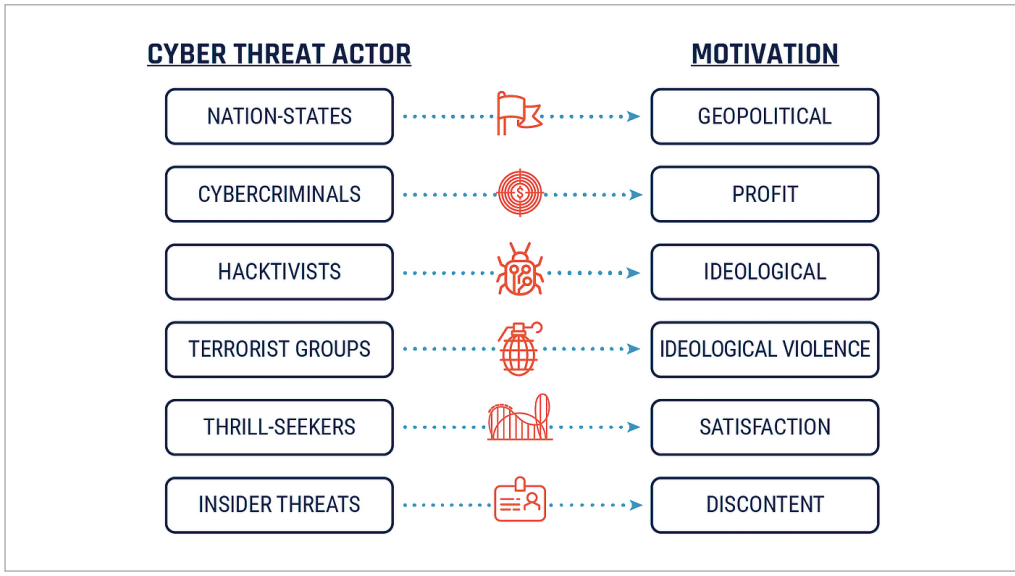

Figure 1: Threat actors and their motivation
Source: Canadian Centre for Cyber Security 2020

In the news, we often encounter hackers serving nation states. They usually work for the geopolitical interests and foreign policy goals of a sovereign state. They are either direct state actors (spies, soldiers) or other persons controlled by state organisations. They break into enemy systems to obtain or destroy data. For the most part, they are the most organised, highly educated and most sophisticated actors in cyberspace.

The groups of cybercriminals are driven by a desire for personal financial gain: they pose a long-term, growing threat. In recent times, their groups, especially those specialising in extortion, have become particularly active, now posing a threat of national security proportions even in countries like the USA (Hakmeh 2017).

We would tend to underestimate the threat of ideologically motivated cybercriminals and hacktivists. Yet they are determined, action-minded fanatics whose online actions are driven by their political objectives.

Members of terrorist groups active in cyberspace tend to be the less sophisticated threat. Their goal in cyberspace is mostly to cause confusion, disruption and harassment. These illegal organisations tend to use digital spaces for organisational communication, recruitment and propaganda.

The motivation of those who attack for fun is personal, and this "aimlessness" makes them unpredictable to some degree. They are not a harmless group at all, although their professional competence and training are usually the lowest.

The last category of cyber actors is that of insiders. This should not deceive anyone: they are particularly dangerous attackers of cyberspace. They can be former or current employees, suppliers, subcontractors or possibly partners. Their strength (and danger)

lies primarily in having internal information about an organisation, a company, which is an unprecedented situational advantage.

Each group of perpetrators often specialises in one type of attack, and in fact, the cyber threat they report is one of their hallmarks (Center for Internet Security 2021).

Cyber threats

Types of attacks termed cyber threats can be just as diverse as the various cyber actor groups that watch, move and strike in cyberspace with malicious intent. Let us look at some particularly common and especially dangerous cases (Latici 2019; CSIS 2020).

Phishing and spear phishing

An attack called phishing is perhaps the most well-known malicious activity profile. It is basically a type of social engineering action that attempts to trick users into bypassing normal cybersecurity practices and giving out sensitive data, such as usernames and passwords, bank account information, or other sensitive, personal data (social security number, or any piece of information that can perhaps be used in future attacks).

The case is well-known even for non-professionals: hackers send out phishing emails that seem to originate from trusted senders such as a government office, financial institutions, or friends and co-workers. The cybercriminals try to get users to click on links in the emails that will redirect them to fraudulent websites that ask for personal information or install malware on their devices. When the target is specific (one concrete person, or organisation) the attack is called "spear phishing".

Distributed Denial of Service (DDoS)

DDoS attacks are also well-known even for civilians with no cybersecurity training. The target in this case is usually a company, or a government office, or political actor. During such incidents the cyber actors try to overwhelm the server of the target with requests, causing the temporary take-down of the organisation's website.

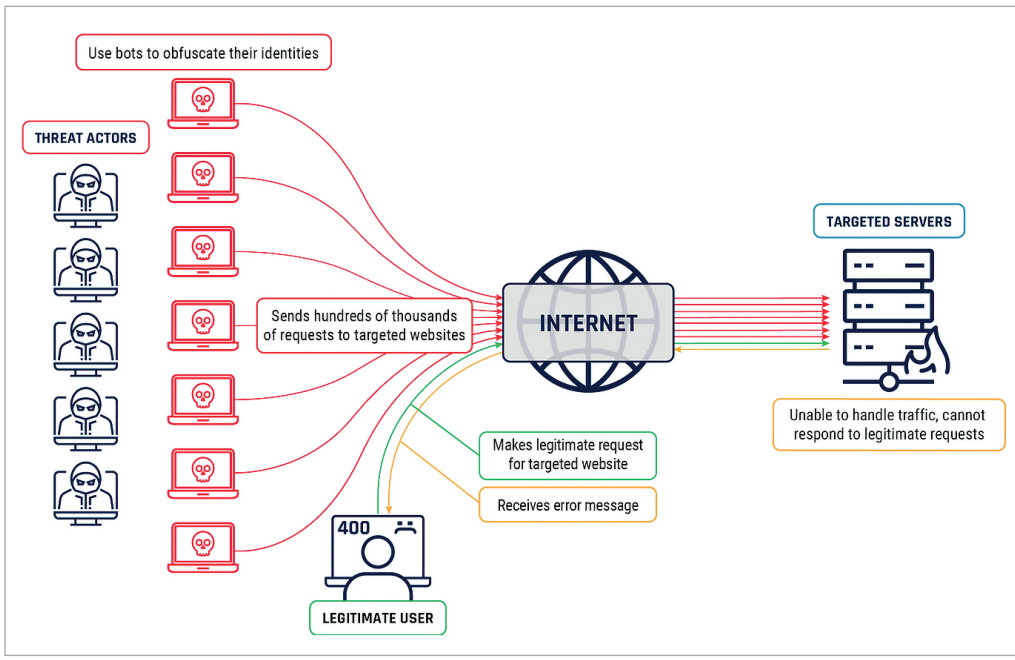

Figure 2: DDoS attack
Source: Canadian Centre for Cyber Security 2020

For being able to produce such a mass of incoming requests, the attackers use a great number of previously "hijacked" computers. Thus, requests come from hundreds or thousands of IP addresses that have probably also been compromised and tricked into continuously requesting a company's website.

Person-in-the-middle

Person-in-the-middle is also a relatively frequent type or malicious activity in cyberspace. In this case, cyber actors place themselves in the middle of a two-party communication. Once the attacker intercepts the communication, they filter and steal sensitive information and return different responses to the user.

The victim continues to believe that he is communicating, via secure connection, with a website. Sometimes the perpetrators set up fake Wi-Fi networks or install malware on users' computers or networks. Also called eavesdropping attacks, the ultimate goal of PITM attacks is to gain access to personal data (business, financial, or other).

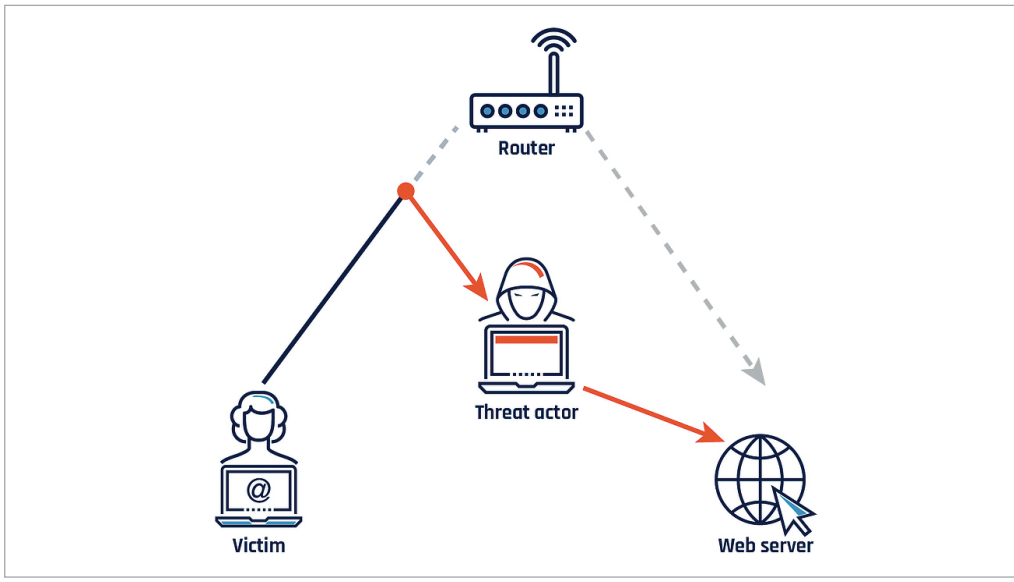

Figure 3: Person-in-the-middle attack (PITM)
Source: Canadian Centre for Cyber Security 2020

There are a very great number of other malicious activities, or cyber threats, as the development of the digitalisation of society has an impact on the development of new hacking methods, too. In short, the threat landscape is not static, on the contrary: it is evolving very rapidly, making the task of cybersecurity difficult.

However, to finish this panoramic view of cyber threats, it is worth mentioning one more category, perhaps the most common hacking tool: malicious software, in short, malware. "Malware" is, however, a generic term, denoting a very numerous family of attack tools: including trojans, backdoors, spyware, different kinds of viruses and cyber worms. One member of this group is of exceptional fame, unfortunately gaining "popularity" among cyber actors. Ransomware is also a kind of malware, and a very menacing one (Krasznay 2020).

The beginning of the year 2021 was characterised by an alarming growth in the use of this special kind of malware. The truth is that this trend can go back a long way. The global coronavirus pandemic, however, caused a sharp increase in the number of ransomware attacks. The average amount of ransom paid by affected companies is also steadily rising.

Ransomware is basically a malicious software that, in many cases, restricts access to a computer or a device and its data by encrypting its content. The computer is effectively locked, and the users cannot get access to their datasets. The cybercriminals demand that a ransom be paid, usually via a cryptocurrency such as bitcoin, in order for the victim to regain access to systems and information.

Is anybody there? The problem of intrusion detection

Cyber defence, namely the response to conflicts in cyberspace also raises a number of novel problems, mainly due to special digital technologies, which are not supported by the usual conflict management principles and practices developed during the Cold War era. Right at the beginning, there is the difficulty of intrusion detection (Champion 2020).

In general, opponents manoeuvring in cyberspace (whether they are state actors working for foreign policy purposes or even ordinary criminals) are trying to hide in the darkness of online spaces. Although there are exceptions (since in a blackmail virus attack, it is indeed important for the victim to detect the action), it is not as easy to detect attacks – attempts and intrusions – as we might think. Previously, according to a common concept, protection was focused on the boundary line of the system, called the perimeter (Schaffer 2021). But the truth is that a sizable portion of the attacks are internal actions (insider threats), so they already arise within the perimeter. At the same time, significant cyberattacks in recent times (especially the so-called SolarWinds action) have drawn attention to the fact that sophisticated attackers of our time can penetrate external defences easily; and perimeter-focused protection is incapable of detecting attackers who have already entered the system as a result of such breakthroughs. The owners of the attacked systems and networks are often unable to reveal intruders for months until it is too late to prevent damage (Krasznay 2020).

External perimeter protection devices (firewalls, secure web gateways, antivirus solutions) are no longer able to reliably intercept external intruders; as stated by U.S. government agencies investigating SolarWinds hacking, perfect protection just does not exist. Intrusion detection is also essential to complement external protection: these are procedures (and tools) that continuously analyse the entire ecosystem of a system to be protected. They are constantly looking for traces of malicious activities that could compromise the network. Detection is actually based on a threat intelligence activity that continuously analyses (legitimate) user behaviour and continuously compares it with signatures that were captured from previous attacks.

Who did it? The problem of attribution

In relation to cyberspace conflicts, attribution is undoubtedly one of the most difficult tasks (Assumpção 2020). The activity (in which the answer to this basic, simple-looking question of who "staged" the malicious event in cyberspace is sought) is essentially a process of investigation and analysis, in which cybersecurity professionals gather probative information and set event schedules, and from all this they laboriously reconstruct the attack history and profile. The purpose of such an activity, also called forensics, is to establish in a demonstrable way who was the perpetrator of a cyber action or who may be the actual person responsible for an offensive action.

Some experts argue that, while attribution is indeed a difficult task, it is by no means impossible. There are always many clues left after an offensive action from which

the image of the perpetrator can be compiled with meticulous work. However, this seems to be contradicted by the fact that even great powers with almost unlimited resources and vast knowledge capacities present evidence only in an exceptionally rare case when naming an alleged perpetrator of an attack. In the vast majority of cases, attributions contain a number of hypothetical elements, and the strength of the evidence is a matter of point of view, so it is far from being legally clear, or corroborative (Tsagourias–Farrell 2020).

Nevertheless, the meticulous tracing of the perpetrator is a mandatory activity for cyber defence professionals after every cyber incident, even if the work involved takes months or even years. It is worth noting, analysts are not just investigating the perpetrators of successful actions (resulting in actual damages): in fact, you can learn just as much from the details of unsuccessful, possibly aborted, offensive actions as you can from successful ones.

Generally speaking, a forensic investigation is considering different "attribution layers" (Dévai 2020). The first level, or layer is trying to uncover and understand the technical parameters of an attack. This is the tactical layer. The next step is to understand the attack's high-level architecture and the attacker's profile. This is the operational layer. And lastly, the strategic goal of the investigation is to discover who is responsible for the attack. Finally, communicating the results of a lengthy forensic investigation is also an important task of the attribution process.

The difficulty of identifying the perpetrators, the process of attribution stems primarily from the fact that the perpetrators try very carefully and sometimes in very sophisticated ways to remove all traces of their intrusion (Assumpção 2020). One of the tricks, by no means an unusual practice, is to use others (mostly third parties) to cover your own operations. This process, known in Anglo-Saxon professional circles as a "false-flag" operation, is also frequently used in the cyber action sphere. Using the attack methods, procedures, or even (previously compromised, or illegally obtained) offensive software of hackers from other countries, they disguise themselves as someone else. In one such case that later became known, for example, in the fall of 2019, it was Russian hackers who "captured" the identities of others, an Iranian cyber group, to gain access to the networks of government and economic actors in a dozen countries. Incidentally, according to U.S. experts (as seems to be confirmed by Snowden leaks and information made public through WikiLeaks), the U.S. signal detection and cyber action agency, the NSA, also prefers (and has a high level of technical expertise) to use such methods to cover its actions.

How to discourage them? The problem of deterrence

In the era of the Cold War, the concept of nuclear powers holding each other in checkmate situation was the so-called principle of deterrence. The point was that both sides knew it was not worth attacking the other because the challenged party would make the attacker pay a heavy price for that act, thus making "victory" meaningless. A brutally simple principle − and it worked! The great tragedy of the cyber age is that this scheme, which

guaranteed security for a long time, is essentially not applicable in the realm of digital devices and networks. Where an attack can go unnoticed or can be easily denied if it is revealed, it is not possible to know for sure who the addressee of such a threat of retaliation should be. Therefore, one of the best defences, discouraging any potential attackers seems hardly viable in the new cyberspace environment.

From the above, a sequentially cumulative series of cyber defence problems can already be seen. In the previous subsection, we have shown that establishing the attribution, the identity of the perpetrator (that is, in a clear, proven way) is one of the most difficult tasks. The problem is exacerbated by the fact that a not very elegant but effective way of curbing conflicts, the deterrence of potential perpetrators, is practically based on the possibility of attribution. Deterrence theory, developed in the period and situation of the classical rivalry of the great powers of the nuclear age, assumes the existence of three important elements for maintaining the equilibrium (deterring potential attackers): attribution, credible signalling, deterrence strategies (Krasznay 2020).

For the deterrence to work effectively, the perpetrator (or potential perpetrator) had to be clearly identified. This should be followed by a credible signalling of the attacked party's determination to retaliate. Signalling is possible in a comprehensive way, as a general warning. However, this has only a limited persuasive, deterrent power. Tailored signalling can send a much more focused, and powerful alert. However, it is a condition that the perpetrator is known, without which tailored signalling can be a particularly risky move. The source of an additional problem is, when signalling intent, the more specific the threat, the more plausible. However, the signalling power does not want to reveal too much about his own capabilities. And this is a problem, since credible deterrence is based on two pillars: a credible will and appropriate assets to retaliate (Schaffer 2021).

Analysing the classical superpower rivalries of the Cold War era, another important detail emerges: the principle of reciprocity had to be associated with the operation of deterrence, that is, the preservation of a sensitive equilibrium. In the case of opposing great powers, it would not have been sufficient for power A to have indicated to power B that it would retaliate if necessary. The changing of signals between the U.S. and the Soviet Union actually sounded like: "If you attack – I will retaliate. But I also know that you would do the same, in case I would attack you. Therefore, you just should not attack and also need not attack." And peace, however hot, reigned all those dramatic years.

What should be the rules? The problem of legal frameworks

A very special characteristic of cyberspace, with reference to conflict and attacks, is the limited jurisdiction of the legal framework governing the behaviour of different actors. However, contrary to popular belief, cyberspace is neither some kind of "digital Wild West". Rather, the case is that, due to its special nature, the operation of cyberspace raises many novel technological and legal dilemmas. At the same time, there are norms here, well-thought-out, clear rules for conflicts in online spaces, for behaviours to be followed or forbidden (Stadnik 2017).

NATO – Tallinn Manuals

After previous professional attempts, in 2007, in the wake of the crippling cyberattack on Estonia, the search for and elaboration of universal norms applicable in cyberspace conflicts gained momentum. The then-established NATO headquarters for research on cyber warfare, CCD COE (NATO Cooperative Cyber Defence Center of Excellence), began examining the rules applicable to cyber warfare with the help of international experts. Their efforts led to the birth of the Tallinn Manual (2013), which focused mainly on the use of force (ius ad bellum) and the validity of international humanitarian law (ius in bello).

To complement the recommendations, the Tallinn Manual 2.0, published in 2017, focused on topics not previously covered: it sought primarily to find applicable principles and rules for conflicts and actions "below the stimulus threshold". A common feature of both Manuals is that they contain only recommendations to be followed and not mandatory legislation. Their rules are not legally binding (Vihul 2013).

Experts are already working on the compilation of the Tallinn Manual 3.0, which will integrate responses to the increasingly sophisticated yet dangerous cyber actions of recent years into a single system.

United Nations – UNGGE and OEWG

The United Nations (UN) also plays an important role in the international regulation of cyberspace (Digital Watch 2021). The so-called United Nations Governmental Expert Groups (UN GGE) of the world organisation have been working – since 2021 – with the international expert community to develop voluntary standards for reducing cyber-attack threats and to establish responsible state behaviour in cyberspace (Ruhl 2020). The Group, set up by the UN on the basis of a proposal put forward by Russia much earlier, opened a working platform for rival powers where they could try to establish some sort of common ground, especially in the area of much-needed confidence building. Representatives of the great powers were seated in the work organisation, and power rivalries ultimately left their mark on the group's activities. Nevertheless, their joint working material (report) completed in the summer of 2021 is a major step in strengthening international confidence. The World Organization has launched another initiative to map the problems of cyberspace and to develop the normative systems to be followed. Partly based on the experience of the UN GGE group, learning from its difficulties (the organisation could summarise its work in the form of a standard report after a very lengthy process), otherwise again on Russian initiative, in 2017 the UN decided to set up an Open-Ended Working Group (UN OEWG). The main virtue of a format open to all Member States is that it involved all UN Member States in developing common sets of rules.

Bilateral constructions

The common weakness of the above (regional or nationwide) multilateral norm-setting activities is that they set important principles and rules, but they are not binding even for states that recognise the regulation (i.e. adhere to their final documents). Rulemaking efforts that encompass only two (maybe three) major powers (therefore bilateral in nature) may promise more success, because they can result in contract-like legally binding rules. An important feature of them is that they focus on regulating only a small number of important issues out of the diverse, complex problem areas of cyberspace.

The act of launching such a bilateral international regulation effort could be the case of the summit of the presidents of the two great powers, the U.S. and Russia, in the summer of 2021. Negotiations have begun between leading politicians in the two states over what should be the minimum basis for responsible state conduct in cyberspace, for a kind of "peaceful cyber coexistence". The starting point for the discussions is to jointly define the range of civil and state critical infrastructures that are essential to the functioning of modern societies and which the parties will refrain from attacking.

Challenges and answers – The European Union as a global norm-setter

The European Union has long positioned itself – with great success – as a powerful norm-setter of the often frontier-like cyber domain (Dévai 2020; Ruhl 2020). The unique opportunities, as well as major challenges posed by the rapid digital transformation clearly have not escaped the attention of the continent's decision-makers.

At the end of 2020, the European Commission presented the most ambitious reform package for the European digital space to date. The two pieces of legislation presented by the panel − the Digital Services Act and the Preliminary Version of the Digital Market Act − aim at not less than to energise the whole range of digital services and online market places in the Union by creating a long-term and coherent regulatory environment. A couple of days later, to this already impressive package was added another important element with the European Commission's presentation of the Union's new cybersecurity strategy, which aims to ensure that the European digital space spurred is not only economically fruitful, but at the same time remains a free and safe medium (Modern Diplomacy 2020).

The economy comes first, but closely followed by security issues

The new European cybersecurity strategy (2020), presented by the EU Commission and the High Representative of the Union for Foreign Affairs and Security Policy is a remarkable policy document, guiding future cyber defence efforts not only on the European level (European Commission 2020b).

Cybersecurity has been one of the Union's top priorities for some time. During the coronavirus crisis, cyberattacks against healthcare institutions (research sites, manufacturing plants and hospitals) multiplied, demonstrating the importance of protecting infrastructure.

Under the EU's new strategy document, cybersecurity would be integrated into all elements of the supply chain, and EU activities and resources would be even more closely connected across the four cybersecurity communities – internal market, law enforcement, diplomacy and defence. The new strategy builds on the Communication on Planning for Europe's Digital Future and the EU Strategy for the Security Union, as well as on a number of pieces of legislation and initiatives to strengthen the EU's cybersecurity capabilities and increase Europe's resilience to cyberattacks. In this respect, of particular importance are the cybersecurity strategies adopted in 2013 (revised in 2017), as well as the Commission's *European Security Strategy 2015–2020.* In the field of legal regulation, the Cybersecurity Directive (EU Network and Information Security Directive 2016/1148 (the NIS Directive), which entered into force in 2016, was a pioneering initiative: it resulted in a uniformly high level of security of network and information systems across the EU.

The Union has developed a comprehensive, systems-based international cyberspace policy since the 2013 EU Cybersecurity Strategy (Dévai 2020). Through bilateral, regional and international cooperation with its partners, it has promoted the creation of a global, open, stable and secure cyberspace, guided by the EU's core values and based on the rule of law. The EU has also supported third countries in enhancing their resilience to cyberattacks and in tackling cybercrime more effectively, and has contributed to international security and stability in cyberspace through the 2017 EU Cyber Diplomacy Toolkit. As a memorable recent move, it applied for the first time the cybercrime sanction system introduced in 2019, listing 8 individuals and 4 organisations. This is "naming and shaming" first and foremost, utilising the power of international public opinion as a strong deterrent force. Besides, the economic and personal consequences of these sanctions are also to be felt. The Union has also made significant progress in cyber defence cooperation, including on cyber defence capabilities, mainly in the context of the Cyber Defence Policy Framework (CDPF) and through the work of the Permanent Structured Cooperation (PESCO) and the European Defence Agency (Modern Diplomacy 2020).

The European Union has long recognised the need to guarantee the resilience of critical infrastructures, that is, the all-important social infrastructure that provides services that are essential for the smooth functioning of the internal market and for the daily life and livelihood of European citizens. It therefore established a European Program for Critical Infrastructure Protection in 2006 and adopted the European Critical Infrastructure Directive in 2008 for the energy and transport sectors. These measures were complemented in later years by various sectoral and cross-sectoral measures on specific aspects such as examining resilience to the effects of climate change, strengthening civil protection or the resilience of foreign direct investment.

Actions for strengthening cybersecurity through Europe

In principle, the newly adopted European cybersecurity strategy aims to preserve the global and open internet, while ensuring that, in addition to security, European values and fundamental rights for all are also protected. Besides, the document also sets out concrete proposals for action in three areas (European Commission 2020b):

Resilience, technological sovereignty and leadership

As part of the review of the aforementioned cybersecurity directive launched in February 2020, the Commission is proposing a reform of the rules on the security of network and information systems. The aim is to increase the resilience of the critical public and private sectors (hospitals, energy networks, railways, but also data centres, administrations, research laboratories and the manufacture of critical medical devices and medicines, and other critical infrastructures and services) to cyberattacks. It proposes strengthening the role of digital innovation centres and stepping up efforts to train and develop the workforce in order to establish the Union's technological sovereignty and leadership.

Operational capacity building: Facilitating prevention, deterrence and response

As a key element, the European Commission is preparing to set up a new joint cybersecurity unit in the Member States. The aim is to significantly increase the capacity and effectiveness of cyberattacks prevention, deterrence and incident response through cooperation. It is also a priority to strengthen the cyber diplomatic toolbox, in particular to respond effectively to attacks on critical infrastructures, supply chains and democratic institutions. The EU will also seek to further strengthen cyber defence cooperation and develop state-of-the-art effective defence capabilities among EU Member States.

Supporting the development and operation of global and open cyberspace

The EU's top foreign policy priority is the rule-based world order and the representation and protection of human rights and fundamental freedoms. This concept must be reflected in all the Union's cyberspace policies. In line with this, the new cybersecurity strategy considers guaranteeing the international security of cyberspace to be a key objective. The Union intends to promote international norms and standards that reflect these core EU values by working with its international partners in the UN and other relevant fora. The EU will further strengthen the EU cyber diplomacy toolbox and step up its cyber capacity building efforts in third countries through the development of a comprehensive EU agenda. As a vital institutional development, the European Union intends to set up a global EU cyber diplomacy network to promote its cyberspace ideas internationally.

The long-term expectation of the new cybersecurity strategy is to enable the European Union to increase its leadership in international norms and standards for cyberspace and to strengthen cooperation with its partners worldwide to develop a global, open and secure cyber domain. In the light of the above measures, we can conclude that the EU clearly aims for a role of international norm-setter (normative power) in the all important cyber domain.

Institutional framework

Due to the comprehensive nature of cybersecurity, practically all EU institutions, bodies and agencies are involved in the preparation and implementation of cybersecurity policy (the Directorate-General CONNECT). The Directorate-General for Informatics (DG DIGIT) provides digital services for departments of the European Commission and other EU institutions. DIGIT hosts CERT-EU (Computer Emergency Response Team). The European Network and Information Security Agency (ENISA) was established in 2004. It helps Member States, EU institutions and all other stakeholders in their cyber policies. The European Cybersecurity Industrial, Technology and Research Competence Centre (Cybersecurity Competence Centre, ECCC) was established in 2021 in order to improve the coordination of research and innovation in cybersecurity. The Europol European Cybercrime Centre (EC3) was set up in 2013 to protect European citizens and businesses from cyber threats and support governments against cybercrime. The European Union Agency for the Operational Management of Large-Scale IT Systems (EU-LISA), was established in 2011. This agency is responsible for the operational management of large-scale IT systems in the area of justice, security and freedom. It helps the implementation of the asylum, border management and migration policies of the EU. The European External Action Service (EEAS) has a central role in the field of cyber diplomacy, strategic communication and the policies concerning cyber defence. In this field it closely cooperates with the European Defence Agency (EDA) (Molnár 2020).

Artificial Intelligence in cyberspace: Defensive and offensive roles

"Whoever leads in Artificial Intelligence, will rule the world." The quote from Russian President Vladimir Putin three years ago could have been chosen with a calm heart as the motto of the subchapter (Meyer 2017).

Innovations, identified by researchers as the engine of great social transformation, are the so-called "general purpose technologies" (GPTs), which of course might be more accurately called technologies of "comprehensive scope". After the steam engine, then electricity and informatics, Artificial Intelligence is now coming on the back of the fourth wave. And if it is true that cyberspace is a new, defining dimension of geopolitical advocacy, just as crime is now a prominent field of it, then Artificial Intelligence will be the most important piece on this all-powerful social playing field (Gill 2020).

What is Artificial Intelligence?

Over the last years, the new disruptive technology generally known as Artificial Intelligence noticeably imposes itself, holding a promise that is very hard to be delivered, namely, to drastically transform citizens' life as well as to improve people's quality style of life. In fact, it is not a coincidence that the EU is striving towards becoming the world-leading region for developing and deploying ethical and secure AI (European Commission 2018b).

"Artificial Intelligence" does not refer to a single technology, but rather to a typically interdisciplinary field of research in computer science and the technologies and applications developed in connection with them. The focus of AI is the simulation of intelligent activities (processes) characteristic of humans by computer systems (Taulli 2019).

These activities include, above all, the ability of human learning (i.e. the ability to obtain information and the rules necessary for the use of that information); they also encompass the ability to reason humanly (i.e. to be able to draw conclusions based on rules) and, as a particularly important feature, the ability to self-correct.

Despite the wide debate and research, there is no agreed definition of AI. As usual, this is not an easy task. However, in this course we can consider AI as "…systems that display intelligent behaviour by analysing their environment and taking action – with some degree of autonomy – to achieve specific goals…". Such definition, explained within the European Commission Coordinated Plan on AI (European Commission 2018a), appears so flexible as necessary to comprise the whole set of different shapes the AI may assume.

Artificial Intelligence is closely related to the concept of big data. Big data covers a large amount of data that is extremely varied, complex and changes rapidly. These masses of information can no longer be managed with traditional tools (e.g. database managers). It is the AI technologies that help to process them. At the same time, it can be said that machine learning procedures, which are one of the most important technologies of AI, cannot be imagined without a significant amount of data (mostly classified as big data) for training algorithms (Taulli 2019).

AI technologies are commonly categorised either as Artificial Intelligence with general ability, also known as "strong AI", or as Artificial Intelligence with narrow application, also known as "weak AI". "Weak AI" essentially covers Artificial Intelligence technology designed and trained to perform a single target task. A typical example is a chat robot used in public relations systems. One promising field for "powerful" AI applications is cyber defence. Unfortunately, however, both opposing parties would be happy to count on this new weapon.

Potential risks and benefits of the new technologies

Even though most part of the general public have their personal ideas and blurry vision of AI, all of them sooner or later in their life have already experienced and wholeheartedly agree about the benefits and the advantages each AI application reserves for its users.

Given these premises, in any case, it is not safe to assume AI systems have, *a priori,* an undeniable capability for ethical reasoning, if anything, quite the contrary (Dignum et al. 2018). In this regard, an environment of trust and accountability around the development and use of AI is needed, for both citizens and companies (European Commission 2018b).

It means an AI ecosystem of excellence and trust, according to the principle of "ethics and security by design", by means of a common set of actions comprised in the Coordinated Plan on Artificial Intelligence (European Commission 2018a).

In fact, the lack of trust is the major risk to face, due to, for instance, the current uncertainty about:

- the allocation of responsibilities related to material or non-material damages AI could impose
- the opaqueness of AI decision-making processes

Despite the great divergence between Member States' legal frameworks related to AI, in any case any "trustworthy AI" firstly should comply with the law, secondly should fulfil ethical principles, and thirdly should be robust against cyber and hybrid threats (European Commission 2019).

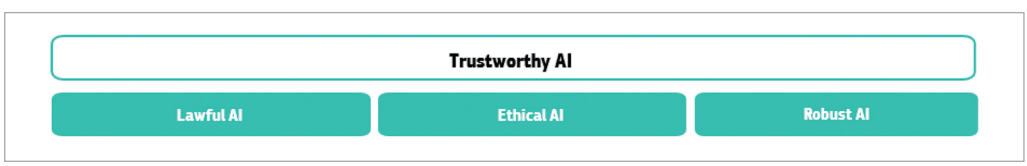

Figure 4: Trustworthy AI three pillars
Source: AI HLEG 2019

These are the three pillars at the base of *Guidelines for Trustworthy AI* drafted by the AI high-level expert group set up by the European Commission and in charge of drafting AI ethics guidelines as well as preparing the basis for a human-centric AI (European Commission 2021).

Thus, research should aim at consolidating AI decision-making process no longer:

- opaque
- bias-based
- not compliant with the privacy principles
- vulnerable to cybercriminal attacks

In the light of the above, there is the urgency of a trustworthy AI to be enhanced by and to be embodied in the following requirements (AI HLEG 2019), whenever AI solutions are exploited:

- human agency and oversight, implementing a human governance mechanism intervention
- technical robustness and safety, granting resilience and increasing the risk tolerance threshold
- Privacy and Data Governance, without prejudices against the grateful and remarkable achievement awarded by virtue of the GDPR
- transparency, facing the matter of the explainability of the algorithmic decision-making process
- societal and environmental well-being
- diversity, non-discrimination and fairness, avoiding that training schemes for AI inherit biases from their programmer and improving a fully compliant AI
- societal and environmental wellbeing
- accountability, confirming the innovative approach adopted within the EU

Potential risks

Technology itself is neutral, contrary to its use by humans: it could express either ethical or unethical aptitudes, posing new and challenging high risks to the fundamental rights fully recognised in the constitutional traditions of the Member States.

Thus, although our society could not back-pedal on the advantages of the use of AI, however, nowadays all citizens are subject to a set of numerous decisions based solely on automated, complex algorithms, and must face the twofold nature of those solutions.

This wide use of AI applications raises many concerns, and deserves an outstanding focus on more than just one perspective, namely in terms of:

- Cybersecurity vulnerability: according to the AI asset taxonomy carried out by the ENISA (ENISA 2020), the key assets are the data and the processes, namely the set of operations performed on the data, the models which the AI resorts to, the actors involved, the Environment/Tools, which include the Machine learning platform and the monitoring tools, and, finally, the artefacts, such as the data and metadata schemata (ENISA 2020). Once defined the intervention boundary, it is possible to straight proceed through the threats modelling activity, with two paramount aims: firstly, identifying, secondly, prioritising threats, in order to implement the appropriate countermeasures.
- Opaqueness of AI decision-making processes: the principle of "explainability" is not new within the European Union legal framework. On the contrary, the right to explanation, already enshrined in Article 22 of the GDPR, should be transposed and clearly stated even with regard to AI applications. Without information about the logic criteria lead an AI system to a certain prejudicial decision, the latter cannot be duly contested, thus, citizens will have no shields to defend themselves

from prejudicial legal effects produced by such decision born from a "black box" (AI HLEG 2019). Irrespective of the type, the race, the class of the data subject, algorithmic transparency should ensure, for instance, people, either who were denied jobs or who stumbled into a rise of health insurance premiums considering time and nature of food consumption habits collected by a mobile-application (Art 29 2014 WP), to be able to grasp the reasons of such decisions. Although explaining why profiling and automated processing of personal data lead to a certain direction it is not an easy task, however, explaining the evaluation method of certain personal aspects about a natural person is the key point for "Contestability by design" (Almada 2019).

- Privacy and data protection: with new advancements in technologies, huge amounts of data could be collected, analysed and stored. It poses relevant issues concerning the lawful treatment of personal data, not only in respect of surveillance of civilians by governments (e.g. predictive policing algorithms) (Rodrigues 2020), but also regarding the misuse of anonymisation techniques: the risk is that personal data may be produced from non-personal data by pinpointing the relations between certain anonymised datasets and additional data, e.g. harvested by web scraping.
- Allocation of responsibilities: in case of incidents and material or non-material damages provoked by AI: a common liability rules framework is deemed as an urgency, for instance, among others, to clearly regulate autonomous driving solutions, in case of malfunctioning of sensors detecting and/or avoiding potential collisions as well as recognising the traffic signs.
- Discrimination: there is a significant surge in current AI research efforts avoiding training schemes for AI inherit biases from their programmer. In fact, a fully compliant AI should not present any affection of data sets' historic bias, resulting into discriminations against certain vulnerable members, groups and social classes, in terms of unequal opportunities for access to education and employment (Rodrigues 2019).

All the risks listed could be summarised in just one major risk: the lack of trust. The latter must be faced by investments in research, training programs and awareness campaigns, as well as by providing common legal framework, certifications and standards to resort to, as with both data protection regulation and cybersecurity regulation (European Commission 2020a).

AI, potent weapon in the armoury of cyber actors

There is broad consensus that cyberspace is a dimension where both the attacking and the defending party will soon seek to operate using Artificial Intelligence-enabled systems (Crane 2021). Many people believe that this is (also) an area where those who want to maintain order and security are at a disadvantage. This is because machine learning can now bypass and break down cyber defence systems so quickly that conventional

protection tools cannot be kept up. Of course, machine learning is also used by cyber defence professionals. AI is used, for example, to identify threatening online patterns of behaviour.

However, experts are still optimistic: while it is clear that integrating Artificial Intelligence technologies and devices into existing cybersecurity systems is not an easy task, the expected benefits can still do much to strengthen the rapidly deteriorating cybersecurity environment. Key cybersecurity areas (functions) where AI applications can significantly increase defence effectiveness: AI can be used to create more accurate, biometric based login techniques; it can also be used for detecting threats and malicious activities using predictive analytics. It can also serve the cyber defenders by enhancing learning and analysis through natural language processing (NLP), one of the major areas of AI development. Artificial Intelligence can also support traditional cybersecurity functions by securing conditional authentication and access (Crane 2021).

On the other hand, the unparalleled capabilities of Artificial Intelligence technologies, as mentioned before, provide more than just a new set of tools for defence professionals. Attackers (whether ordinary cybercriminals or public service intelligence agents, cyber soldiers) can launch attacks that are much more sophisticated than they are today, using AI tools. Basically, Artificial Intelligence technologies allow attackers to produce much more complex, and more adaptive, malicious software. This means two things: on the one hand, attackers can adapt better and faster to new means and procedures of defence. On the other hand, the cost and time to develop complex offensive software are dramatically reduced. Thus, AI can also make a significant contribution to the proliferation of cyber weapons.

Conclusions

Compared to the former conditions of the original Cold War era, where the normality of the two poles gave the world some stability, in this new kind of "21st century Cold War", peculiar, difficult-to-follow logics prevail both in real geopolitical spaces and in the cyber dimension. The coronavirus epidemic also revealed a harsher and more ruthless cyber world. Based on the chronology of the cyber incidents of recent decades, and especially the cyberspace rivalries of the competing superpowers, the following characteristics of the cyber world as a geopolitical "battlefield" seem to emerge. The proliferation of IT tools and procedures suitable for cyber warfare seems difficult to stop. As a result, cyber warfare capabilities will spread rapidly among medium-sized powers, but even among less significant power actors. At the same time, however, the great powers will continue to dominate cyberspace (as well), as only countries with a strong technological background will still be able to carry out complex attacks. Finally, as a particularly disturbing development, experts consider it conceivable that cyberattacks, with the escalation of strikes-counter-attacks, could degenerate into real ("kinetic") damage (Domingo 2016: 166).

The study of the civil sphere of cyber conflicts suggests similarly threatening perspectives. A clear trend is the increase in the number and intensity of cyberattacks, as the damage caused becomes more and more serious. Within cybercrime, extortionist attacks (mainly ransomware) are clearly taking over. Moreover, they now target the infrastructures that are essential for the functioning of modern societies, so it has been suggested that they should be treated in the same way as terrorist acts. In cyberspace, common crime is beginning to become a threat to national security.

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Water Security and Water Geopolitics

Water challenges can no longer be connected exclusively to arid regions of the world. They become a global security challenge, and humanity has to make worldwide steps to cope with them. Europe needs to take action, as increasing hydrological extremes, such as floods, droughts and water scarcity are all linked one way or another to climate change. These are just some of the threats that have more or less affected Europe in recent times. Just think of the major devastating flash floods that occurred recently in Germany with unprecedented losses. To confront these threats, Europe needs a long-term, perceptive and progressive water strategy. It also needs to set an example to the rest of the world that expects Europe to proceed constructively and collectively to the most pressing natural resource matters facing the world. These highlight the fact that water crises should be approached not only in isolation through policy reforms, technological innovation or investment, respectively. These will require increased co-operation among all stakeholders. Therefore, a comprehensive approach is needed. Experience shows that unless the parties are able to come up with a shared vision of the transboundary issues at hand, the finding of a workable solution is difficult. Negotiation support systems, ranging from the hydrology of the basin, up to finding multi-criteria feasible solutions, or Pareto optima for that matter, are key to the effective solution(s). Europe might not have an entirely developed water security strategy as of now, but it has a strong commitment to evolve one. This basis is contained in the comprehensive water legislation of the European Union and this is extremely important as the problems related to water, especially to water security, are soon becoming one of the most important issues on Europe's environmental agenda. Among the issues connected to water security, the pollution of seawater and freshwater has to be considered also due to the huge physical, chemical and biological impacts. A rapidly growing worry concerning environmental and human safety has stimulated interest in the potential risks induced by the chemicals associated with microplastics. Studies reporting the presence of microplastics in treated tap and bottled water have raised questions and concerns about the potential health impacts from microplastic exposure and the removal of microplastics during wastewater and drinking water treatment.

Keywords: water security, water policy, water strategy, climate impacts, flood, drought, pollution, microplastics, water conflicts

Acronyms

DWD	Drinking Water Directive
EC	European Commission
EC	European Communities
EU	European Union
GDP	Gross Domestic Product
SDGs	Sustainable Development Goals

UN	United Nations
UN DESA	United Nations Department of Economic and Social Affairs
UNESCO	United Nations Educational, Scientific and Cultural Organization
WEI	Water Exploitation Index
WHO	World Health Organization

Introduction

Water is a fundamental natural resource. Moreover, it is the most essential necessity for life. As Scocca (2019) stated, water involves all biotic and anthropic activity – activities which are strong socio-economic determinants for the well-being of human communities, but also affect ecosystems and the environment. Water-related issues encouraged the movement of the human right to water, and actions for safe and clean water. The water consumption of a society (e.g. per capita) shows the economic advancement of that society nearly as precisely as the GDP per capita.

As a result of population explosion in the twentieth century, when, in a single century, the Earth's population nearly quadrupled from 1.6 billion to 6.1 billion (Worldometer 2021), water abstraction has increased sixfold worldwide. In consequence, a growing gap has opened up that is impeding the sustainability of our human and environmental systems (UNESCO 2018). The impact of climate change and the increasing frequency of water-related natural disasters such as floods, droughts and desertification are detected as new emergencies and aggravated by population growth. These factors induced the formulation of the notion of water security.

Water security is defined as "the capacity of a population to safeguard sustainable access to adequate quantities of acceptable quality water for sustaining livelihoods, human well-being, and socio-economic development, for ensuring protection against water-borne pollution and water-related disasters, and for preserving ecosystems in a climate of peace and political stability." (UN-Water 2013) Water security is based on four main pillars. Firstly, on good governance, which means adequate legal regimes, institutions, infrastructure and capacity are in place. Secondly, transboundary co-operation, that is to say, sovereign states discuss and coordinate their actions to meet the varied and sometimes competing interests for mutual benefit. Thirdly, peace and political stability, where the negative effects of conflicts could be mitigated and/or avoided, including reduced water quality and/or quantity, compromised water infrastructure, deteriorating human resources, related governance, and social or political systems. And, fourthly, financing, including innovative sources of financing complement funding by the public sector, including investments from the private sector and micro-financing schemes. Achieving water security requires collaboration across sectors, communities, disciplines and political borders, in order to reduce the risk of potential conflicts over water resources (UN-Water 2013).

Water Security on the global scale

On the global scale the average annual water supply per capita has decreased dramatically since 1975. From a global multi-annual average of approximately 15,500 m^3/person/year to an average of 5,000 m^3/person/year. This number is a global average for the current population of 7.8 billion, with a very wide range from 120,000 m^3/person/year in Canada to 11,700 m^3/person/year in water to 120 m^3/person/year in Jordan (or even less; today 70 m^3/person/year, due to migration from the war zones of the region).

Today, the Earth's freshwater supply is as much as it was in the period between 5,000 and 9,000 years ago. 97.5% of all water is contained in the seas and oceans, while the remaining 2.5% is humankind's freshwater supply. About 60% of this is solid water, i.e. ice and snow found in the Arctic, Antarctica, glaciers, alpine snow cover and permafrost. 90% of the remaining freshwater is non-frozen groundwater. What is left is a total of 42,000 km^3 of easily accessible surface water (Shiklomanov–Rodda 2003), 90% in lakes and reservoirs, and the remaining 10% in watercourses.

Since the industrial revolution, the number of consumers has increased in an exponential manner. This is the primary reason for the drastic decline in water resources per capita. The global water crisis does not mean that we "run out" of water, since the hydrological cycle is a continuous cycle. The crisis stems from the way our institutions manage water: legal framework and its effectiveness, the operation of the hydro-meteorological observation systems; making the data about water publicly available. Lastly, how, if at all, scientific research supports government decisions (Szöllősi-Nagy 2020).

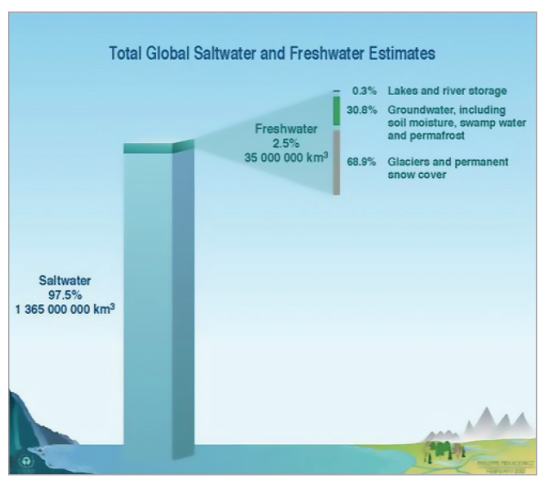

Figure 1: Global share of water resources according to the World Water Development Report
Source: UN WWAP

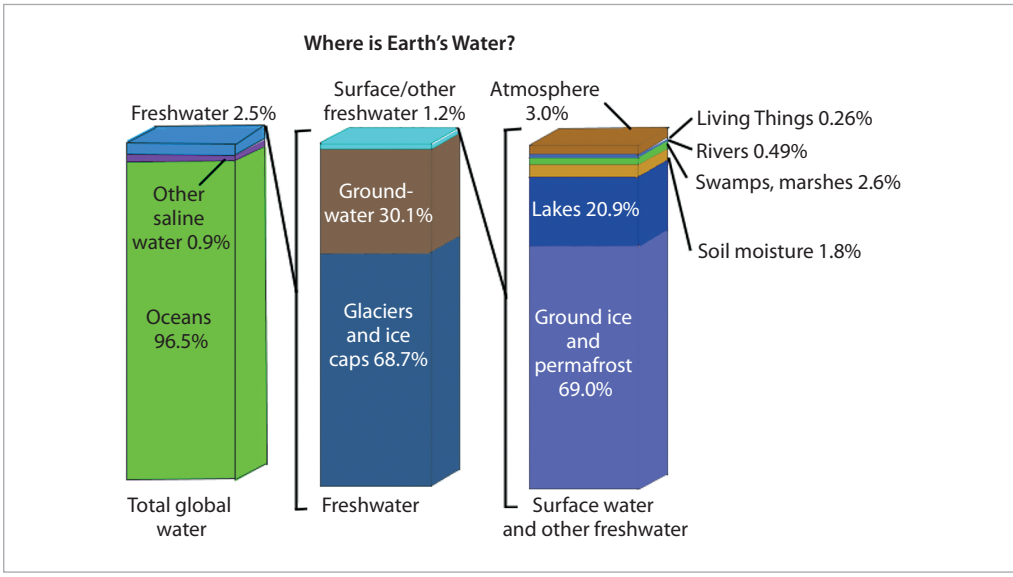

Figure 2: The distribution of water on Earth
Source: Compiled by the authors based on Shiklomanov–Rodda 2003

The acceleration of the hydrological cycle

The acceleration of the hydrological cycle can have many serious consequences, namely, that more extreme hydrological events will likely occur per unit time. The degree and frequency of droughts and floods will increase. In the 20th century nearly 80% of all natural disasters were water-related (Szöllősi-Nagy 2018). Drought refers to a temporary decline in water availability, for instance, when the precipitation level is expected to diminish over a long period of time. Water scarcity arises when the available sustainable water resources fail to meet the water demands. We must develop strategies to prevent water scarcity. An adequate supply of good-quality water is a pre-requisite for economic and social progress: we must prepare for saving water, and manage our resources more efficiently (EU 2010).

With the changing temporal and spatial variations in rainfall patterns, groundwater reserves will also likely change significantly. Therefore, climatic change and fluctuations affect the entire hydrological cycle. Climate change is thus superposed on anthropogenic effects – granted it is partly anthropological in nature as well – that is, it is expected to further exacerbate the uncertainty of hydrological events and thus the risk factors related to water management.

One needs to note that nearly 30 percent increase in the global population will take place over the next 35 years. The resulting population of nearly 9.5 billion (UN DESA 2019) is expected to cause security changes by orders of magnitude greater than those expected from climate change during the same period in the hydrological cycle and water

management. Unfortunately, however, it is precisely the hydrological cycle that receives the least attention in debates and research on climate change. The importance of solving this is a vital question central to humanity's survival, and the importance of adaptation via water management cannot be emphasised enough. The reasons for the change are global developments that define the boundary conditions of our potential local actions within a sovereign territory. In addition, our existing water resources are under pressure from global demographic trends including migration and radical urbanisation. In 2020, there were more than 280 million international migrants worldwide (UN Population Divisions 2020). In 2020 more than 55% of the world's population – 4.2 billion people – lived in cities. By 2050 the urban population is expected to be 8.4 billion inhabitants, which would be more than 70% of the world's population (World Bank 2020).

Water pollution

A problem of similar magnitude arises from issues related to water quality. According to recent data, 2 million tons of waste and sewage is discharged into the world's waters yearly (Corcoran et al. 2010) where 80% of the pollution is released untreated into the recipients. In severe cases of water pollution contaminants interfere with the environment and affect human health transitionally (Haseena et al. 2017). The risks of contamination are aggravated as water is a universal solvent in which any kind of pollutants might occur. WHO reports that 80% of diseases are spread through polluted water as they are waterborne (Scocca 2019).

The massive population expansion and the daily use of polymers for producing and consuming non-reusable objects for different purposes (packaging, cosmetics, textiles, detergents, greenhouses, mulches, fishing nets, coating and wiring, trays and bottles, covers, bags and containers) cause wild waste accumulation, with consequent significant complications owing to its management and disposal (Lionetto–Esposito Corcione 2021). The municipal solid waste worldly production passed from 1.3 billion of tons in 1990 to 3.81 billion tons after 25 years (Valdés et al. 2014). Even if the waste flow comes from different sources, plastics represent a substantial portion of the municipal solid waste. In 2016, about 27.1 million metric tons (Mt) of plastic litters were stored in the European Union (EU), of which 31.1%, 41.6% and 27.3% were recycled, reused (for energy production), and dumped again in landfill sites, respectively (Plastics Europe 2019). Among polymer materials, the greatest contribution is provided by thermoplastic polymers, the consumption of which (about 80% of all synthetic polymers) is mostly attributable to packaging and containers, as well as the production of textile fibres. Hence, plastics can be considered highly responsible for waste management issues, not only because of their extensive usage but also because of their short service life together with their long (bio)degradation time (Issifu–Sumaila 2020). In addition, a great universal worry is due to the storage of plastics in landfills because of their easy accessibility in the environment. In particular, mismanaged plastic waste of polyethylene containers

and poly (ethylene terephthalate) bottles of beverages, the most common polymers found in urban waste, lead to a huge amount of surface water and seabed marine litter.

Plastic pollution of the marine environment has recently been recognised as one of the most impacting threats for the environment, causing numerous hazardous and ecologically negative consequences, such as the entanglement of the marine species within the plastic or their ingestion. In particular, juvenile fish, reptiles (i.e. turtles, etc.), and mammals often become entangled in plastic waste with consequent severe damage for the animal growth (Sazima et al. 2002) and restriction of movement precluding them from correctly feeding and, in the case of mammals, breathing. A wide variety of species have been reported to be harmfully crushed by plastic trash, such as marine birds, sea turtles, cetaceans, fur seals, sharks and filter feeders. Marine birds are very prone to the ingestion of plastic objects that they mistake for food (Gregory 2009). Plastic ingested by these marine organisms remains in the digestive tract and can lead to reduced feeding stimuli, gastrointestinal obstruction, decreased secretion of gastric enzymes, and lower levels of steroid hormones, causing reproduction difficulties. Specific classes of litter found in the oceans, involving the Antarctic, have been observed in the sea for at least four decades (Horton–Dixon 2018).

Microplastics (MPs) are generally defined as polymer particles with a regular or irregular shape and a size ranging between 5 mm and 1 μm and are insoluble in water, while bigger particles, such as pellets, are called mesoplastics (Acharya et al. 2021). However, a clear and accepted terminology and classification is still under discussion, as well as a standardisation of the plastic collection and analysis methods (Hartmann et al. 2019). Microfibers (MFs), very fine fibres (approximately 3–10 μm in diameter), spun as endless filaments can be of both synthetic and natural origin. The size to diameter ratio is also quite high, on the order of 103, which is an additional crucial property of MFs. The most common constituents of MPs include polyethylene (PE), polystyrene (PS), polyethylene terephthalate (PET), polyvinylchloride (PVC) and polypropylene (PP). MPs generally arise from the plastic pollution of seaside and beaches, deriving from fragmentation phenomena or from powders employed, for example, in cosmetics (Park et al. 2020).

Both microplastic and mesoplastic litters can be eaten by marine species and, thus, can reach the marine food network. In contrast to macroscopic plastic litters, MPs on the seaside, seabed, or surface water, frequently combined with sand, are complicated to store and, at present, there is not an easy and universal method for the calculation of their amount. Furthermore, the degradation of marine MPs due to prolonged external light exposure, mechanical abrasion and biodegradation can cause the creation of nanoplastics (NPs) with sizes lower than 1 μm. In particular, marine MPs have been investigated by several researchers, and their presence has widely been proven in coastal environments (Aslam et al. 2020). The freshwater system is also considered a potential sink of MPs (Wagner–Lambert 2018). Zbyszewski and Corcoran (Zbyszewski–Corcoran 2011) reported for the first time the presence of MPs in the freshwater system during the coastline of Lake Huron, Canada. Very recently, it has been evidenced that there are different concentrations of MPs in Australia, Asia, North America and Europe (Li et al. 2020).

The current literature underlines that MPs are found in every sea basin around the world, with higher concentrations occurring in intense human activity areas demonstrating that plastic debris transport can be extremely efficient, and that the prediction of the plastics' fate is of paramount importance (Lionetto–Esposito Corcione 2021). Additionally, the study and modelling of the transport of MPs in the marine environment attracts increasing interest.

However, even if it is noted in the literature that micro (MPs) and nanoplastics (NPs) represent one of the emergent environmental pollutants and that the release of chemicals/additives used in synthesis of plastic materials may carry flowing effects on marine species, full knowledge of their impacts on living organisms is still lacking. In detail, the relationship between the migration/dispersion of MPs/NPs from one compartment to another and all the environmental compartments (terrestrial, aquatic and atmospheric) need to be better analysed (Lionetto–Esposito Corcione 2021).

Many chemical contaminants, derived from human activities, are released into the marine environment causing serious damage to water and long-term effects on organisms due to chronic exposure. The most common contaminants present in the microplastics in the marine environment are: polychlorinated biphenyls (PCBs), bisphenol A (BPA), polycyclic aromatic hydrocarbons (PAHs), perfluoroalkyl (PFAs), pesticides, pharmaceutical compounds and metals.

The European Union has promised to tackle microplastic pollution. The European Chemicals Agency proposed banning all microplastics added to cosmetics, paint, detergents and nearly all other consumer and commercial products where they are used to fill, bind, coat, absorb, thicken, be abrasive or control the release of medicines or pesticides. The ban would stop 10,000 to 60,000 tonnes of plastic leaking into the environment every year, which is, however, a lower content compared to the plastic that breaks up on beaches, rivers, the soil or spewing out of our washing machines.

Water scarcity and aspects of social security

Over the recent years, both understanding and awareness of the linkages between climate change and issues of security have significantly increased, particularly in developing countries. However, those links are not simple and clear. One could conclude that the growing impacts of climate change do not automatically lead to more violence and conflict. Rather, climate change acts as a threat multiplier.

More specifically, and as for water scarcity, the Sahel region particularly constitutes a remarkable case study. In the Sahel region agriculture remains the main – and in most cases the only possible – economic activity. Consequently, the local economies are highly vulnerable to climate shocks, whether slow or fast. As a net result, the region is also struggling with issues of food insecurity and malnutrition. According to the "Food Crisis Prevention Network" in 2019, 9.5 million people were facing malnutrition crises across 16 countries in the West African region. This number is expected to increase to 14.4 million, with the majority of people at risk living in the Lake Chad basin area (RPCA

2019). In some areas in Niger and Burkina Faso, 2.7 million people were in immediate need for food assistance. Further, almost two-thirds of the world's population, nearly 4 billion people, are facing austere water scarcity, and more than 2 billion people live in countries experiencing high water stress. At the same time, water supply obviously is not equitably distributed across the Earth. For example, in Sub-Saharan Africa about 40% of the population lack safe drinking water (UN Water 2021).

A significant dimension of water inequality is gender. According to a study conducted in 2019 by UNESCO, in 25 Sub-Saharan African countries women are estimated to spend almost 16 million hours per day collecting drinking water, 6 hours daily, while men spend almost 6 million hours. According to the above it seems that women take the responsibility for finding a vital natural resource, not only for drinking, cooking and hygiene, but also for their families to survive. For this purpose, women in these areas may have to walk long distances to collect water and may stand in lines waiting. As a result, women have less time to diversify their activities and improve their daily lives (Blackden–Wodon 2006). Further, and because there is no toilet at home, women and girls spend a lot of hours finding a safe place to go. Consequently, women and girls are left with little or no time for work, education, family care and personal care. Further, the above-mentioned circumstances might be dangerous for women in pregnancy. The long walking distance might constitute a potential danger situation for women and girls collecting water for their families. Moreover, violence, sexual attacks and social repercussion resulting from these attacks are also some of the cases (Sorenson et al. 2011). When women are empowered with water and toilets at home, they could have better health, better care for their families, better opportunities for education and they could start small businesses and a better and safer habitat, respectively. In general, access to safe water gives women and girls more hope and better future.

A second dimension is children's vulnerability. Children are also affected by climate change and water scarcity. Despite the fact that the link between climate change and violence against children may not seem obvious, they are linked. Climate change leads to water scarcity, degradation of fertile soil and land scarcity, food insecurity, displacement and loss of livelihoods. As families struggle to survive, devastating measures might seem as solutions. These measures, sometimes include child marriage and labour under dangerous working conditions. Another possibility is the involvement of children in conflicts and political violence; a development that fundamentally changes their lives.

A third dimension has to do with conflicts. Climate change has gradually more negative impacts on the livelihood of many countries and regions through water and land scarcity, food insecurity and migration. This dimension makes the affected population vulnerable not only to climate developments but also to recruitments by violent groups such as Al-Qaeda, Islamic State, Al-Shabaab or other militia. These groups can present alternative ways of life, economic motivations and a significant response to political anger and dissatisfaction (Charalampopoulos 2020). This does not imply that there is a direct link between climate change and political-related violence and conflict. However, large-scale environmental factors, such as water scarcity, land scarcity and climatic change contribute to creating an environment in which these groups can thrive.

Further, violent groups are using natural resources as a weapon of war. In unstable environments these groups can use water and other resources as a weapon of war and a means of political pressure. This tactic creates a dynamic for these groups taking into consideration the fact that the scarcer the resources become, the more power is given to those who control them (Nett–Rüttinger 2016).

Moreover, studies show that as the climate is changing, conditions are better for organised crime groups to operate. As it was said before, this does not imply that there is a direct link between climate change and violence and conflict arising. However, large-scale environmental and climatic change contributes to creating an environment in which those groups can better develop their strategies. A low level of rural development, environmental scarcity and reliance on sensitive crops make people vulnerable to the impacts of climate change, pushing them towards illicit activities and contributing to rapid migration to the cities, where they are exposed to organised crime, violence and recruitment by criminal groups. Further, this rapid migration is putting problems on the receiving urban areas. Many of these cities are largely dominated by youth street gangs creating a culture of violence that puts women and youngsters at risk.

Rapid urbanisation in conflict and post-conflict societies that have failed to carry out major reforms is more likely to increase the vulnerability of youth to engagement in illegal activities and recruitment by groups of organised crime. Last, but not least, in recent years, human trafficking and new forms of slavery have increasingly been linked to climate-induced disasters. In Bangladesh, a rise in cases of slavery and human trafficking could be observed in the aftermath of climate disasters and NGO representatives stress that the "link between climate change and slavery could not be more clear" (Conaway 2013).

It is obvious that climate change will increasingly challenge the states' abilities to provide services and stability. In particular, extreme climate events can threaten the social contract between governments and populations. In such a case a poor and slow government's response could contribute to instability, fragility, violence and further strengthen violent groups. Unfortunately, most of the states which are in the regions (Africa, the Middle East, Central America, Southeast Asia) which are most threatened by climate change are at the lower bottom of the Fragile State Index. Those states could not provide enough protection or help their citizens to remain in the area amid the negative changes caused by climate change (Fund for Peace 2020). And if a state fails to cope with the challenges, people start to move toward a better place to live, so mass migration will begin. International borders are just theoretical obstacles. In the affected regions most of the states could not manage to take care of tens of, or hundreds of thousands of refugees. The situation could deteriorate very fast and a new migration crisis could rise.

The situation in the European Union

The vast majority of people in Europe enjoy access to safe drinking water. This is partly due to over 30 years of EU legislation on ensuring water quality. In February 2018, the European Commission proposed to revise the EU legislation for improving access

to higher quality of drinking water and provide widely available information to citizens (Scocca 2019). According to the EC, the new measures are capable of reducing potential risks associated with drinking water from 4% to below 1%.

Despite the fact that The Charter of Fundamental Rights of the EU does not contain a specific provision with respect to water, certain principles set out in the text can be interpreted as also being of relevance for access to safe drinking water and sanitation, such as the right to dignity (Article 1) or the right to life (Article 2). A significant chapter relies on the protection of the quality of Europe's water resources. In the region, about 50% of drinking water is taken from groundwater and 40% from surface water, while 10% is from other sources, such as artificial groundwater recharge or bank filtration. The matter of environmental preservation has been a high priority since the mid-1970s, when the European Communities (EC) started adopting the first directives on this subject. The EC adopted a directive that set standards for the discharge of dangerous substances into natural water bodies (EEC 1976).

In 2000, the EU adopted a unified approach to water legislation, the Water Framework Directive (WFD) (EU 2000). This legislative measure aims at a legal framework to ensure the protection and restoration of water quality, improving the ecological and chemical quality of water as well as the sustainable use of water resources. This is in conjunction with the Drinking Water Directive (DWD) (EU 1998), concerning the quality of water for human consumption.

Harmonising the essential quality standards in the EU, the objective is to protect human health from adverse effects of any contamination of water. Water security is also covered at Member State level in terms of regulation. These legislative initiatives illustrate water quality priorities (Scocca 2019).

The physical security of water in the EU mostly relies on the Floods Directive (EU 2007), providing regulation for inland and coastal waters. This has been the catalyst for introducing a risk management approach in the Member States prone to floods. The two other Directives on Groundwater (2006/118/EC) and Quality Standards (2008/105/EC) as well have been the catalyst for introducing a risk management approach in the EU.

The Sustainable Development Goals (SDGs) were adopted by all United Nations Member States in 2015 as a universal call to action to end poverty, protect the planet and ensure that all people enjoy peace and prosperity by 2030. There are 17 goals among which SDG 6 is specifically related to water security. The new approach of the EU is in line with SDG 6 to "achieve universal and equitable access to safe and affordable drinking water for all".

Water scarcity and drought in the EU

In general, Europe is not an arid continent, although the decrease of suitable water resources for nearly half of the EU population is alarming. The water exploitation index (WEI) indicates the amount of water abstracted each year as a proportion of total long-term freshwater resources. It is an indicator of the pressure on freshwater resources.

A WEI above 20% implies that a water resource is under stress, and values above 40% indicate severe water stress and unsustainable use. There are several countries, such as, for instance, Malta (48.8%) or Spain (29.2%) which usually use up at least 20% annually of the long-term supplies available. During the long lasting disastrous drought in Cyprus from 79.6% to 64.4% of the country's renewable supplies were used up from 2012 to 2018. Countries with most favourable weather conditions are also in – of course, to a lesser level – danger. In 2018 Romania WEI was 16%, Poland consumes 17.1%, and in 2016 Belgium WEI was 16.6% (Eurostat 2021).

"Europe's geography and climate mean that water distribution is uneven in the EU, a situation made worse by human activity. In southern Europe, for instance, tourist development has increased demand for water, resulting in desertification and salt-water intrusion to aquifers located in coastal freshwater zones. Water scarcity is most acute in the south, but by no means limited to these areas: most Member States have suffered episodes of drought since 1976, and many now report frequent water scarcity problems and over-exploited aquifers" (EU 2010).

Conclusions

While climate change is a slow process, the direct impact of human activity has been measurable for decades. The primary cause of the impact is demographic change. With the demographic dynamics of the 9.6 billion population projected for 2050 (growth, mobility, migration) and the consequent changes in secondary land and water use, the functioning of the hydrological cycle will fundamentally change. About 80% of the consequences of climate change, which is caused by human activity, are water related. Sustainable water management is therefore a key issue for humanity's sustainability. As a result of the expected acceleration of the hydrological cycle, the likelihood of extremes will increase, meanwhile the Earth's water supply will not change. As a result of population growth, water resources per capita will be drastically reduced by the middle of the century, which could obviously be unsustainable and a serious source of conflict, both internationally and domestically (Wolf 2007).

Obviously, more water storage is needed to achieve water, food and energy security. The rational and sustainable management of highly sensitive and highly vulnerable groundwater is extremely important. If we connect the various aquifers to 80-meter wells without any consideration, hydrogeological expertise, measurement, or monitoring, then we are transferring the first aquifer completely polluted with non-point contaminants into the downstream aquifers, depriving future generations of clean water (Szöllősi-Nagy 2020).

The current water legislation of the EU ensures a strong basis for public health and environmental protection in the whole Union. The EU WFD states that "water is not a commercial product like any other but, rather, a heritage which must be protected, defended and treated as such" (EU 2000). It is a very important and forward-looking

feature of EU water policy to ensure the good quality of waterbodies while implementing public participation and improving transparency.

Although the introduction of water security approach happened relatively early in the EU, more efforts are needed in order to further improve the role of water in environmental legislation, for example, the encouragement of public–private partnerships or a better coordination across sectors would be highly desirable. These directions could also be advised universally in order to make the concept a coherent and functional principle for a conscious integrated water management (Scocca 2019).

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Social Media Issues and Fake News

Human communication is founded on complex rules of behaviour comprising language use, institutionalised news production and news consumption as well as social and international communication. Conventional norms are transferred to mediatised communication due to the slow adaptation of society to the technological changes accelerating since the early 20th century. As a result, individuals and groups are more susceptible to deception in an online environment where factors of interpersonal and social communication are blurred or faked without the targets noticing it. The World Wide Web, and especially social media, seem to image physical reality and society but, in fact, they are an edited imitation. The slow psychological and legal adjustment of society to technological and the resulting political disruption make our communities highly vulnerable to adverse external influence. The aim of this chapter is to increase resilience by highlighting three major areas in which accepted norms are most often challenged unnoticed: language use, journalism and content creation, and the alteration of perception of context and community.

Keywords: deceptive language, context, standards of journalism, bots, trolls, fake news

Acronyms

AI	Artificial Intelligence
PSYOP	psychological operation
VPN	virtual private network

Introduction: language use in society

Language is an intricate set of symbols which has evolved in human communities for thousands of years. It encompasses culture and, in relation to its social role, it expresses social phenomena as well as regulates them. Customs governing language use determine interpersonal and social communication and norms of social behaviour involve appropriate language use. Normally, these standards change slowly and with the approval of (at least groups of) society, nevertheless, technological disruption may result in the acceleration of the process.

The factors researched in a simple model of linguistic communication are the sender of a message (e.g. a speaker or writer), the channel which conveys it (e.g. a print newspaper or television) the message itself (e.g. a written text or footage with verbal comment) and the recipient of the message (e.g. a reader, listener or television viewer). Theories describing the principles of language use and the way people make sense of linguistic expressions are rooted in interpersonal oral communication, because speech preceded writing historically. Another reason is that social communication grew out of interpersonal communication as society developed into a network of complex systems.

In order to understand the impact of mediated language use, two basic theories need to be remembered: the speech act theory (Austin 1962) and maxims of conversation (Grice 1989a). Austin emphasised that people always say or write something with a purpose and presume that a speaker or writer has a purpose. The primary aim of a speaker is to bring about a change in the circumstances and impact the listener(s). The speech act theory highlights the imprecise nature of verbal communication: linguistic forms often convey messages implicitly, that is, they may perform a function which is different from their word for word meaning. Nevertheless, the recipient of the message is able to make sense of it by assessing the situation and by inferring the probable intention of the sender of the message in light of the context. Paul Grice's maxims of conversation describe the crucial role of trust and social conventions in communication while also pointing to hidden meaning. They are as follows: 1. the maxim of quantity; 2. the maxim of quality; 3. the maxim of relevance; 4. the maxim of manner. That is, ideally, a speaker communicates as much information as they deem necessary in a given situation; this information is believed to be true and relevant for the circumstances; and is delivered shortly, clearly and well-structured. The recipient of the communication always supposes that these standards are maintained. The maxims of conversation highlight that communication with language takes place by the cooperation of the participants who solve problems, for example, when choosing the presumed proper linguistic forms for the situation, or, when attributing intentions to one another.

The impact of conventional media and social media on situated language use

The functioning and the effect of the mass media since the late 19th century, when print media became common, throughout the 20th century, when electronic media (radio, then television) appeared and spread, have been analysed extensively. The availability of new technology led to the institutionalisation of news production and consumption in addition to novel forms of entertainment, which became part of our social routine such as viewing TV news reels and soap operas or sport broadcasts and discussing them. All segments of social life appeared in the media from political campaigns through commercial sales to religious programmes, developing new genres. Critics of the conventional mass media claim that it was controlled by the elite, operated top-down with few providing content for many, what is more, few functioning as gatekeepers in the flow of information, filtering out whatever was deemed by the elite unsuitable for the public. The development of the social networking sites was welcomed as the dawn of a new era of citizen participation, a site for democracy, where many could produce content for many. However, it has imposed more constraints than the previous ones.

The appearance of the internet, and of the social networking sites from the early 2000s has created a tool which influences how people communicate and interact. In fact, due to its technological affordances, it can regulate the behaviour, opinions and discourse of human beings (Seargeant–Tagg 2014; Poulsen–Kvåle 2018). Software designers can actually structure and control the production and interpretation of meaning. By

entering a social medium, a user joins a network of social practices which are largely pre-determined. Thus, members of society are losing essential tools which used to enable them for centuries to assess the context of communication (for instance, the speech partner's facial expressions and posture or the site of their encounter).

Context was added in the 1970s (Beaugrande–Dressler 2001: 136, 140) as an umbrella term to the model of linguistic communication so as to indicate that it takes place as part of social behaviour and to express that the generation of meaning is influenced by a number of factors during dynamic interaction. Context includes the situation and the co-texts in addition to the components of the model of communication described in the introduction. The situation comprises humans' mental world, social world and physical world (Verschueren 1999: 87–100). The cognitive, emotional and attitudinal perspectives that the participants hold are activated during communication and their mental world is unlocked or explored to some extent. During the exchange, the participants decide about the selection of tools to express their message based on their mental world as well as their social environment, which involves their shared background knowledge about social settings, social customs and culture. The same applies to the recipient of the message. It should be noted that the roles of sender of a message and receiver of a message keep changing in interpersonal communication and in social communication. The third component of the situation, the physical world, includes the time and place of the communication as the participants perceive them: consequently, the language they use has multiple references to time and place, which allows them to anchor the message in a situation. It is anchoring that helps participants establish a point of reference, and subsequently enables them to distinguish between, for example, their time and place and past, future or imaginary time and place which is described in the communication. Naturally, their physical world as a part of the context provides information through their senses, e.g. about the posture and gestures or facial expression of others who are involved in the communicative situation. Co-texts, the other major component of context, in fact refers to the interrelatedness of all texts also termed as intertextuality. This means that any text, verbal, visual or multimodal is accompanied, preceded and followed by a vast amount of similar ones, from which the users abstract structural schemas and ideational frameworks as a part of shared background knowledge. Whenever shared background knowledge is elicited, it enhances meaning generation by allowing language users to skip known details and focus on new information only.

The communication embedded in a situation and in a constant flow of co-texts, whose meaning is dynamically generated through negotiation by the participants is termed 'discourse' by scholars (Brown–Yule 1991: 24; Verschueren 1999: 50). For cognitive processing, language users in a discourse situation need to reduce the load of contextual information, which is called the principle of local interpretation (Brown–Yule 1991: 65). Therefore, the language users (especially the recipient of a message) do not construct a context any larger than necessary for them to arrive at an interpretation (Brown–Yule 1991: 59).

The transformation of context and the resulting potential for deception

Few people realise "that social media could be used as a weapon against the minds of the population" (Prier 2017: 81). This is because it can alter and, consequently, make fluid each factor of context (Poulsen–Kvåle 2018; Tandoc 2021). The source of information, i.e. the sender of a message may be hidden as a result of multiple sharing; the message comes across with amplified emotional or evaluative features due to the likes or dislikes it gets, or the displayed number of shares. The recipient of the message may select information with bias, which is recognised by the platform operator, so their news stream is adjusted to their preference. The most problematic is the shift of point of reference in the context: in natural interpersonal communication, it involves the sender and the recipient of a message and the situation of their encounter. It seems that the point of reference multiplies in virtual space, in addition, the message and the channel merge because both the operational tool and the content are parts of the software (Poulsen–Kvåle 2018: 706). Page et al. (2014: 33) suggest the following factors of context for research: 1. participants; 2. imagined context (e.g. the online community they belong to); 3. extra-situational context: the off-line practices they share in society; 4. behavioural context (the physical situation in which they interact via digital devices); 5. textual context or co-text (e.g. texts in comments or posts preceding and following their text, some being semi-automatic like time stamps); 6. generic context (the social media site of their communication with its stated rules and purpose).

The increased participation of users has resulted in blurring traditional boundaries between formal and informal style of language; author and audience; amateur and professional; publishing and broadcasting; news and entertainment. It is transforming journalism (see below) since trending topics from social media get reported by legal news sources and vice versa, as well as tweets and posts by public personalities. The transformation of context causes that social media users can rely on fewer clues from their own experience for making sense of communication; instead, they are dependent on stimuli from outside their physical situation. Users are bombarded with a vast amount of information so they rely on the algorithms offered by the software rather than their own judgement. Furthermore, the functions are optimised for corporate data collection on the user's personal parameters. These circumstances make social media users extremely vulnerable to deception and fake news (see below).

In the social media environment, locked up in their "echo chamber" or "filter bubble", users feel comfortable and safe, however, they are easily misled by false "information" injected in social media discourse. One form is fake news, which can be defined as "a particular form of propaganda composed of a false story disguised as news" (Prier 2017: 60). Other forms are more sophisticated and have been analysed by linguists and psychologists: these distortions in communication are more difficult to reveal and counter because they belong to implicit meaning and they naturally occur in everyday language, usually reflecting the judgement or the persuasive intention of the sender of a message. However, this intention is challenging to prove because the psychological process occurs in the recipient in the form of (quasi-) self-persuasion: the message is knowingly designed

by the sender so as to foster a false belief or inference by the receiver (Shuyuan et al. 2016: 394).

Linguistically, the most widespread of such techniques are vague language, presuppositions, and conversational implicatures. Vague language may involve unclear references to the origin of content, for example "A group of scientists has stated…"; "Unrevealed sources have leaked out…"; "There are speculations that…". Concealment of information and ambiguous wording of a message can also be classified here, as well as obfuscation, i.e. wording contradictory arguments in the same message, or pretending to use a special language unclear to lay people, such as legal or medical terminology (Vincent–Castelfranchi 1981: 749–779). Presuppositions are natural tools of communication with language. As it was said before, only a small segment of the context is foregrounded in communication for economy of effort, for this reason, mutual knowledge of the preceding and current circumstances is presupposed. Presuppositions (Verschueren 1999: 27–28) are conventionalised language forms which are routinely used to allow inferences: some of them are about existence (e.g. "The" in the sentence "The peacekeepers came under attack on patrol in the Democratic Republic of Congo" suggests that the presence of peacekeepers in the Democratic Republic of Congo is a known fact). Other presuppositions convey the evaluation of the sender of a message in a hidden way, such as "already" and "only". Compare the two sentences: 1. Half a million citizens have already been vaccinated against Covid-19; and 2. Half a million citizens have only been vaccinated against Covid-19. Dependent on the wording, the attitude of the recipient of the message is shaped in opposite directions. Besides, in real-world encounters presuppositions are defeasible, which means the participants in communication negotiate them and may modify them, however, in online communication they may be less noticed because of the fluid context and shifting point of reference. Presuppositions are named shared background knowledge in cognitive linguistics with reference to their extensive exploitation in society. Shared background knowledge elicits frames thus contributing to the generation of implicit or just associated meaning (Ziem 2014). The recipient is prompted to infer meaning/information which is not explicitly stated. Inferences made from presuppositions or shared background knowledge are called conversational implicature under Paul Grice's maxims of conversation (Grice 1989b) and quite often involve insinuation, i.e. linking negative emotions or attitudes to someone or something discussed.

Deceptive language use typically interwoven with persuasion has been known since ancient rhetoric and has been exploited in propaganda for centuries (Marlin 2003: 95–136). Today's online deception and fake news campaigns are mostly using the same linguistic tricks as their predecessors, but their effect is to a great degree amplified by their primary medium: the World Wide Web and social media platforms. The cumulative effect of the conventional mass media has been used for the same purpose for decades (Walton 2007: 109–113) along with other previously mentioned ploys like emotive language and goal-directed structure. The novelty of online communication is that it amplifies messages vastly, while occupying the point of view of the users from time to time. The great amount of information which users encounter confuses them further, which results in greater exposure and vulnerability to control. It is extremely dangerous

because either a state actor or a non-state actor may directly influence the population of a target country within a short timeframe and extremely effectively. The public may turn away from their elected government and from professional journalism if their trust in these institutions is shattered. Public debate may become impossible, which weakens democracy. Concealed actors may influence context in order to mislead the public, for instance, by faking data on majority (e.g. number of followers, shares, likes/dislikes), which undermines democracy.

Journalistic norms, journalistic role performance: A systemic approach

While communication and media studies including journalism studies are typically considered relatively new fields of research, the history of journalism as an academic field goes back to more than one hundred years (Gross 2020). The oldest academic journal of the field, Journalism and Mass Communication Quarterly, the flagship journal of the Association for Education in Journalism and Mass Communication, was launched in 1924, while the association itself was established in 1912. Thus, normative inquiries on journalistic norms and on the professional standards that journalists must adapt have a hundred years of history, and, despite considerable disagreement on details, there is a consensus on how professional journalists should do their daily job.

In their renowned work entitled *The Four Theories of the Press* (1956), Siebert, Peterson and Schramm defined four types of media systems that correspond to four types of journalistic performance. While these models are in many senses outdated, extended and complemented by subsequent scholarship (Dobek-Ostrowska–Głowacki 2015; Hallin–Mancini 2004; Peruško et al. 2020), we can use their most fundamental insights for the introduction of different conceptions of journalistic norms and values. Of course, we have to adjust some of the considerations of the original conceptions in order to answer the most important challenges that contemporary journalists face.

The authoritarian model assumes that knowledge is owned and produced by the elites, thus they must have full control of information. Therefore, the role of journalists is restricted to the faithful communication of what the elites, typically the political elite have to say. While this model has been typically rejected by modern democracies that prefer liberal media models, we should notice that the authoritarian approach has several implications for contemporary discussion on media control and fake news. Specifically, the authoritarian conception of journalism argues that journalists must defend civilians from both harmful and false information, and those news items that might be potentially harmful can be even censored. Censorship in an authoritarian framework including not just political, but also moral, religious and business censorship as well.

Building on the elitist conception by which knowledge should be disseminated by only those that produce and possess it, journalists that work within an authoritarian media framework should neither question, nor control the elites' communication, but their role is pure transmission only. While the authoritarian media model is not accepted in modern democracies, some of its presuppositions such as journalists' responsibility for fighting

against false, harmful and fake information is still visible, and even popular in contemporary discourse on journalistic roles. We should be aware of the fact that authoritarianism does not necessarily mean submission to political power, but it can be related to a simple recognition of knowledge. In this sense, we can speak of scientific authorities as well, and journalists engaged in science communication typically do not control or criticise scientific authorities but try to faithfully translate scientific evidence to everyday language. In the discussion of journalistic norms within the context of fake news, the authoritarian model can support us with its proposition by which informing the community should rest on knowledge, thus finding credible experts that support specific claims which are of paramount importance. However, the criticism of the authoritarian model can also teach us that reliability should not rest on political or economic power, but on knowledge alone. Thus, one specific aim of a professional journalist in modern democracies is to find the authentic source of knowledge that is relevant for possible news content.

The second model is the liberal-libertarian model that is the most common in Western democracies, especially in the U.S. The model is based on the philosophical assumptions of liberal philosophers such as John Stuart Mill and John Locke, who thought that it is a fundamental right for all citizens to seek the truth and to express their opinion (Siebert et al. 1956). According to this model, both media as an institution and journalists as professional media workers should be independent from any authorities such as the political and the economic power. The libertarian conception assumes that every citizen is able to decide if something is good or bad, true or false, and thus professional journalists should not censor anything that can be a potential source of news content. The libertarian model rejects all forms of censorship, and suggests that each piece of information, even "bad news" is important (Siebert et al. 1956). Within the framework of the libertarian model, journalists should be "watchdogs" for the people, they should investigate political behaviour and decisions. While the libertarian model could be considered a mainstream Western conception of journalistic roles, it is also frequently criticised on the basis that it is too optimistic about the capacities and the rationality of the people. In the contexts of new media and fake news, this optimism might lead to an insufficient control of communication in which both political power and giant business entrepreneurs can take advantage of media users.

The third model that is more popular in Europe, especially in the Scandinavian countries, is based on the concept of the media as a socially responsible agent. In this framework, the most important feature of journalism is its professional character. Journalists should be educated and trained by predetermined professional standards that make them capable of acquiring, checking, controlling and professionally interpreting information. For example, in the new media context, digital journalism has become a new type of journalism (Petre 2013; Thurman 2019) that involves a set of specific professional knowledge such as data scraping, computing information, automatic and computer aided content generation, a quantitative approach to data collection (besides, or even instead of, interviews and observations) or transcending echo chambers and filter bubbles (Geiss et al. 2021). Just like in the libertarian model, the freedom of speech is very important in the model of social responsibility as well, but it also assumes that

the media should be responsible for what it shares as news content, fact checking is especially important, media should seriously consider any criticism regarding its work and professionality is of crucial importance. Journalism should be institutionalised, should be taught in higher education in journalism schools, professional standards and the daily practices of journalists should be developed and scholarly investigated by rigorous academic methods, and misconduct and frauds should be sanctioned.

Finally, the fourth model is the communist media model that is fundamentally criticised in Western scholarship. Notwithstanding, besides its obvious negative features such as the total political control of media and omnipresent censorship, there are some features of this model that a professional journalist might have to consider, especially because, as a consequence of path dependencies, post-Soviet countries tend to follow a soft version of this model even today. However, Western scholars tend to be ignorant of the fact that post-Soviet journalism might have legitimate professional values, even if these values and norms are different from, or even contradict Western liberal journalistic norms such as impartiality, objectivity, ingenuity and courage. Rather than being "neutral", impartial and "objective", many post-Soviet journalists may be closer to artists or writers, and they want to be active in shaping audiences' opinion and attitudes (Horváth 1991; Jakubowicz 1998). According to the findings from early media transformation research, Central and East European journalists have felt a messianic vocation, a need for becoming a mouthpiece for the people (Goban-Klas 1997; Gross 1996). Stemming from the decades of state propaganda, Central and East European journalists might overstand the significance of their own judgement, even at the expense of pure facts. While today's journalists might feel some kind of personal or civic responsibility regarding the social consequences of their work that can make them social activists, the guardians or even opinion leaders of society (Mellado 2020), they are also politically committed to political populism and practices of self-censorship in the media (Raycheva 2020; Rožukalne 2020). We have to add that, even in neoliberal societies, and even under the libertarian model, journalists might tend to serve special agendas that are considered "social good' in those contexts. To mention some typical examples, we can refer to peace journalism that supposes that the role of the media is to contribute to peace building in war zones (Cornelius 2001; McGoldrick–Lynch 2000), or the tendency of liberal media to advertise consumerism, neoliberal values, multiculturalism, internationalisation, and the superiority of democracy over other types of social structures. While we might agree with specific ideologies, we should also acknowledge that these are ultimately ideologies, and perhaps there is no ideology-free information in a crystal-clear form.

As a summary of the norms expressed by various models of the press, Table 1 shows different aspects of professional journalism. Some of these features might seem contradictory, but most of them are complementary norms. These professional norms are generally considered to be appropriate to maintain the credibility of professional media producers, and despite the fundamental changes on the media landscape in the last two decades, audiences still express a need to be informed by professional journalists and media organisations (Goyanes–Demeter 2020).

Table 1: A summary of different journalistic norms and roles

Journalistic norms and roles	Implications for fact checking and fake news
Fight against misinformation	Recognising fake news, false information and propaganda
Prevent potential danger	Controlling potentially dangerous news content
Considering the appropriate level of gatekeeping	State secret, military secret, legal and moral considerations
Independence of politics	Not to be partisan
Independence of economics	Not to be advertisers of any business
Responsibility	Work for the benefit of the whole society
Professionality	Undergo specific training and education
Institutionalism	Professional associations and organisations, ethical committees
Accountability	Misconduct and fraud can be sanctioned
Neutrality	To be impartial when constructing news content and to acquire information from all the related sources
Equality and equity	To represent every social subgroup, including minorities
Activism	To contribute to the development of some social good

Source: Goyanes–Demeter 2020

Troll factories, bots and fake news

One of the most important questions to answer when establishing whether or not one has encountered fake news can be traced back to the rhetorical one raised in Seneca's play Medea, commonly referred to as *cui prodest,* that is, who benefits from the given piece of news. One methodological difficulty of any attempt to eliminate fake news is that it requires adequate certainty to establish that the published information is disinformation.

Social media sites are often accused of failing to efficiently stand up against the dissemination of fake news by detecting and blocking such news with effective algorithms. It is clear, however, that such algorithms would have already been developed if there actually were parameters based on which one could establish whether a communication counts as fake news or a biased opinion (the latter makes the challenge even more difficult, given that its identification during electoral campaigns widely varies by the tolerance thresholds of individual countries). For this reason, social media sites employ so-called fact-checking procedures, in which a third-party organisation examines the content of the news piece in question, labels the posts referring to the news as disinformation or

fact, and blocks the contents if necessary. This solution raises several problems, however, since if a user's general attitude is based on their firm belief in a global conspiracy theory, the fact that the disseminated contents have been labelled as fake news will be integrated in their worldview as an attempt at silencing the truth, and, as a consequence, they will continue to ignore all factual evidence proving that the shared news piece contains misinformation.

Another problem with fact-checking is that some news pieces may introduce new information that has formative impact on the common knowledge of the subject, whereas the algorithm continues to label the disseminated information as fake news, thereby impairing users' trust in fact-checking, while also hindering the natural flow of discourse on the subject aimed at processing the new knowledge. These difficulties are well exemplified by the recent fake news about the Wuhan Institute of Virology in China, which is based on the tenet that the coronavirus actually is a biological weapon, over which the laboratory lost control by accident or by deliberate human intervention. In this particular case, the intriguing evolutionary process of how the radical conspiracy theory has been absorbed by mainstream media is also worth observing, to which Drew Holden called attention by giving a detailed analysis of top headlines of popular news websites on Twitter on 25 May 2021 (see Figure 1; Holden 2021).

Figure 1: Twitter thread
Source: Holden 2021

These developments eventually led 18 noted scientists to publish an open letter in the prestigious *Science Magazine* in May 2021, urging all concerned parties to seriously consider the theory of the lab-escaped virus as part of the investigation on the origin of the coronavirus (Bloom et al. 2021). That is not to say that the authors of the letter endorse the the-

ory; they only point out that a comprehensive investigation requires the examination of this alternative, among others. The relevance of the message is obvious: disproving the theory by means of an adequate methodology is a scientific achievement just as notable as proving it.

The above considerations clearly show that the biggest challenge in fake news elimination is posed to users' digital immunity; it is left to the individual user to critically evaluate the downloaded contents and judge whether or not they are fake news. The problem is that fake news disseminators continuously adapt and take advantage of the latest technological innovations in order to bring their disinformation campaigns to fruition. Therefore, it is vital to learn about the processes contributing to the spread of disinformation.

As mentioned above, the first issue to resolve is identifying the party who is interested in disseminating the claims shared online. Certain fake news clearly serves to gain financial profits, not only including pay per click ads,[1] but pseudo-scientific news is often disseminated by distributors of healthcare products who offer panaceas of at least questionable effectiveness such as vitamin C for oncological diseases or coronavirus symptoms.

In many cases, however, fake news campaigns are specifically targeted at influencing political decision-making processes. Such activities are classified in the literature as psychological operations (henceforward referred to as PSYOPs; see Narula 2004), which may be described very concisely as the conflicting parties' mutual attempts at influencing the selected target groups by cognitive means.[2] Besides the conflicting party, a target group may also be the population of the agent's own country, the agent's allies, and practically all political campaigns may be considered PSYOPs (Miller 2015). PSYOPs are commonly equated with propaganda, but this latter term has a strong negative ideological connotation due to the former Nazi and Soviet propaganda factories, thus the literature prefers the term 'targeted communication'.

A fundamental distinction is made between the three categories of white, black and grey propaganda. White propaganda includes cases when the communicator is publicly known, and the messages are based on facts, whereas the communicators of black and grey propaganda are unknown and often disguised, and their messages serve to disseminate disinformation. The repertoire of PSYOPs includes reflexive control,[3] the so-called social virus,[4] and the entire range of special instruments and techniques[5] (Till 2020).

An important distinction should be made between misinformation and disinformation, the former of which means unintended generation or dissemination of false information, while the latter is aimed at causing harm by spreading fake news (Stahl 2006). The underlying motives of misinformation include common human factors such

[1] In such cases, the amount of profit gained from advertisement is based on the number of page downloads.

[2] The activity is as old as humanity itself. The earliest written description of the principle is documented in *The Art of War* by Sun Tzu, noting that "the supreme art of war is to subdue the enemy without fighting" (Tzu 2006), while now it is often understood in the context of hybrid warfare (Hoffman 2007).

[3] It is aimed at influencing the decision-making processes of the leader of the enemy forces.

[4] The impact is essentially achieved through influencers' activity.

[5] E.g. using artificial intelligence, in which the so-called DeepFake technology has crucial importance.

as making an impression on friends by appearing well-informed on the latest developments such as the decease of a celebrity, the news of whose departure one strives to be the first to share, maybe for the seventh time. Another important motive is financial profit, as is the case with pay per click ads. By contrast, disinformation is often implemented by means of PSYOPs run by national security agencies of foreign states, as it was probably the case with the 2016 U.S. national election or the Brexit campaign (Ziegler 2018).

Since the 2016 U.S. national election, Russia has been regularly accused of misusing cyberspace, and particularly social media, to manipulate decision-making in internal affairs of foreign states, primarily by means of spreading fake news. These developments have essentially contributed to the recent accumulation of related literature (for details see e.g. Figueira–Oliveira 2017; Jang–Kim 2018). Russia's intensive deployment of PSYOPs can be traced back to the 2014 Ukrainian crisis, but the country has been active in the field since the 2008 Russo–Georgian war.

The dissemination of disinformation is facilitated by several factors. First, one encounters an immense amount of information on the Internet, which is an enormous challenge, since one usually has neither time nor capacity to sort out facts and fake news in the overwhelming flood of information. Moreover, social media have changed the general trends in news consumption: a large part of people consider social networking sites the primary source of news. As a consequence, these people's orientation is heavily influenced by AI-based secret algorithms selecting news for individual users. Importantly, social media sites use thousands of parameters to analyse each user's preferences and select the contents to be displayed in the news stream accordingly.

In the absence of pluralistic consumption habits, this automated selection process adjusted to the user's behaviour may result in the development of a so-called filter bubble, that is, the user will only find those contents at media sites that they regularly consume, whereas they will encounter few or no contradicting contents, however widespread they may be. As a consequence, such a filter bubble leaves the user with the impression that their narrowed perspective on reality is objective, encompassing reality as it is.

A closely related concept is the recently expanding post-truth phenomenon, which contributes to the impact of fake news on political decision-making (Lewandowsky et al. 2017). The term post-truth refers to a state of affairs when public opinion is driven by emotions and beliefs rooted in personal convictions rather than based on facts. In this state, objectivity gradually loses its importance in reality perception, replaced by a multitude of parallel subjective realities. This process contributes not only to the absorption of fake news but also to confusion deliberately generated by the dissemination of alternative information questioning the validity of mainstream news releases. This latter activity is referred to as *noise making,* which is aimed at undermining public trust in the institutions of democracy, thus impairing the perceived legitimacy of the incumbent government. Noise making is commonly used by the national security agencies of authoritarian states, particularly against the Member States of the European Union, since fragmenting the EU hinders the Member States from standing up in unity as a global political actor, which leaves more scope to the political ambitions of the noise making states. Sinal Aral and colleagues (Vosoughi et al. 2018) found that fake news, and particularly fake political

news, spreads more rapidly, reaches a wider audience, and undergoes deeper absorption in all observed information categories, in some cases significantly exceeding the dissemination of valid news. It is also worth noting that people spread fake news faster than botnets.

Botnets are algorithms that create various fake profiles at social media sites, through which they disseminate contents. Different botnets may considerably vary by their level of technological development. A call for proposals of the U.S. Air Force for the development of an "online identity management software" gained wide publicity in 2011 (Webster 2011). The software would have been a botnet designed to influence political decision-making processes by means of fake profiles created at social media sites. As a matter of course, the software would have had to meet special criteria such as ability to evade geolocation, since, in case of a military operation targeted at, say, the Middle East, it might have had regrettable consequences if a successful geolocation of the fake profiles had pointed to the U.S. Air Force Academy, Colorado Springs, Colorado. In addition to a VPN, the fake profiles were supposed to have a history tailored to the targeted area. Such botnets have presumably been developed by several states over the past years, for which Twitter is a particularly popular host (Abokhodair et al. 2015). Besides botnets, several states employ so-called troll armies. One of the most widely known troll armies is based in Russia. According to former members' reports, these armies run their operations under strictly regulated conditions (Walker 2015). For example, the Saint Petersburg-based Internet Research Agency engaged in online research employed an estimated one thousand shift workers[6] in groups of three,[7] paid at a special pay grade,[8] to share anti-Western and pro-Kremlin news at domestic and foreign news websites.[9] The topics which are most frequently related to the latest developments in foreign and home affairs are assigned at the beginning of each day, and a specific number of comments[10] has to be posted with a specific number of fake profiles. Of course, Russia is not the only country that deploys troll armies. China operates groups comprising millions of workers (Yang 2017), and there presumably are Western countries that have also developed similar forces.

Conclusions

The technological advancements leading to internet-based communication have caused major changes in society which need further research as well as legal regulation. In lack

[6] Approximately 20 workers were supervised by 3 editors in each room.

[7] One of them functioned as a blogger posting news on the current topics, who was later joined by the commenters generating discussion and confirming the news.

[8] In 2015, the basic monthly salary amounted to 45,000 Russian rubles, and those commenting in English received 65,000 rubles per month.

[9] The most frequently recurring theme is the Western or European civilisation being driven into perdition due to decadence, liberalism, and, more recently, migration and weak leaders.

[10] A total of 135 comments during a 12-hour shift.

of full understanding of these changes, we face challenges in the area of interpersonal, social and international communication. Interpersonal communication is impacted because each internet user is exposed to more information than ever before. Its processing is made difficult by the fluid, ever transforming context created in the online environment. This hinders the recognition of those traditional factors of our communication models which could serve as clues to the interpretation of messages (for instance, the identification of the source). Consequently, internet users are more exposed to influence, even adverse influence.

Journalism, which has been a basic component and tool of social communication, is also affected by technological disruptions because boundaries between professional journalism and user produced content as well as between genres and styles are becoming obscure. This may result in declining standards of journalism, which, in turn, undermines trust in professional news reporting and analysis. The irresponsible dissemination of unchecked information by individuals sparks strong emotional response and heated debates, which often replace democratic deliberation. Relying on this method, insurgent groups, criminals or adverse powers may destabilise democratic institutions.

In the area of international relations, the internet and social media have become a domain of 'information war' where state and non-state actors openly or covertly exploit the persuasive toolbox of modern technology, spreading fake news (such as an invented story disguised as a news item) or texts in manipulative language (such as a troll's comment or a post written by order, for payment). The internet users may additionally be misled by a falsified context resulting from an algorithm- or robot-generated distribution and 'support' of deceptive content.

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Sustainability, Resilience and Development

In line with the goals of the 2030 Agenda and the *Strategic Foresight Report – Charting the Course towards a More Resilient Europe,* sustainability, resilience and development are the three key concepts, indivisible and interconnected, for building the Europe of the future: a systemic vision to promote sustainable economic growth without neglecting environmental and social aspects. This means that a more sustainable future is the result of ethical and sustainable business models, production and consumption patterns evaluated according to techniques that quantify the environmental impact of products or processes throughout their life cycle. The unsustainable use of the planet's resources and the effects of climate change are undermining the livelihoods of many countries and regions, due to water and land scarcity, food insecurity and migration. This chapter analyses these aspects, highlighting how the concept of "sustainability" can also be applied to linguistic reality by referring to the struggle to preserve linguistic diversity and maintain the identities of minority communities.

Keywords: sustainability, resilience, development

Acronyms

CSR	Corporate Social Responsibility
LCA	Life Cycle Assessment
LCT	Life Cycle Thinking
LL	Linguistic Landscape
MNEs	Multinational Enterprises
UNEP	United Nations Environment Programme
WCED	World Commission on Environment and Development

Introduction

Sustainability, resilience and development are the pillars chosen by UN member states to build the future of Planet Earth. Sustainability, resilience and development from an economic, social and environmental point of view. Different and separate concepts which, however, are necessary to look at as an integrated whole, in a holistic view.

The term "sustainable development" became a common expression in 1987, with the publication of the Brundtland report (also known as *Our Common Future*) by the World Commission on Environment and Development (WCED), but the roots of the political and juridical debate about the necessity to link development and environment can be

found at the beginning of the seventies with the publication of the report *The Limits of Growth* (commissioned by the Club of Rome to the Massachusetts Institute of Technology) and, above all, with the 1972 United Nations Conference on the Environment, held in Stockholm. Specifically, the *Stockholm Declaration for the Human Environment* affirmed 26 principles aimed at preserving the human environment "for all the people and for their posterity".

Gro Harlem Brundtland, President of the WCED at that time, defined sustainable development as the capacity to "meet the needs of the present without compromising the ability of future generations to meet their own" (Brundtland 1987). The Brundtland Report played a pivotal role during the 1992 United Nations Conference on Environment and Development, which adopted the Rio Declaration on Environment and Development. The "Rio Declaration" recognises the "integral and interdependent nature of the Earth, our home". In the first principle it states that "human beings are at the centre of concerns for sustainable development. They are entitled to a healthy and productive life in harmony with nature".

The concept of "sustainable development" contains some fundamental elements: an obligation towards current and future generations, extending the field of obligation to an indefinite future; a principle of intragenerational and intergenerational temporal continuity; the idea of the satisfaction of needs as a condition of well-being extended to all individuals. These elements indicate a purpose, a common direction towards which to strive in sustainable action.

From a philosophical and anthropological point of view, the importance of the needs of future generations was not a new concept, specifically, if a more ecological, non-anthropocentric perspective is assumed, as, for example, that of the Iroquois Northern American tribes which demanded that tribal leaders make decisions in the present by evaluating and considering the needs of future generations (Cosmulese 2019).

The concept of sustainability becomes mature in the 1980s but is covertly traceable in modern economic thought. The study between the need for economic growth and the problem of the exploitation of natural resources is already present in the reflections of Robert Thomas Malthus (Malthus 1798), David Ricardo (Ricardo 1821) and John Stuart Mill (Mill 1909 [1848]).

The relationship between economic growth and the exploitation of natural resources as a limit to the carrying capacity of ecosystems stressed by human socio-technical systems is made explicit in the first reports of the Club of Rome in the late 1960s. Furthermore, Lester Brown's idea of sustainable society (Brown 1981), that is, of sustainability as the production of society, dates back to 1981.

Sustainability is at the centre of international debate and represents the primary goal of many projects globally. Among all, the 2030 Agenda and its 17 Sustainable Development Goals was signed by 193 members of the United Nations in 1995. The 17 Goals refer to a set of important development issues that consider the three dimensions of sustainable development – economic, social and ecological – and aim at ending poverty, fighting inequality, tackling climate change, and building peaceful societies respectful of human rights. More often the concept of sustainable development is combined with resilience,

which adds a new nuance to sustainability, enriching it and making it more suitable for today's world.

Resilience indicates a set of skills that allow an individual, a community, an economy to resist and counter situations of discomfort and deprivation through the effective use of adaptive behaviours. Being resilient means knowing how to orient yourself towards the future; being able to face and manage changes, know how to make decisions and, in this way, know how to manage the uncertainties and fears related to the occurrence of critical moments. It is something about how humans and nature can use shocks (for example, climate change and economic crises) to renew themselves and use new ways of thinking (Biggs et al. 2015).

If the concept of sustainable development aims at a development that can partly avoid changes and their negative consequences for man and the environment, resilience aims instead at reaching a condition in which it is possible to confront and overcome the changes, without being completely overwhelmed. Moving from a vision that focuses efforts on the idea of sustainability to others that focus on resilience means changing your point of view and integrating different approaches to be able to achieve a better result.

On 9 September 2020, the European Commission presented the *Strategic Foresight Report – Charting the Course towards a More Resilient Europe* (European Commission 2020a). The report, also due to the Covid-19 pandemic, underlines how Europe needs to strengthen its resilience, which is the ability to face challenges and to initiate transition processes in a sustainable, equitable and democratic way. The report analyses four interconnected dimensions:

- socio-economic resilience to identify future skills in which to invest today and to initiate a broader dialogue with society on updating the social and fiscal contract
- geopolitical resilience to help identify scenarios and define strategic options to strengthen the EU's open strategic autonomy
- green resilience to explore the engines of change, to understand future structural changes in the labour market and to guide the retraining of people who have lost their jobs during the crisis or who risk losing it in the future due to technological developments and automation.
- digital resilience to predict how major emerging technologies might develop, to understand their impact on all areas of life and to seize future opportunities

Sustainability and resilience look to the future and find their foundation in the dimension of the possible. The goal is projected into a future time. The concept of sustainable development shifts the field of enquiry from the present situation to a desirable one (from being to ought to be) to ensure intergenerational and intragenerational equity.

Sustainability and the resilience paths to support them are configured as a moral obligation, a general obligation, not specifically aimed at someone, to preserve the possibility of well-being. Sustainability is an injunction not to meet our needs to the detriment of the impoverishment of our successors (Anand–Sen 2000).

Sustainability becomes the most resilient response that the world can give itself in anticipation of a danger considered to be imminent as we have reached the stage where

our collective conduct will determine not only the quality of life of future generations, but the very existence of human life as we know it (Cruz 2007).

This appears particularly true if we look at climate change which is strictly related to sustainable development. Actually, the first target of the 13th Sustainable Development Goal – 2030 Agenda *(Take urgent action to combat climate change and its impacts)* aims at strengthening "resilience and adaptive capacity to climate related hazards and natural disasters in all countries". In this wake, in February 2021, the European Commission adopted the new European strategy to become climate resilient by 2050 in the frame of four principal objectives: make adaptation smarter (1), swifter (2) and more systemic (3) and to step up international action on adaptation to climate change (4). The European Commission emphasises the need to act now and quickly because "climate change is happening today, so we have to build a more resilient tomorrow […]. People, planet and prosperity are vulnerable to climate change, so we need to prevent the un-adaptable and adapt to the un-preventable" [European Commission COM (2021)82 final].

Ecological sustainability

"A great change in our stewardship of the Earth and the life on it is required, if vast human misery is to be avoided…"; this was the general conclusion of the Union of Concerned Scientists and more than 1,700 independent scientists who collaborated to pen the 1992 *World Scientists' Warning to Humanity* in which they highlighted that humans were on a collision course with the natural world (Ripple et al. 1992). In the same years, several ecologists argued about the fact that the scope and magnitude of environmental problems threatened the sustainability of Earth's life-support systems. Environmental sustainability is a key issue for human societies throughout the 21st century's world. The sustainability of natural ecosystems can be defined as the dynamic equilibrium between natural inputs and outputs, modified by external events such as climatic change and natural disasters. As soon as ecosystems' resources are utilised by humans, the question arises to what extent human utilisation and disturbance interrupt the ecosystem's capacity to persist (Fresco–Kroonenberg 1992). This aspect is strongly related to the concept of resilience of the ecological systems that is the distance between the current state of the system and the thresholds at which they may quickly change to a different regime with different functions and therefore different value of their services (Mäler 2008). The services provided by the ecosystems to our societies are of fundamental importance to human well-being, health and survival. Even though some environmental resources have historically been free to the users and ecosystem services are not fully included in commercial markets, their global value is changed in time (Costanza et al. 2014).

All these concepts introduce "sustainable development" that was defined by the Bruntland commission as "…development that meets the needs of the present without compromising ability of the future to meet their own needs" (Brundtland 1987); in other terms, sustainable development is the provision of productive resources to future generations to make it possible for them to live as well as the present generation.

Since the end of the 1980s, the issues of sustainable development have been discussed in many events organised at an international and global level. During the 1992 Rio de Janeiro Summit, the concept of sustainability was pointed out and the foundations were laid for Agenda 21 (the memorandum of understanding developed by the International Council for Local Environmental Initiatives) with the goal of transferring the concepts of sustainable development to the level of local administrations. The 1995 World Summit for Social Development, held in Copenhagen, addressed the social dimension of globalisation for the first time at the highest political level, giving full recognition to the social and economic components of sustainable development. The integrated vision of the three dimensions of sustainable development reaches up to 2015, the year of birth of the Agenda 2030 for sustainable development, which includes 17 objectives related to ecological sustainability and resilience, but also to human dignity, regional and global political stability and economic prosperity. In January 2020, the investment plan for the *European Green Deal 2050* was presented in Strasbourg; it is the most ambitious ecological transition plan to achieve zero emissions by 2050. However, a report of the United Nations Environment Programme (UNEP) has already highlighted the linkage between environmental problems, economic health and equity issues. So, if the core problems of the environment are in great measure ecological, their causes and consequences are largely anthropogenic; consequently, it is necessary to change our approach to economic and social development towards a much more sustainable, appropriate one and the solutions need to involve partnerships among scientists from a broad range of discipline.

Life Cycle Thinking

Life Cycle Thinking (LCT) is a holistic approach for ensuring the transition towards more sustainable production and consumption patterns (Nazir 2017). In each life cycle stage, there is the potential to reduce resource consumption and improve the performance of products. A product life cycle begins with the extraction of raw materials from natural resources and continues with production, packaging, distribution, use, maintenance and eventually recycling, reuse, recovery or final disposal (UNEP/SETAC – Life Cycle Initiative 2012). Life cycle thinking means we recognise how our choices influence what happens at each of these points so we can balance trade-offs and positively impact the economy, the environment and society. A life cycle approach is a way of thinking which helps us recognise how our selections – such as buying a product – are one part of a whole system of events. Life cycle thinking helps us avoid short term decisions that lead to environmental degradation. A life cycle approach identifies both opportunities and risks of a product or technology, all the way from raw materials to disposal. This helps to improve entire systems, not single parts of systems, by avoiding decisions that fix one environmental problem but cause another unexpected or costly environmental problem (like mitigating air pollution, yet increasing water pollution). It means we look for unintentional impacts of our actions (such as damaging a natural ecosystem or inadvertently supporting unfair labour conditions and wages) and take some action

to prevent those impacts. The main goals of LCT are to reduce a product's resource use of and emissions to the environment as well as improve its socio-economic performance through its life cycle. Life Cycle Thinking (LCT) is about going beyond the traditional focus on production site and manufacturing processes to include environmental, social and economic impacts of a product over its entire life cycle (UNEP 2004). Life cycle thinking helps in this way avoid shifting problems from one life cycle stage to another, from one geographic region to another and from one environmental medium (air, water or soil) to another. This enables product designers, service providers, government agents and individuals to make choices for the longer term and with the consideration of all environmental media (i.e. air, water, land). This is to make sure that reducing the environmental impact at one stage in the life cycle does not increase the impact at other places in the cycle. Increasing awareness of the Life Cycle Analysis technique would allow companies as well as individuals to consider multiple options for a new product. Many businesses do not always consider their supply chains, or the "end-of-life" processes associated with their products. After consideration of all available options, life cycle thinking would encourage selection of the most sustainable option. Since the decisions of global businesses and government organisations have such a large impact on the environment, incorporating life cycle thinking into their actions could greatly reduce negative environmental effects and improve sustainability. Life cycle thinking blends two aspects: time span and real sources of impact. This is why it brings to choices that generate economic value over a long period, taking into account the natural environment and social aspects at the same time (Balkau–Sonnemann 2017). Looking at the bigger picture: businesses do not always consider their supply chains, or the 'use' and 'end-of-life' processes associated with their products. Government actions often focus on a specific country or region, and not on the impacts or benefits that can occur in other regions or that are attributable to their own levels of consumption. Taking a life cycle perspective requires a policy developer, environmental manager or product designer to look beyond their own knowledge and in-house data. It requires cooperation up and down the supply chain. At the same time, it also provides an opportunity to use the knowledge that has been gathered to gain significant economic advantages. In order to put in practice LCT, many different, qualitative and quantitative tools have been developed; the most significant tool for LCT is life cycle assessment (LCA).

Life Cycle Assessment in the context of materials

Life Cycle Assessment (Horne et al. 2009) is a useful technique employed to quantify the environmental impact of products or processes during their entire life cycle. To make strategic (industrial, productive, political) choices, in fact, it is necessary to set up an objective standardised method for the assessment and quantification of energy loads and environmental impacts associated with a product/process/activity throughout the entire life cycle, i.e. *from the cradle to the tomb.* This evaluation method examines the processes in the entire product life cycle, including all stages of raw material extrac-

tion and processing, product manufacturing, transportation and sales, product use, reuse and maintenance, waste recycling and final waste disposal: for each stage, an inventory of the energy and material consumption and of any emissions to the environment is made. This technique allows to identify criticisms, i.e. components/processes where improvements can be made for the environment, and to compare alternative products/processes in order to choose the one characterised by a lower environmental impact, or to make comparisons between conventional and innovative scenarios.

The ISO 14040 (ISO 14040) series standard defines an LCA procedure including four phases, i.e. the definition of the objective and field of application (the system and its "boundaries", these choices having a great relevance on the whole analysis); the inventory analysis, with a collection of inputs (materials, energy, natural resources) and outputs (emissions into air, water, soil) related to the system under analysis; the assessment of the impacts, assigning them a value and classifying them according to different environmental impact indicators (energy and resource consumption, greenhouse effects, toxicity, etc.); the interpretation and analysis of the results. The LCA analysis has an iterative character, since, through a careful analysis and interpretation of the results, it is possible to intervene in one of the phases to improve the reliability of results and/or to modify the choices made in defining the objectives and boundaries of the system.

In the field of materials manufacturing and production, the results of LCA analysis are effectively used to support and guide the choices related to the design of materials and their transformation processes to minimise the overall environmental impact (Horne et al. 2009). Furthermore, LCA may bring also economic advantages, since, starting from its results, it is possible to identify strategies for a reduction of the materials and/or the consumption of energy. The experience proposed in this course will illustrate how to apply LCA techniques for the identification of the best choice, in terms of type of material (polymeric, glass, ceramic, etc.), to manufacture objects of common use (for instance: cups, plates, food pans, etc.). The comparison of the overall environmental impacts involved in the use of the different materials for the same common application will allow to identify the best solution, i.e. the material offering the lowest environmental impact.

Environmental Impact Assessment: Sustainability of land use

The environmental question is increasingly central in society and in the world political debate (Helming et al. 2008). One of the most important consequences is the United Nations 2030 Agenda for Sustainable Development, to which 193 countries have signed up; it clearly defines the requirements for the immediate future. Science has also been mobilised for some time, indeed it is the architect of these needs for change, for its action of knowledge and reporting of problems.

Now it is up to the technique which must know how to build practices, translating socio-political issues into concrete and practicable facts. The key is the analysis and understanding of the environmental effects of land use, their interaction, which is always specific. The impact is generated by the environmental and anthropogenic load

characteristics that occur from time to time. The relativity of the operational concept of sustainability, which is the crucial concept, is clear.

Land use and its management and governance are essential. It is worth considering them because the sustainability objectives of the 2030 Agenda come from territorial assets. Environmental and landscape degradation arises from unsustainable land use. From this consideration it is necessary to start to solve the problems from the beginning, in the most efficient and economical way. The first step is knowledge. It is necessary to understand the problems of the physical environment (air, soil and water) by investigating their fundamental characteristics, in terms of intrinsic vulnerability factors, and compare them with the load generated by land use. This interaction determines the environmental impacts, the key to sustainability.

The problem is the interaction between the action and its context. Action is sustainable if the context is able to receive it without being irreversibly altered. This is the concept of "carrying capacity", conjugated by Rees and Wackernagel (2008) in their definition of ecological footprint, where human action is the "load" and intrinsic vulnerability is the carrying capacity of the system.

The two environmental economists (Rees–Wackernagel 2008) arrive at the calculation of the global footprint, estimating the only action because the resistant element is the entire earth system. To meet the UN 2030 Agenda, the concept of ecological footprint must be transferred to the environmental sector scale. The ecological footprint is determined not only by the "weight" (external load) but also by the resistance of the recipient (ecosystem). At the same weight, the footprints can be very different depending on the specific characteristics of the environment on which they are imprinted.

Corporate Social Sustainability

In the last few years, many companies (Energy, Utilities and Mining, Financial Services, Industrial Products, Retail and Consumer, Technology, Media and Telecom, Transport and Logistics) started to integrate sustainable and ethical principles in their business models (PwC 2018). The increasing attention paid by companies to these practices was driven by several factors such as stakeholder pressures, mimetic isomorphism, and regulation (Gatti et al. 2019). In this sense, the scientific debate on Corporate Social Responsibility (CSR) has been characterised by evolutionary pathways related to the new trends (Carroll 2021. This paradigm shift was supported by the contribution provided by the Multinational Enterprises (MNEs), which represent companies traditionally interested to engage with stakeholders (Pizzi et al. 2020; Topple et al. 2017).

Evaluating the contribution provided by companies to sustainable development represents a complex task for academics and practitioners (Bebbington–Unerman 2020; Jennings–Hoffman 2019). In fact, despite the existence of direct and indirect impacts related to the anthropic activities conducted by companies, the evaluation of their contribution is limited by the lack of transparency about their ESG performance (Environmental, Social, Governance) (Bebbington et al. 2020). This criticism is more relevant for the Small

and Medium Enterprises due to their opacity (Perrini et al. 2007). Indeed, despite the fact that an increasing number of large companies and MNEs started to adopt non-financial reports on voluntary or mandatory basis (Jackson et al. 2020; KPMG 2020), only a few numbers of SMEs disclosed their non-financial information (European Commission 2020b).

Building on preliminary evidence, below we assess the potential contribution provided by SMEs to sustainable development through an assessment of their "material" topics. The materiality matrix published by the SMEs listed in the official Global Reporting Initiative is analysed to identify the main strengths and opportunities related to the disclosure of non-financial information. The insights support the conceptualisation of a theoretical framework useful for academics, practitioners and policy makers. Furthermore, the students can develop new knowledge about innovative reporting tools such as sustainability reports, integrated reports and combined reports.

The sustainable development of lakes: The management of the Lake Chad Basin as an example of peace and stability

Lake Chad in the Sahel region is an oasis that includes regions from Chad, Cameroon, Niger and Nigeria. The lake's water originates from the Central African Republic, Nigeria and Cameroon. Compared to its 1960s size, when it was at its highest level, the lake has shrunk 90 percent (Okpara et al. 2015). The size of the lake is constantly changing following the weather conditions, rainfall and irrigation practices (Zhu et al. 2019; Vivekananda et al. 2019). This development causes increased instability and uncertainty for those people who depend on the lake's resources. Further, violence, conflict and unstable governance have contributed to humanitarian crises. Of approximately 17.4 million people living in the conflict areas of Lake Chad, almost ten million need humanitarian assistance (USAID 2019).

In many countries and regions, water and land scarcity, food insecurity and migration are having a devastating impact (IPCC 2018; 2021). These aspects make populations more vulnerable to climate change and more prone to recruitment into violent groups and militias, either for economic reasons or as a response to anger and political dissatisfaction (Charalampopoulos 2020). Climate change is not a direct consequence of violence and political conflict but can create contexts conducive to their occurrence (Nett–Rüttinger 2016). Moreover, the scarcer the resources, the greater the power held by those who control them, who can use this power as a weapon of war and political pressure (Nett–Rüttinger 2016).

In 2009, Boko Haram started to have a significant presence in the region. It was the time when the group was understood as a security problem for the region. As a response to the threat, the "Lake Chad Basin Commission", which is responsible for the rational management of the lake, with the support of the African Union, decided in 2012 to broaden the mandate of the Multi-National Joint Task Force to fight Boko Haram. This reaction constituted a multinational formation with a regional, not a single-state, mandate (Coning–Krampe 2020). Over the time, it was more understood by the states of Lake

Chad, the African Union and other partners, such as the European Union and the United Nations, that the difficulties concerning the environmental and social construction of the region needed a wide-ranging strategy linking economic, social, environmental and other security issues.

Cooperation was the most important element for the success of the initiative. This cooperation included all the levels of political and social organisations. It combined the engagement of local communities and civil society, of the local governments via the "Governor's Forum", of the Lake Chad Basin regional states, of the African Union, of the United Nations and of other international partners.

The spirit of these initiatives, for the protection and development of the Lake Chad Basin, constitutes an example of how mechanisms can be developed to coordinate local regional and international frameworks. This strategy constitutes an example of a multi-dimensional approach recognising the whole spectrum of difficulties that are necessary to be solved to promote peace and stability in a new era where security among people, security among states and stability of the environment play a crucial role.

Linguistic sustainability and linguistic resilience

The concept of 'Sustainability' can also be applied to linguistic reality by referring to the struggle for the preservation of linguistic diversity and the maintenance of the identities of the minority communities (Bastardas-Boada 2004). The increase in contact among people and languages, the reduction of the traditional isolation that favoured the linguistic diversity in specific areas, the expansion of the dominant languages are processes that have affected the maintenance and development of the cultural and linguistic diversity. The aim of linguistic sustainability is therefore to struggle the "glottophagic" expansion of the dominant languages and to recognise the equal dignity and value of all linguistic groups. Linguistic Resilience blends ecolinguistics and ecological resilience thinking: it seeks to understand and investigate the many factors underlying choices concerning language use. Unlike ecolinguistics, but like resilience thinking, it also seeks to restore equilibrium and promote the reclamation of languages (Bradley 2010).

Many languages, mainly minority ones, face the risk of extinction. The reasons are various, such as globalisation, uniformisation, etc. Along with the language, the ancient customs and traditional knowledge are also endangered. For this reason, special policies should be considered that help preserve this heritage, such as: finding financial resources to document these languages, documenting and distributing traditional oral literature or other traditional knowledge, textbook materials, etc. In this way, many endangered language communities could face language globalisation, which remains a constant threat, especially to minority languages. A resilience approach may help a community to move towards a reorganisation phase which does not lead to the disappearance of the language, or to avoid the release phase altogether, maintaining their traditional language and culture alongside dominant languages within larger political entities.

Linguistic landscape

Language surrounds us in forms of texts, signs and symbols. The visual and material representation of languages in the public, the so-called "linguistic landscape" (LL), has become an object of interesting linguistic and sociological studies during the last two decades. Jan Blommaert (2016) claims that linguistic landscapes mirror the language situation of a certain area, involving questions of multilingualism, dominance of languages and language policies. The signs convey not only linguistic but sociocultural meanings, which connect a sign to a particular sociocultural context and history. The deeper layers of meaning can explain the public (or "top-down") and private (or "bottom-up") signs, which reflect the diversity of languages, and the power relations between speakers of minority and majority languages. Official signs reinforce existing power relations, while non-official signs index the presence of minority languages and may lead to linguistic resilience. The linguistic signs of a city or school lead us to cityscapes and schoolscapes, while commercial signs can build up the servicescape of businesses. New trends study the smellscape, soundscape or the publicly accessible online worlds as part of the LL.

Figure 1: Hungarian and English texts displayed in a Hungarian-language school in Romania
Source: Authors' photograph

Some examples may be useful for explaining how LL can be analysed in their contexts. The German–Italian signage in the Italian province South Tyrol (Bolzano/Bozen) with a mostly German-speaking population can be interpreted as a reference both to the local, strictly bilingual language policy and to the "German" identity of the inhabitants and their linguistic vitality (Dal Negro 2009). As for endangered minority languages, the presence in public written texts may increase their prestige and may be helpful for creating a local self-identity of the speakers (Gorter et al. 2012). This could be the case of Albanian (Arberesh) in Southern Italy, which is spoken in numerous smaller villages in Apulia, Calabria and Sicily where it has become a part of the cultural heritage, together with religious traditions and folklore.

Figure 2: German–Italian signs in South Tyrol
Source: Authors' photograph

Figure 3: An Italian–Albanian–English sign in Southern Italy
Source: Authors' photograph

Figure 4: A bilingual (Romanian–Hungarian) sign at a vaccination centre in a mostly Hungarian-speaking county in Romania
Source: Authors' photograph

Conclusions

People and the planet are at the heart of the 2030 Agenda goals. The Sustainable Development Goals emphasise the need for a change of course in individual and collective behaviour. The UN report *Global Resources Outlook 2019* (IRP 2019), written by the International Resource Panel, highlights that increased material extraction is the main culprit for climate change and stress on biodiversity.

In line with the goals of the 2030 Agenda, the European Union with its *European Green Deal* action plan aims to promote the efficient use of resources, exploiting the circular economy system to reduce pollution and restore biodiversity. The goal of the *European Green Deal* is to transform the EU into a modern, resource-efficient and competitive economy.

The *Global Resources Outlook 2019* shows that the efficient use of resources is crucial but not sufficient. The need is to move from linear to circular flow: extended life cycles, smart product design, reuse and recycling. A rational use of resources and consumption, and sustainable production are key factors.

We need to look to the future by harmonising economic growth, social inclusion and environmental protection. It is a great challenge that no one can escape because an irreversible environmental disaster is still avoidable.

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Szabolcs Szilveszter

Climate Security

Climate change has negative impacts on the political, economic and demographic structures of society. The aim of this chapter is to present the major aspects of climate security and the causes, providing brief descriptions of the facts that led policy makers to implement related legislative acts. The EU is the world leader in climate change mitigation yet still has to account with unmet challenges. The first part of the chapter presents the basics of environmental pollution, causes, effects, mitigation possibilities from a technological point of view, and the second part focusses on legislative mitigation acts on EU level. Climate security principles cover different aspects that could prepare governments for climate induced geopolitical instability. Different legislative acts and amendments supporting the European Green Deal key targets will secure the EU's position in leading climate security. The EU's climate security principles through hard and soft governance will eventually have positive impacts by ensuring durable jobs, energy security, resilience and prospering economy for regional and local authorities through technological innovations.

Keywords: environmental pollution, climate change, climate security, mitigation, technologies, pollutants, European Union

Acronyms

BRICS	acronym for the economic bloc of countries consisting of Brazil, Russia, India, China and South Africa
CFCs	Chlorofluorocarbons
CH4	methane
CO_2	carbon dioxide
CO^2eq	carbon dioxide equivalent
COM	Communication from the Commission to the European Parliament;
DDT	Dichlorodiphenyltrichloroethane
EEA	European Environmental Agency
EU	European Union
G7	Group 7, an inter-governmental political forum of Canada, France, Germany, Italy, Japan, United Kingdom, United States;
GDP	gross domestic products
GHG	greenhouse gas
HCB	hexachlorobenzene
HFCs	hydrofluorocarbons
IPCC	Intergovernmental Panel on Climate Change
NOx	Nitrogen oxides
O3	Ground Level Ozone
SOx	sulphur oxides
PAHs	polycyclic aromatic hydrocarbons
PM	Particulate Matter

PCB's	Polychlorinated Biphenyls
PFCs	perfluorocarbons
SF6	sulphur hexafluoride
UNDP	United Nation Development Program
UNFCC	United Nations Framework Convention on Climate Change
TPES	total primary energy supply
WHO	World Health Organization
YLL	years of life lost

Introduction

Climate change has a multidimensional negative impact on national and international levels through social, political and economic factors. McDonald (2018) indicated that climate change is increasingly thought of as a security issue, "there is nothing inevitable about approaching climate change, or contestation over approaches to climate change, through the lens of security". Anthropogenic interference in the natural environment resulted in major problems on land, water pollution, climate change, i.e. global warming and biodiversity loss. It causes major disturbance on human agglomerations directly and indirectly where the root of the problem can be identified.

The understanding of the severe impact of climate change on natural and human systems as well as the risks and associated vulnerabilities is an important starting point in comprehending the current state of climate emergency (Fawzy et al. 2020).

Background

Climate security has evolved to a global concern due to climate change and is related to energy, economy, environment and technology. Globally, all countries have to take short term measures based on their greenhouse gas (GHG) contribution (weighted measures) but universal policies, legislative acts have to be implemented to provide transparency and to control global greenhouse gas emissions efficiently, to prevent a 2 ^{o}C increase of global temperature compared to pre-industrial values. According to Zehng et al. (2019), on a short run "it is necessary to identify the paths for GHG emission management in the major emitting countries, which are subjected to the international commitments and national policies. The Group 7 (G7) and BRICS countries account for more than 60% of the world GHG emissions excluding Land Use".

In order to implement efficient climate mitigation measures, decision-makers have to understand the complex issue of environmental pollution causing man induced climate change and foresee the socio-economic factors that will be affected.

Environmental pollution

Pollution has direct impacts on air, water and soil changing the natural state of the medium, causing negative effects on human health and nature (EEA 2020c). Environmental pollution emerged as a global problem influencing every nook and corner of the earth, flora and fauna living at poles or deep under the sea. Places not even inhabited by humans are also impacted by the effects of pollution (Arora et al. 2018). According to Landrigan et al. (2017) around one and a half million chemicals and pesticides have been synthesised since 1950 and only a few of them were assessed for toxicity (e.g. PCB's, DDT, CFCs). Energy demand, still provided for mostly using non-renewable resources is one of the major reasons of anthropogenic air pollution, contributing to human induced climate change, however, there are natural emissions (e.g. volcanic eruptions) causing pollutant emissions, too. Increasing industrialisation, urbanisation, deforestation, intense agriculture, solid waste generation and other unsustainable practices cause climate change to happen at a very fast pace. Yeu and Gao (2018) concluded in their study that global greenhouse gas emissions from natural systems are controlled by the earth's natural balancing but human activity, e.g. GHGs emissions add extra pressure to nature's sensitive balancing capacity. European Environmental Agency (EEA) Executive Director Hans Bruyninckx stated in the recently published report *The European Environment – State and Outlook 2020* that Europe now faces environmental challenges of unprecedented scale and urgency. Urgent actions have to be taken in the next 10 years to protect the environment, the climate and people (EEA 2020c).

Water pollution

Rivers and groundwater give 88% of freshwater need in the EU, 10% is from reservoirs and 2% from lakes, which makes these sources extremely vulnerable to threats posed by over-exploitation, pollution and climate change. The majority of these can be attributed to agricultural activities (EEA 2020a). The main sources of water pollutants can be accredited to untreated wastewater discharge, runoff contaminated by agriculture, heavy metals form various industries and microplastics. Therefore, 75–96% of European seas have contamination problems, 66% of surface waters have low ecological status and 25% of groundwater resources are heavily polluted (EEA 2020a).

Soil pollution

Agricultural activities have multidimensional impact on the environment causing indirect and direct pollution and negative effects such as greenhouse gas emissions, pesticides, antibiotics, soil compactation, excessive water use, nitrogen, phosphorus and ammonia emissions. Other important activities causing soil degradation or pollution are deforestation, mining activities, municipal solid waste landfilling (SOER 2020a).

Air pollution

Air pollution is the most concerning and greatest environmental health hazard globally. In the European Union almost all urban agglomerations and cities exceed air pollution standard levels set by the World Health Organization (WHO). The major anthropogenic pollutants and their effects on human health and the environment are listed in Table 1.

Table 1: Major air pollutants, their source, formation and effects

	Source, formation	Effects
Particulate Matter (PM)	Dust from roads and black and/or elemental carbon from combustion sources	Cardiovascular, lung disease, cancer
Ground Level Ozone (O3)	Pollutants emitted by cars, power plants, industrial boilers, refineries, chemical plants, and other sources chemically react in the presence of sunlight	Human health, vegetation and materials
Nitrogen oxides (NOx) and sulphur oxides (SOx)	Fuel combustion, such as from power plants and other industrial facilities	Acidification and eutrophication of waters and soils, airway inflammation and reduced lung function
Organic pollutants (hexachlorobenzene (HCB), polychlorinated biphenyls (PCBs) and polycyclic aromatic hydrocarbons (PAHs)	Fuel and waste combustion, industrial processes and solvent use	Range of harmful effects on human health and ecosystems
Heavy metals (Pb, Hg)	Combustion processes and industrial activities	Toxic to ecosystems having bioaccumulation characteristic
Ammonia (NH3)	Mainly from agriculture and contributes to both eutrophication and acidification of waters and soils	Eutrophication and acidification of waters and soils

Source: U.S. EPA 2021a; 2021b; SOER 2020b

A recent study entitled *The State of European Environment. On Air Pollution* lists some interesting facts on European air pollution (SOER 2020b):

- air pollution is the largest environmental risk to the health of Europeans
- 54% of premature deaths from PM 2.5 in Europe could be avoided by 2030 if current policies are implemented fully
- 400,000 premature deaths per year in Europe are attributable to exposure to PM 2.5 (Figure 1)
- 95% of the EU urban population remain exposed to pollutant concentrations above WHO air quality guidelines
- while sulphur dioxide emissions declined by 62% since 2000, ammonia emissions decreased by only 4% in the EEA member countries
- reducing greenhouse gas emissions, as well as fuel and energy use, not only benefits energy efficiency and climate change but also improves air quality

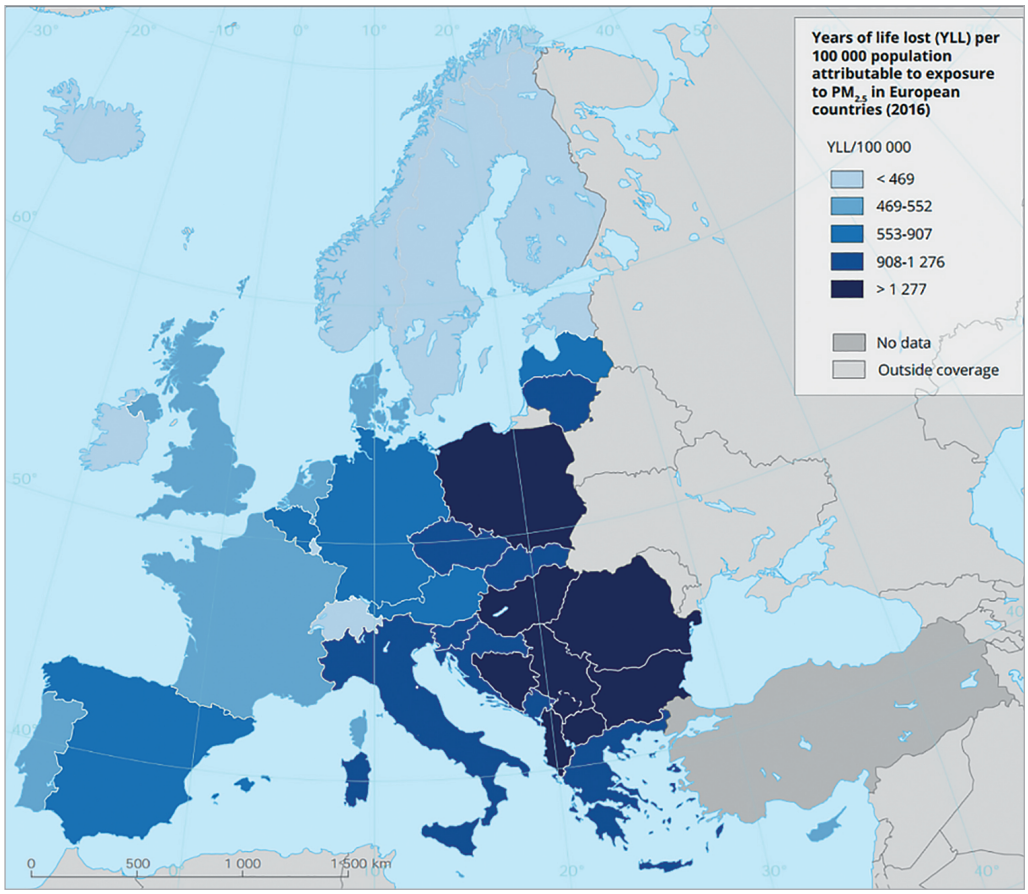

Figure 1: The impact of PM 2.5 pollution on estimated years of life lost (YLL) per 100,000 population
Source: EEA 2019

The classification of YLL (years of life lost) values in the map in Figure 2 is in 5-quantiles, so one fifth of countries fall in each class. The calculations are made for all of Europe and they may differ for specific studies at country level (EEA 2019).

Greenhouse gas emissions by anthropogenic pollution

Greenhouse gases (GHGs) are types of compounds that contribute to the natural greenhouse effect. The Kyoto Protocol identified six types of greenhouse gases that are emitted into the atmosphere by human activities. The aforementioned three types of pollution classes (water, air and soil) have significant impact on GHG emissions, Table 2 lists the major GHG types and emission sources and Figure 2 presents the emission chronology in CO_2 equivalent values (giga tonnes of CO_2) between 1990 and 2018 by different sectors.

Table 2: The most important greenhouse gas types and their sources

Name	Source of emission
Carbon dioxide (CO_2)	Fossil fuel use Deforestation Land clearing for agriculture Degradation of soils
Methane (CH4)	Agriculture Waste management Energy use Biomass burning
Nitrous oxide (N2O)	Agricultural activities Fossil fuel combustion
Fluorinated gases: hydrofluorocarbons (HFCs) perfluorocarbons (PFCs) sulphur hexafluoride (SF6)	 Industrial processes Refrigeration

Source: EEA 2020b; U.S. EPA 2020

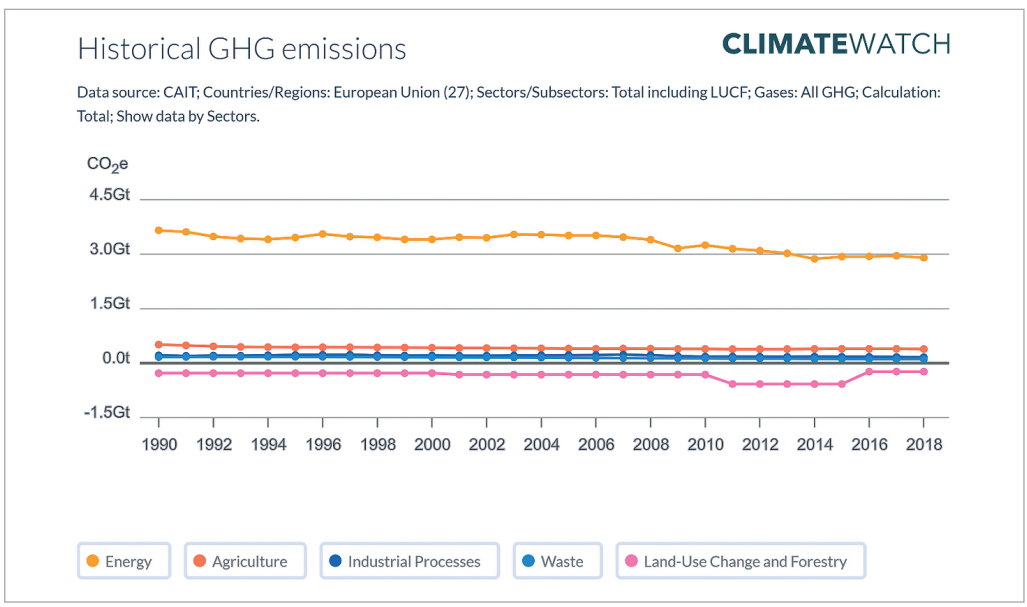

Figure 2: The EU's historical emissions of GHGs by different sectors ranging from 1990 to 2018
Source: World Resources Institute s. a.

Climate change global and European perspective

Global Climate actions started from acknowledging the harsh reality at the first world climate conference in Geneva (1979) and the following conventions and actions increased the awareness and real issues on climate change and mitigation challenges. Figure 3 presents the most important milestones chronologically.

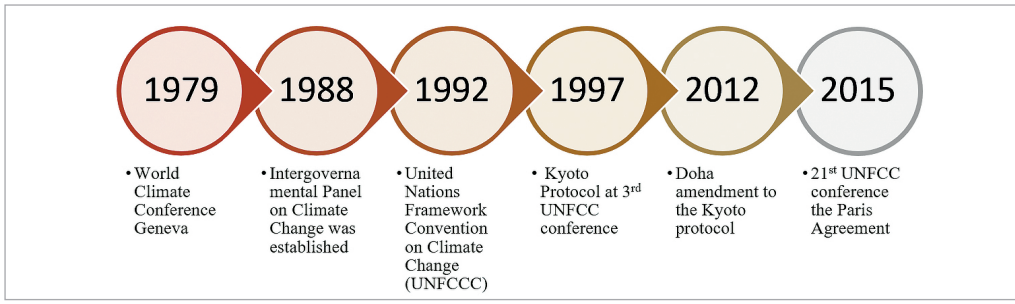

Figure 3: Chronological order of Global climate actions
Source: Data from Fawzy et al. 2020

The EU "is a world leader in climate change mitigation efforts" and has already drafted and introduced various GHG emission reduction policies. Yet, additional steps are needed in order to meet the EU targets for 2030 and 2050 (Zheng et al. 2019). Table 3 presents different environmental indicator values for the years 1990 and 2014. It is worth drawing attention to the fact that there are several positive changes between the values, especially in the case of the EU's indicators. Some of the values indicate a decreasing tendency, reflecting efficient climate change policy implementation; some of them show an increasing tendency implying indifferences of the countries as regards climate change mitigation policy implementation.

Table 3: GHG emission and other climate change related indicators for the EU and different important countries which have significant contribution

Indicators	Units	EU	US	BRA	CHN	RUS
			1990			
GHG emissions	Mt CO_2 eq.	4453	4803.40	184.90	2077.40	2163.50
Carbon intensity of TPES	Kg CO_2 eq./ toe	2.66	1.31	2.38	1.74	2.68
Carbon intensity of GDP	Ton CO_2 eq./ USD 2010	0.50	0.53	0.12	1.24	0.80
GHG per capita	CO_2 eq./cap	9.53	19.20	1.23	1.83	14.59
			2014			
GHG emissions	Mt CO_2 eq.	3606.30 (–19% decrease)	5168.30 (+7.5% increase)	473.90 (+156% increase)	9031.50 (+334.7% increase)	1487.10 (–31.3 decrease)
Carbon intensity of TPES	Kg CO_2 eq./ toe	2.19 (–17.7% decrease)	2.30 (+75.5% increase)	1.57 (–33% decrease)	3.06 (+75.8% increase)	2.05 (–23.5 decrease)
Carbon intensity of GDP	Ton CO_2 eq./ USD 2010	0.27 (–46% decrease)	0.32 (–40% decrease)	0.15 (+25% increase)	0.54 (–56.46 decrease)	0.46 (–42.5 decrease)
GHG emission per capita	CO_2 eq./cap	7.11(–25.4% decrease)	16.19 (–15.7% decrease)	2.30 (+87% decrease)	6.62 (+261.7 increase)	10.34 (–29.2 decrease)

Abbreviations: GHG – greenhouse gas emissions; CO_2eq – carbon dioxide equivalent; GDP – gross domestic product; TPES – total primary energy supply.

Source: World Resources Institute s. a.; Zheng et al. 2019

The EU's indicators have lower values related to the initial ones: GHG emission have dropped by 19% and other factors have decreased, too. Other major players indicate increase, minor one in the case of the U.S. (7.5%) and significant ones in case of Brazil (156%) and China (334%).

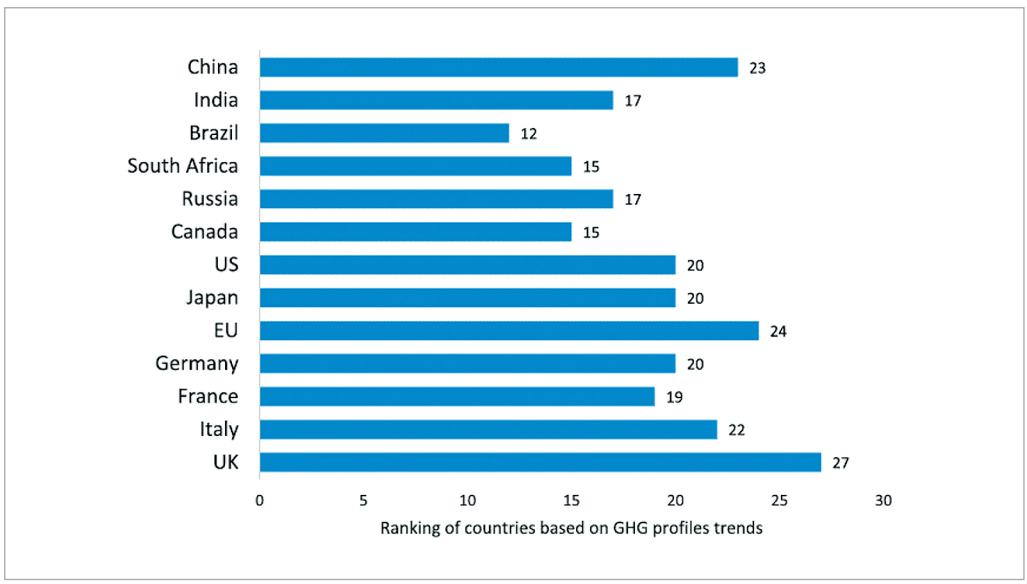

Figure 4: Ranking of countries based on GHG profiles trends
Source: World Resources Institute s. a.

Technologies to mitigate climate change

"Climate technology" is defined as "any piece of equipment, technique, practical knowledge or skills for performing a particular activity that can be used to face climate change" (IPCC 2000). Climate change mitigation has to be accomplished by supporting economic growth in a sustainable way through technological innovation and/or supporting greener technologies already in use. Fawzy (et al. 2020) presented three main mitigation approaches in their comprehensive study on climate change mitigation strategies. The first two categories present decarbonisation technologies and the third one presents a temperature stabilisation approach. The first one contains up-to-date well established decarbonisation technologies and techniques, the second one consists of a recently proposed set of technologies and methods for atmospheric decarbonisation, and the third one includes technologies for temperature stabilisation or reduction (Table 4).

Table 4: List of climate technology categories and their brief description

1st Category – Conventional mitigation technologies	
Renewable energy	Photovoltaic solar power, concentrated solar power, solar thermal power for heating and cooling applications, onshore and offshore wind power, hydropower, marine power, geothermal power, biomass power and biofuels
Nuclear power	Conventional and enhanced fusion based nuclear technology
Fuel switching	Switch from coal to gas power, renewable fuels use of efficiency grans
Carbon capture and storage	Separating and capturing CO_2 gases from processes that rely on fossil fuels such as coal, oil or gas; once CO_2 has been successfully captured, it is liquefied and transported through pipelines or ships to suitable storage sites (depleted oil, gas fields, underground saline aquifers, etc.)
2nd Category – Negative emission technologies	
Bioenergy carbon capture and storage	Biomass biologically captures atmospheric CO_2 through photosynthesis during growth, which is then utilised for energy production through combustion; the CO_2 emissions realised upon combustion are then captured and stored in suitable geological reservoirs
Afforestation and reforestation	Establishing new forests or re-establishing previous forest areas
Biochar	Produced via a thermochemical conversion process from biomass and the CO_2 taken up by the plant is stored in soil, i.e. carbon is captured and permanently stored
Soil carbon sequestration	Organic carbon accumulation within soils through cropping system intensity and rotation practices, zero-tillage and conservation tillage practices, nutrient management, mulching and use of crop residues and manure, incorporation of biochar
Direct air carbon capture and storage	Chemical bonding to remove atmospheric CO_2 directly from the air and then store it in geological reservoirs
Ocean fertilisation	Adding micro and micro nutrients (phosphorus, nitrates, iron) to the upper surface of the ocean to enhance CO_2 uptake by promoting biological activity
Wetland restoration and construction	High carbon density ecosystems that facilitate atmospheric carbon sequestration through photosynthesis and subsequent storage in above-ground and below-ground biomass as well as soil organic matter
Mineral carbonation	CO_2 is chemically reacted with minerals to form stable carbonates that can be safely stored below-ground or utilised in other applications
3rd Category – Radiative forcing geoengineering technologies for temperature stabilisation and reduction	
Stratospheric aerosol injection	Artificially injecting reflecting aerosol particles in the stratosphere
Marine sky brightening	Cloud albedo enhancement by cloud seeding with seawater particles or with chemicals
Space-based mirrors	Space mirrors or reflectors need to be transported into orbit around the earth still under development
Surface-based brightening	Brightening of the earth surface to increase the earth's albedo and thus reduce global temperatures, painting urban roofs and roads in white, covering deserts and glaciers with reflecting plastic sheets, under development

Source: Fawzy et al. 2020

Climate security

Environmental security discussions, due to their multidimensional factors affecting climate change, transpose to climate security discussions as the focus is shifted to global aspects which can directly be related to local ones. According to Dalby (2012), the new form of life on the planet, called "'industrial humanity' has taken the future of the planet into its hands, even if it is only now beginning to realize that this is what is happening". Ecological[1] security is a fundamental multidimensional biosphere security perspective. Xiao and Chen (2002) defined ecological security as mankind's effort to diminish and minimise ecological instability, environmental pollution yield, improving living and health, including the basic elements of water and food security, air quality and green environment (Xiao–Chen 2002). A key to ecological security is obviously to keep the planet's temperature close to what civilisation has so far known through applying climate security strategies (Dalby 2012), i.e. climate security is the prerequisite of achieving ecological security.

The United Nations Development Program proposes a multi-dimensional approach to climate security, which includes the following factors that have to be taken into account by countries (UNDP 2030 Agenda):

- recognition of the importance of effective, accountable central and local governance
- equitable management of natural resources
- importance of ecosystem services
- climate resilient alternative livelihoods
- resilience-building of individuals
- efficient cooperation between communities and institutions
- peaceful and safe management of migration and displacement

Climate security – The EU's perspective

The EU, as others, has to be prepared for climate-induced geopolitical instability by creating different strategies supporting climate security on energy, environment and geopolitical level. Youngs (2014) highlighted that the EU should implement a clear and systematic approach to the geoeconomics of climate change. In order to achieve this, the EU should elaborate a strategy that can respond to new challenges and form the basis of efficient climate security measures. The EU "has to ensure that its internal energy policies are consistent with its external geostrategic aims". More climate specificity should be involved in its conflict-prevention initiatives and, in addition, "European militaries must become more involved in the climate security agenda to prepare for its broader geopolitical consequences, although the securitization of climate change should not entail a narrow militarization" (Youngs 2014).

[1] Principles of Ecological security help to preserve the functionality of ecosystems but first climate change mitigation efforts i.e. Climate Security principles have to be adopted and after other ecosystem protection policies, actions need to be further applied (like ecosystem services, food consumption habits, etc.).

Youngs (2014) listed the unmet challenges of climate security policies in the EU:

- "Address climate challenges through cooperation: European states should avoid the temptation to prioritize self-preservation in the face of scarce resources and, instead, strengthen their commitment to cooperation-based, collective security.
- Integrate climate concerns into conflict prevention: The EU should incorporate climate-related factors into initiatives designed to predict and prevent conflicts, including by improving governance in resource-stressed states.
- Adopt a forward-looking response to climate migration: Europe needs a strategy to address climate-induced migration that anticipates migratory flows and potential security risks.
- Broaden militaries' engagement with climate security: European militaries must better understand how defence requirements are connected to the effects of climate change and engage with a broader range of climate-related challenges.
- Develop a systematic approach to the geoeconomics of climate change: The EU must balance its commitment to free trade and its desire to access resources and renewables while avoiding mercantilist policies.
- Incorporate climate concerns into foreign policy: The EU should integrate climate security considerations into all aspects of its foreign policies to move beyond the current focus on short-term climate crisis management" (Youngs 2014: 2).

The EU's legislative framework on climate security measures

As part of the European Green Deal, in September 2020, the Commission proposed to "raise the 2030 greenhouse gas emission reduction target, including emissions and removals, to at least 55% compared to 1990.

Key targets for 2030:

- At least 40% cuts in greenhouse gas emissions (from 1990 levels);
- At least 32% share for renewable energy;
- At least 32.5% improvement in energy efficiency" (European Commission 2020b).

To meet the challenges listed by Youngs (2014) and the Green Deal targets, the European Parliament has already adopted different legislative acts and amendments. The following legal acts support the 2030 Framework, which were adopted in 2017–2018 (Oberthür 2019). The European Parliament and the Council of Ministers then amended and adopted these in 2017–2018.

The following six legal acts are form the core of the 2030 Framework:

- Directive (EU) 2018/410 amending Directive 2003/87/EC on the EU emissions trading system (the ETS Directive)
- Regulation (EU) 2018/842 on binding annual GHG emission reductions by member states from 2021 to 2030 contributing to climate action to meet commitments under the Paris Agreement (the Effort-Sharing Regulation)

- Directive (EU) 2018/2001 on the promotion of the use of energy from renewable sources (the RE Directive)
- Directive (EU) 2018/2002 amending Directive 2012/27/EU on energy efficiency (the EE Directive)
- Regulation (EU) 2018/841 on the inclusion of GHG emissions and removals from land use, land use change and forestry in the 2030 climate and energy framework (the LULUCF Regulation)
- Regulation (EU) 2018/1999 on the governance of the Energy Union and climate action (the Governance Regulation)

The "Clean Planet for All" communication of the European Commission sets up a long-term strategic vision for a modern, competitive and climate neutral economy (COM/2018/773). A 40% of reduction in GHG emission together with 32% share of renewable energy (RE) was already stated in 2018/2001 EU directive (Directive EU 2018/2001). The new Green Deal (COM/2019/640) was declared by the new European Commission (2019–2024) to increase the already stated 40% for 2030 to at least 50% and towards 55% compared with the GHG emissions in 1990, and to achieve climate neutrality by 2050 (COM/2020/80). Achievement of the 2030 Framework targets requires accelerated energy efficiency measures, smart grids, electrification of fossil fuel use sectors and implementation of more renewable energy technologies. Plans for future GHG emission cuts align with the vision set out in 2018 in an EC Communication (COM/2018/773 2018: 114). Oberthür (2019) in his detailed study about the EU's climate and energy policy framework for 2030 summarised the stringency of the Green Deal of governance frameworks in a very comprehensive and clear way, which are listed in Table 4.

Table 5: Comparative study of the EU's different climate security based legislative frameworks

Dimension	EU 2030	EU 2020	Paris Agreement
Formal status	high (binding EU legal acts)	high (binding EU legal acts)	high (international treaty)
Nature of obligation	medium–high (substantive and enhanced procedural requirement, incl. binding emission targets)	medium–high (substantive and enhanced procedural requirement, incl. binding targets for emissions and RE)	low (procedural requirements)
Perceptiveness and precision	medium–high (precise obligations with limited ambiguities/ flexibilities)	medium–high (precise obligations with limited ambiguities/ flexibilities)	low–medium (high degree of discretion)
Accountability and implementation	high (reporting, enhanced follow-up by COM, infringements)	high (reporting, enhanced follow-up by COM, infringements)	medium (reporting, expert review, facilitative response measures)

Source: Oberthür 2019

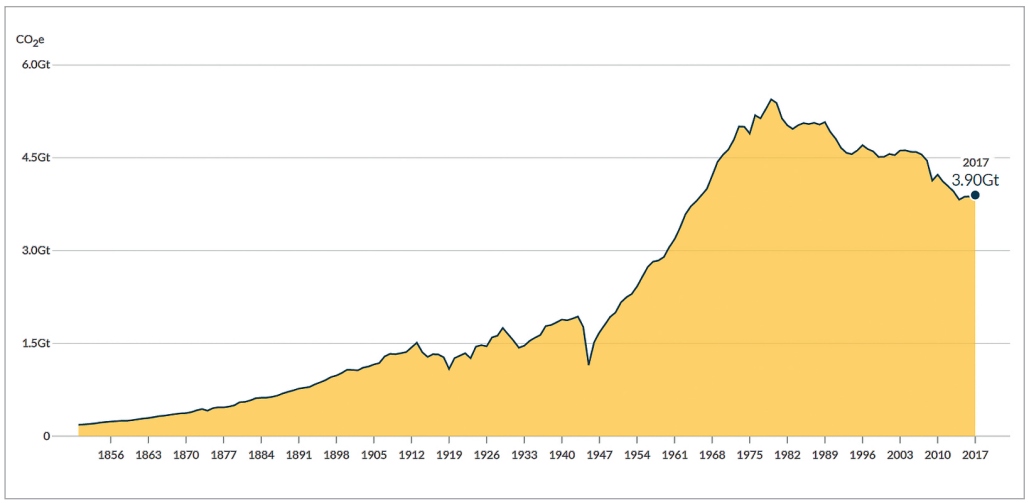

Figure 5: European Union, GHG CO_2e emission values from pre-industrial times till 2017
Source: World Resources Institute s. a.

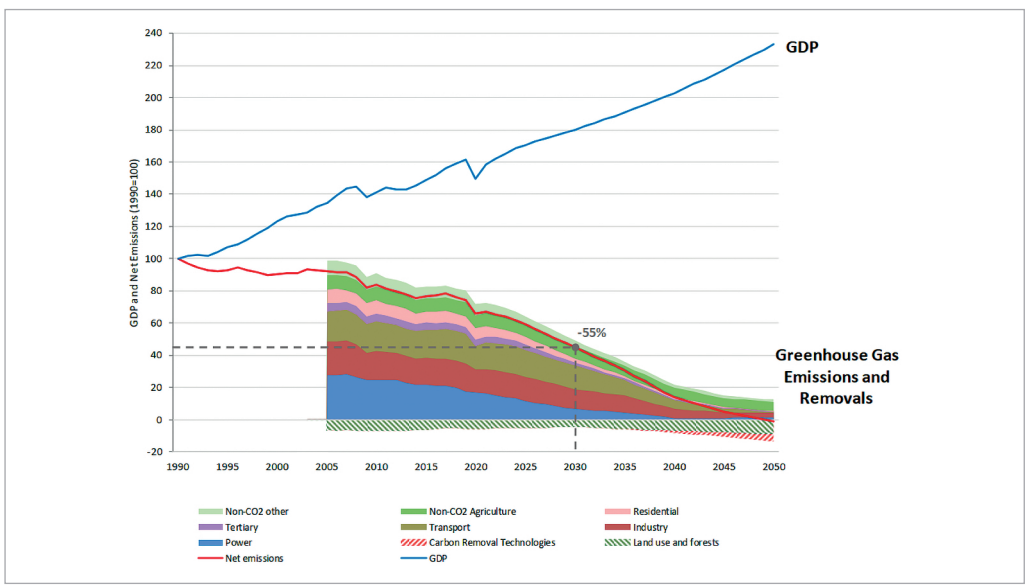

Figure 6: The EU's pathway to sustained economic prosperity and climate neutrality, 1990–2050
Source: European Commission 2020b

Any structural change will pose challenges for the efficient implementation of the different legislative acts, but according to the results of the analyses presented in Figures 5 and 6, the overall economy and EU citizens will benefit from the investment tools used to implement the EU Green Deal. Regional and local authorities can have multiple advantages and benefits, it ensures durable jobs, improves EU energy security, resilience and

independence, and lays down a solid foundation for prospering economy by stimulating technological innovation (European Commission 2020b: 562).

Conclusions

Anthropogenic environmental pollution has resulted in human induced climate change. To mitigate the negative effects of global warming, climate security principles must be implemented in technological, socio-economic growth and legislative areas. Climate security principles are already carried out in different legislative acts of the European Union. The European Green Deal and associated legal acts support climate security on energy, environmental and geopolitical level, therefore, will ensure further the EU's global leading position in mitigation and provides the necessary tools also to deal with climate-induced geopolitical instability. The EU's climate security principles through hard and soft governance will have positive impacts by ensuring durable jobs, energy security, resilience and prospering economy across the EU.

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Ágnes Sántha

Public Health

Since the triumph of medicine over infectious diseases, most causes of death in modern societies are related to lifestyle. There is a substantial social gradient in the state of health of European population. Throughout the continent, men usually die earlier than women. People with low socio-economic status, ethnic minorities and immigrants are at risk of low life expectancy and bad health. The SARS-CoV-2 pandemic amplified existing health disparities.

Health behaviour and environmental risks are primary with respect to disease emergence. The leading causes of death in the European Union are cardiovascular diseases, different types of cancer and respiratory diseases.

The burden of disease could be diminished and healthy life years would increase if the population's health behaviour was improved, literacy and its participation in screening programs enhanced, and vaccine compliance further encouraged.

Keywords: health indicators, healthy life expectancy, causes of death, health behaviour, health literacy, pandemic, vaccine compliance, environmental risks, social inequalities of health

Acronyms

APA	Advance Purchase Agreement
DALY	Disability-Adjusted Life Years
ECDC	European Centre for Disease Control
EMA	European Medicines Agency
EMCDDA	European Monitoring Centre for Drugs and Drug Addiction
ENCR	European Network of Cancer Registries
ESI	Emergency Support Instrument
EWS	EU Early Warning System
HIV	Human Immunodeficiency Virus
ICD	International Classification of Diseases and Related Health Problems
OECD	Organisation for Economic Co-operation and Development
SDR	Standardised Death Rate
YLD	Years Lived with Disability

Introduction

The epidemiological transition of the 20th century brought about the victory of medicine over infectious (communicable) diseases in the most developed countries. The reasons that led to the decrease of communicable diseases were (Barry–Yuill 2016):

- the improvement of living standards and income which went together with better nutrition and housing conditions

- the development of medical technologies, most notably antibiotics and new vaccines
- public health interventions like sanitation, water purification and health education for the population
- parallelly to the withdrawal of communicable diseases, the share of chronic (non-communicable) diseases increased, and today six deaths out of ten originate in chronic conditions in relation to changed lifestyle patterns and to the ageing of the population

Multiple reasons lay behind the increase in the share of non-communicable diseases:

- first and foremost, ageing, which generally implies chronic conditions in the population aged 65 and over, 30% report at least one limitation in activities of daily living, and 40% have at least two chronic conditions
- the changes in nutrition, the harmful effects of urbanisation
- the progress made in the prevention and treatment of infectious diseases that led to the decrease of their share within all illnesses and causes of death
- last but not least, the emergence of precision medicine, which allows for better diagnoses

However, in spite of the triumph of medicine over infectious diseases, already in these first two decades of the 21st century, infectious diseases emerged time after time, and some of them turned into a pandemic, i.e. spread across multiple continents. In the post-medical era, health preservation and disease prevention is the main endeavour of public health.

Background

In the member states of the European Union health is a national responsibility. The EU does not regulate national health policies, but issues recommendations and guidelines to be implemented by national governments. There are, however, institutions in the front line with the mission to create joint platforms for public health issues. The European Medicines Agency (EMA) is in charge of the evaluation and supervision of medicinal products. Eurostat collects data and issues comparative studies on health-related topics, too, and a series of further institutions were established to facilitate joint action for improving population health.

As for pandemic control, the European Union as an entity has a relatively loose structure. Its institutions mostly formulate recommendations and guidelines, and leave it to the member states to act in pandemic management and risk mitigation on national and regional levels. To start with, in 1998 the Early Warning and Response System, a network for the epidemiological surveillance and control of communicable diseases was set up. The main EU structure dealing with pandemic preparedness is the European Centre for Disease Control (ECDC) established in 2005, with its mission of data collection and evaluation, scientific monitoring, information exchange, and the coordination of European

institutions' collaborative efforts in epidemiological surveillance. The ECDC supports the development of national "Pandemic Preparedness Plans" by providing guidance.

Regrettably, though, there is a substantial workforce shortage in healthcare across EU countries. The increasing number of old patients with chronic conditions and/or disability projects and increases a shortfall in health professionals. The reasons are the ageing of the workforce, difficult working conditions, poor lifelong learning, skill mismatches, weak career development and insufficient social recognition. The high rates of burnout in health professionals are mostly due to organisational and infrastructural reasons in the health care system (Michel–Ecarnot 2020). This aspect, too, places a heavy burden on the public health system of the European Union's member states.

Data on the state of health of the population

Morbidity and mortality indicators

Public health operates with a range of indicators, out of which the most common ones will be discussed below. Morbidity refers to the disease state, while mortality refers to death. Both terms have a series of indicators and are commonly used in public health. The statistical office of the European Union, Eurostat provides up-to-date statistical data for the indicators presented below through its webpage: https://ec.europa.eu/eurostat/web/health/data/database.

Disease prevalence

The prevalence of a disease is the proportion of a population who suffer from that disease in a given time period. Methodologically it is challenging to monitor recovery and deaths for infectious diseases; therefore, prevalence is used most commonly for chronic (non-communicable) diseases. Prevalence is being reported either as a percentage relative to a given population or as the number of cases per 100,000 people, and it can be assessed for a certain point in time, for a period (mostly one year) or for a lifetime (Last 2001).

The measure is used for public health service planning, and is complemented by the incidence indicator.

Disease incidence

The incidence of disease is the number of new cases during a specified time period. In case of non-communicable diseases, incidence is mostly calculated for one year, whereas for infectious diseases, even the new cases within one day are relevant for the further transmission of illness and prevention measures. Incidence is used to describe how frequently the disease occurs or how quickly it spreads (Last 2001). Incidence

can be either a proportion relative to the total number of population, or a rate such as person–time. The latter method requires that individuals affected by the disease are followed up over time.

This indicator is the baseline for public health interventions.

$$\textbf{crude death rate} = \frac{\text{number of dead}}{\text{number of total population}} \text{ x } 1{,}000$$

Figure 1: Crude death rate
Source: Compiled by the author based on Last 2001

Crude death rate is a very general mortality indicator for a given year, as the number of deaths strongly depends on the age structure of the given population. Thus, in a population with a high proportion of elderly people, as it is the case in most EU countries, crude death rate is high. However, this rate does not reflect life chances in the given country.

$$\textbf{infant mortality rate} = \frac{\text{number of deaths of children under 1 year of age}}{} \text{ x } 1{,}000$$

Figure 2: Infant mortality rate
Source: Compiled by the author based on Last 2001

The value of this indicator says much about the state of health and health services performance.

Overall, in the countries of the European Union there has been a substantial decrease of infant mortality within the past 30 years, however, in some countries the rate is still double of that of others. One risk factor for infant mortality is low birth weight and prematurity, which is significantly associated with maternal health behaviour like smoking, alcohol consumption or poor nutrition, but also older age and low socioeconomic status (OECD/EU 2020).

Age-specific death rate

More detailed than the crude death rate, the age-specific mortality rate filters out the effect of age structure and offers better comparison possibilities across time and space. It is generally calculated for five-year age groups, separately for men and women.

$$\textbf{e.g. age} - \textbf{specific death rate of men aged } \mathbf{45-49} = \frac{\text{number of men who died aged } 45-49}{\text{number of men aged } 45-49} \text{ x } 100{,}000$$

Figure 3: Age-specific death rate
Source: Compiled by the author based on Last 2001

Causes of death – standardised death rate (SDR)

This indicator is the death rate of a population adjusted to a standard age distribution. It is calculated as a weighted average of the age-specific death rates (above) of a given population; the weights are the age distribution of that population.

In public health, the cause-specific mortality is highly relevant. Deaths in the population are related to an underlying cause, based on the International Classification of Diseases and Related Health Problems (ICD-10). Standardised death rates are calculated per 100,000 inhabitants on the basis of the *European Standard Population* issued (Eurostat 2013). Knowing the main causes of death, mortality can be compared across time and space. There are considerable differences among member states in the death rate from all causes.

In all EU countries there is a mandatory notification system for communicable diseases.

Life expectancy at birth

The best indicator of life chances in a given country, life expectancy at birth shows the average age that a newborn baby is expected to live at the moment of his/her birth based on current mortality rates. Since the increase in life expectancy has already taken place in most developed countries, it is now the poorer countries where a remarkable advancement is taking place. It is important to note that this is a hypothetical number of the years a person would live according to the death rates typical for the time they were born at, so if age-specific death rates are falling over time, actual life spans will be higher than those calculated at birth based on current death rates. Life expectancy negatively correlates with infant mortality rate. Where infant mortality rates are higher, life expectancy significantly drops due to the mortality hazard of the first year of life. This is why marginalised social groups are at risk of bad health and low life expectancy.

All in all, Europe is an ageing continent with demographic and health features typical of this age structure, and in spite of the high rates of immigration, ageing will continue in the next decades. Within the European Union, there are remarkable differences in life expectancy between the member states, which mostly echo geographic dividing lines, the post-socialist countries displaying lowest values. With regard to the high rate of elderly people on the continent, some of the most relevant public health issues are related to their state of health. Even in the countries with highest gross domestic product and living standards, there is a gender gap in life expectancy in the sense that men continue to live less than women. This gender gap is particularly large in the EU countries of Eastern Europe.

Healthy life expectancy – Healthy life years

Living longer does not necessarily mean living in good health. The gains in the life span only contribute to a good quality of life if these years are lived without health problems and disabilities. In public health and in the research on the quality of life, healthy life expectancy becomes crucial. A longer life lived in good health not only means a healthier workforce but also fewer early retirements and less long-term care needs, which all impact upon public health services and ultimately upon the welfare of the country.

Healthy life years are the number of years spent free of long-term activity limitation, and are calculated based on life table data and age-specific prevalence data on long-term activity limitation (OECD/EU 2020). Parallelly to the worldwide increase of life expectancy at birth, this indicator is also increasing. A prominent public health goal is the further increase in healthy life expectancy (WHO/Europe 2013).

The gender gap in life expectancy at birth almost disappears when it comes to years lived in good health, as women report more activity limitations due to health problems at all ages and they also live longer than men. These facts suggest that it is first and foremost elderly women who experience many years of their old age in bad health.

Years of life lost

Recently, among public health professionals it became fashionable to use the years of life lost as an indicator that takes into account both the death rate and the age of death.

years of life lost = number of deaths at a given age × further life expectancy at that age

Figure 4: Years of life lost
Source: Compiled by the author based on Gardner–Sanborn 1990

Years of life lost results in a huge number without much meaning in itself. In its practical use, this number is divided into the proportions of the different diseases that cause premature death. Worldwide, the most years of life lost are by far due to cardiovascular diseases, followed by respiratory diseases. In the recent years, due to increasing motorisation, there was a strong increase in the proportion of traffic accidents that resulted in death.

Years lived with disability

YLD are the number of years that an individual lives with some disease.

These are years of life lost due to time lived in states of less than full health, or years of healthy life lost due to disability (*Years Lived with Disability* 2010).

DALY (Disability-adjusted life years)

DALY is one cumulative indicator for mortality and morbidity, that is, it takes into account both the Years of Life Lost and Years Lived with Disability.

One DALY equals the loss of one year of life that could have been lived in full health. DALYs for a disease or health condition are the sum of the years of life either lost or lived in bad health (WHO 2021).

This indicator was developed to quantify the burden of disease and is mostly used in health policy. Morbidity and mortality indicators are standardised and as such, they allow comparison as well as the short and long-term planning of public health programs. Knowing the prevalence and incidence rates of illnesses and their contribution to the burden of disease and to mortality have revealed where progress was achieved and also those where there is still work to be done in order to improve population health.

Risk factors for health: Main causes of morbidity and mortality

In the European Union the major causes of death are circulatory diseases and cancer, and mental health also has a considerable share in the years of life lost. We now highlight the most important risk factors for health with respect to chronic and communicable diseases.

Health behaviour

The topic of health behaviour as a determinant of chronic diseases is a priority of health policy, and is addressed in the form of clearly formulated goals of population intervention programs.

Most chronic diseases originate in lifestyle. As such, the most frequent causes of death with the largest burden of disease are cardiovascular diseases (circulatory diseases), leading to more than one third of all deaths (35.7%) within the European Union (Eurostat 2021). Among these, ischaemic heart disease (heart attack) and cerebrovascular disease (stroke) are most frequent, and the risk of both is on the rise due to unhealthy lifestyle and health behaviour. A range of international research reveal unhealthy habits in the adult population, and longitudinal studies yield evidence for the unhealthy practices starting already at young ages (Inchley et al. 2020).

First and foremost, these are alcohol consumption (Kovács–Bálint 2015), smoking (OECD/EU 2020), illicit drug use (EMCDDA 2020), bad dietary habits (FAO et al. 2020) and lack of physical activity associated with being overweight (WHO/Europe 2018) as well as work-related stress (Eurofound 2021). The gender gap in life expectancy highlighted above is partly due to greater exposure to risk factors among men. Greater tobacco and alcohol consumption, less healthy nutrition habits and worse working

conditions expose men to a higher risk of death from cardiovascular diseases, different types of cancer or violent causes.

In some European societies, mostly in relation with cultural norms but also with bad mental health, alcohol-related morbidity and mortality are particularly high. Lifetime prevalence of drug use varies across countries but the appearance of new psychoactive substances and synthetic opioids detected yearly by the EU Early Warning System (EWS) is also worrisome and a continuing market adaptability of illicit drugs has been reported. Further, deaths resulting from drug overdose are an increasing concern in the ageing population, too (EMCDDA 2020). In several EU countries, significant improvements were achieved with respect to smoking: the number of smokers decreased in the last years (OECD/EU 2020).

Some risk factors for cardiovascular diseases are, however, further increasing, like cholesterol, blood pressure, low physical activity, obesity and diabetes. Bad nutrition and sedentarism were brought about by the modernisation of societies and the changing work characteristics. Stress at the workplace became a major concern in post-industrial societies, as it raises the risk of non-communicable diseases by increasing susceptibility. The regular surveys of the Eurofound report increasing work-related stress across Europe (Eurofound 2021).

The increased rate of cancer cases, the second biggest cause of death within the European Union (27%), is partly due to the ageing of the population. However, unfavourable health behaviour as highlighted above also contributes to the development of cancer. Among women, breast cancer and lung cancer are most frequent, whereas lung cancer and colorectal cancer are the two most common.

The European Union makes considerable efforts to reduce cancer mortality through monitoring and information by joining cancer registries through the European Network of Cancer Registries (ENCR) of the European Commission. Thanks to large population-based screening programs and to better treatment options, survivorship of cancer has increased. For some types of cancer – breast cancer, colorectal cancer, prostate cancer, melanoma –, formerly large differences in survival chances among countries have also decreased.

In the EU, population-based screening programs are recommended for cervical, breast and colorectal cancers. In those states where large population screenings were implemented, a significant reduction in cancer cases was accomplished, which led to a decrease in the burden of disease associated with that illness. In EU countries with no mass screening programs, health policy decisions should be met in favour of such programs in order for funds to be allocated for these.

From the population side, participation in organised screening programs varies across and within countries. In scientific experiments conducted in order to test participation willingness, some measures have proven particularly effective in increasing participation: postal and telephone reminders, general practitioners' signature on the invitation letter, scheduled appointment instead of open appointments (Camilloni et al. 2013).

Beside the above hazards, risky sexual behaviour also has detrimental effects (Mirzaei et al. 2016). Not only does it contribute to the spread of HIV on the continent, but

in particular, in the case of women, one of its consequences is cervical cancer as a leading cause of female mortality.

Mental health

The end of traditional communities and the lack of integration into the urbanised societies, as well as the constant and rapid changes brought about by modernisation resulted in an increase of mental disorders in the population of the European Union. These are the leading causes of disability and the third leading cause of overall disease burden, following cardiovascular disease and cancers. The prevalence of mental disorders is 12%. Mental disorders are associated with other non-communicable diseases like cardiovascular disease, diabetes and cancers, and, as such, addressing comorbidity is a key issue. People with mental disorders live, on the average, 20 years less than healthy people (WHO/Europe 2019).

Environmental risks

There is a considerable welfare loss due to air pollution in the EU, particularly in Central and Eastern Europe. Throughout the continent, outdoor air pollution in the form of fine particles mostly resulting from fossil fuels causes 4 to 7% of all deaths (Institute for Health Metrics and Evaluation 2020). Further illnesses connected to air pollution, mostly respiratory and cardiovascular diseases, lead to a considerable amount of disability-adjusted life years (DALY).

The issue of sustainability is marked by partly similar challenges in the world, problems created by the unsustainable character of economy-driven urban development and by its consequences for climate change. Improving the quality of life is supposed to be less resource intensive and less demanding on the environment. Besides WHO directives, the EU has its own air quality standards imposed on member states.[1] Funding under different programs is also available to member states to improve air quality.

Communicable diseases and pandemic management

HIV infections also spread particularly with the transmission of prostitution, and are strongly connected to illicit drug use. Although Europe is not as affected by Human Immunodeficiency Virus (HIV) as are other continents (particularly Africa and Central America), mass migration carries the hazard of HIV spread, in spite of already having overcome most infectious diseases.

[1] EC Directive on Ambient Air Quality and Cleaner Air for Europe, EC Directive on heavy metals and polycyclic aromatic hydrocarbons in ambient air.

HIV spreads through sexual transmission, blood infusion, through the needle sharing of intravenous drug users, as well as through pregnancy and breastfeeding. Although antiretroviral therapy for HIV became available for most patients and their lives can be successfully prolonged, this disease inherently compromises the quality of life of HIV patients and, globally, contributes to the overall burden of disease.

In the last decades until early 2020, among communicable diseases, HIV was the major threat for mankind. As the SARS-CoV-2 infection broke out and turned into a pandemic, public health professionals have mostly been concerned with the management of this new situation. EU member states have applied risk mitigation measures and made use of the EU financing arm for joint pandemic management, the Emergency Support Instrument. With this, the Union coordinated an unprecedented action to accelerate the production, testing and introduction of EU-manufactured vaccines in the member states, through the financing of the following activities:

As a massive part of the European level pandemic management, in order to protect EU citizens, the European Commission issued its Vaccination strategy for Covid-19 vaccines in June 2020. Through the Emergency Support Instrument, the European Union made considerable efforts to agree with producers and obtain the right for primacy in buying a sufficient supply of EU-manufactured vaccines at fixed prices. The ESI supports vaccine production in the EU by partial coverage of the vaccine producers' costs. Advance Purchase Agreements (APA) were signed by the European Commission and the vaccine producers. Besides this instrument, as a joint effort to produce efficient vaccines of more types, the European Investment Bank is offering loans to manufacturers. The EU also facilitates a comprehensive, quick and cost efficient procedure of vaccine acquisition (European Commission 2020).

The EU considers it a priority to ensure the equity and affordability of access to vaccination (European Commission 2020). In order for this to happen, vaccine authorisation and procurement was centralised, and flexible regulations and legal derogations were applied to shorten the authorisation process, to facilitate and accelerate mass vaccination.

Vaccination against SARS-CoV-2 in the EU started at the very end of 2020. The success of mass immunisation now mostly depends on the vaccine compliance of the European populations.

Vaccine hesitancy and v*accine incompliance*

The topic gained a particular nuance within the context of the SARS-CoV-2 pandemic, however, vaccine incompliance is a much broader issue significantly burdening the national public health systems.

Vaccine hesitancy is a worldwide growing concern and gains particular significance for pandemic management. It is associated with several social, demographic and economic factors. According to a recent study on the vaccination willingness against SARS-CoV-2 (Lazarus et al. 2021), there are significant variations across countries, Eastern Europeans displaying more vaccine hesitancy than other countries. Women are more

likely to comply with vaccination recommendations. With respect to the pandemic, people with higher education and better income are more likely to accept vaccination recommendations. Own and family members' experience with the illness does not increase vaccination willingness, but the mortality rate in a population does. It is remarkable and highly relevant for the EU pandemic policy that trust towards national government is associated with higher vaccine acceptancy (Lazarus et al. 2021). Eventual side effects of vaccines to be revealed in the near future might also reduce trust and further willingness to participate in the immunisation program to overcome the Covid-19 pandemic.

In the last decade, child immunisation coverage has increased in the EU member states. Besides the availability of health services, the health literacy of mothers is decisive in this respect. In Eastern Europe, for instance, the limited knowledge of vaccination and the vaccination noncompliance of low status groups led to decreasing vaccination rates of babies and children. As a result, previously overcome communicable childhood diseases like measles have emerged newly recently (INSP 2019). Some Eastern European countries are still about 10% below the optimal vaccination rate.

Migration and public health issues

Immigration brings about further risks for public health for the indigenous populations. Although most migrants and asylum seekers arriving to the EU are healthy upon arrival, there are some public health threats that concern the indigenous population of the EU through migration from other continents. Most prominently, the spread of communicable diseases (tropical diseases, HIV) need to be kept under control by rigorous monitoring of immigrants. The Health Security Committee of the EU coordinates the monitoring of communicable diseases via the Early Warning and Response System.

Social inequalities in the state of health

The increase of healthy life expectancy and the general improvement of the state of health is not uniform in all population groups. Very often there are considerable inequalities with respect to morbidity and mortality rates which originate not in biological but in lifestyle related underlying causes. These disparities can be found among countries/cultures and within countries, too.

Large inequalities in life expectancy persist not only by gender, but also by socio-economic status. For women and men alike (though prominently for men) educational attainment is decisive: there is a disadvantage of about 7 years between the life expectancy of a man with low education compared with one with high educational attainment.

People with higher socio-economic status are generally healthier and live longer than those with a low status and unfavourable living conditions, partly because their nutrition is proper and their access to health services easier. The risks of disease and death are also strongly related to work conditions which are harder for workers with

low educational attainment mostly performing hard physical work. Social inequalities are reflected by morbidity rates in spite of the fact that even in modern times a share of hidden morbidity still exists, that is, people suffer of some diseases without them being knowledgeable of that, as they rarely visit the doctor and thus their illness remains undiagnosed.

Morbidity and mortality resulting from injuries are most strongly connected to socio-economic status. Cardiovascular morbidity and mortality, as well as most types of cancer also negatively correlate with socio-economic status: among people with better status morbidity and mortality is lower.

Among people with high educational attainment there are far fewer individuals suffering from diabetes, high blood pressure, liver cirrhosis, chronic respiratory disease, or stomach ulcer. Another epidemiological effect of school attainment is reflected by the fact that people with low educational attainment are overrepresented among those with bad health, particularly in the case of cardiovascular diseases (heart disease and high blood pressure).

Improper health behaviour is one of the mediators from socio-economic status to illness. Poor nutrition but also intentional risky behaviours like smoking, alcohol consumption and drug use contribute to the emergence of diseases. Further, psychosocial mediators like hopelessness and distress also play a role between social status and the genesis of diseases, increasing susceptibility to various types of illnesses. Unemployment experience but alone the risk and the fear of losing one's job as well as poor working circumstances are associated with high levels of psychological distress, which is a risk factor for several chronic conditions. Social stress places a heavy burden on people with low education, and they often lack appropriate coping and problem solving competences to successfully buffer these impacts.

Pathogeneous environmental factors as well as unfavourable health behaviour occur more often among people with low socio-economic status, which peak in carcinogenic work harms, various types of cancer, injuries, disabilities, diabetes, diseases of the nervous system and mental disorders. Among the poor, infectious diseases, particularly tuberculosis is also more frequent due to bad housing conditions and lack of proper hygiene as well as household overcrowding. Although most diseases hit the poor, there are some that disadvantage precisely the wealthier people. Most remarkably, breast cancer generally strikes women with high educational attainment and professional career who do give birth to few children (or none) and/or are not breastfeeding. However, survival chances are yet again unequal due to the selective availability and affordability of expensive treatment options for cancer patients.

To sum up, social inequalities are reflected by the state of health of individuals. The larger the gap between social strata, the more accentual the health disparities. The SARS-CoV-2 pandemic exacerbated social inequalities in health, in the sense that mortality was higher among the poor and in ethnic minorities, due to the accumulation of risk factors.

In health literacy, too, there is a substantial social gradient (Sørensen et al. 2015). About half of the adult population in Europe displays limited health literacy, with considerable differences between member states in favour of Western and Northern European

societies. Further, national and ethnic minorities are not always competent in the official state languages, so they are at-risk groups for insufficient health literacy. Health policy decisions should consider the disadvantages of such groups and address this issue more efficiently.

With respect to the effect of the social gradient in vaccination, literature is inconclusive. Although the relationship between health literacy and vaccine compliance is not always clear (Lorini et al. 2018), most data provide evidence for the fact that low social status is a predictor for vaccine hesitancy and incompliance (MacDonald et al. 2015). However, some qualitative research results suggest that highly educated people also tend to disseminate countering views to the benefits of vaccination (Attwell et al. 2018). In recent years, public health literature has acknowledged health literacy as a mediator towards state of health which increasingly needs promotion.

Conclusions

This chapter has discussed the most important public health topics in the European Union, focusing on common issues and health problems rather than making comparisons and highlighting differences. In accordance with public health endeavours, it thematises the general and not the specific.

The chapter presented the current state of the art in the member states, reflecting upon the most important facts and characteristics. To start with, the epidemiological transition was briefly outlined, followed by the presentation of EU institutions that monitor health indicators and provide guidance for national health policies. In the core content of the chapter, morbidity and mortality indicators were defined. The main causes of death, cardiovascular diseases, cancer and respiratory diseases were presented and their non-biological predisposing causes were discussed with respect to chronic and infectious diseases. For non-communicable diseases, health behaviour and environmental impacts are primary. For communicable diseases, vaccine incompliance and immigration entail considerable risks. Low social status and poverty are unfavourable circumstances for health. Last, health inequalities and the mediating factors between social status and diseases were discussed.

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Spyros Roukanas – Szabolcs Pásztor

The Political Economy of International Development Cooperation

The outbreak of the Covid-19 pandemic has impacted the prospects of European as well as world economy. Almost 14 months after the manifestation of the pandemic, European economy and world economy are facing a more severe economic crisis in comparison with the financial crisis of 2007–2009. The aim of this article is to analyse the political economy of international development cooperation under the prism of the Covid-19 pandemic. The negative economic growth rates that the developed countries are facing have negative effects on international development cooperation. At the same time, the negative economic growth rates of developing economies are creating urgent challenges for certain developing countries. The analysis focuses on the tools that are available to both developed and developing countries in order to face the main challenges of international development cooperation under the prism of the Covid-19 pandemic, with a special focus on European Union security related issues.

Keywords: political economy, International Development Cooperation, Covid-19, EU security

Acronyms

ACP	African, Caribbean and Pacific
AU	African Union
DAC	Development Assistance Committee
DCI	Development Cooperation Instrument
EC	European Council
EDF	European Development Fund
EEC	European Economic Community
EIB	European Investment Bank
EUI	EU Institutions
GNI	Gross National Income
GSP	Generalised Scheme of Preferences
LDC	Least Developed Country
MFF	Multiannual Financial Framework
NDICI	Neighbourhood, Development and International Cooperation Instrument
OACPS	Organisation of African, Caribbean and Pacific States
OCT	Overseas Countries and Territories
ODA	Official Development Assistance
OECD	Organisation for Economic Co-operation and Development

Introduction

The aim of this article is to analyse the political economy of international development cooperation under the prism of the Covid-19 pandemic. First, we analyse the concepts of international development cooperation, development cooperation, and official development assistance (ODA). Later we briefly introduce the establishment of the international development policy of the European Union and how it takes part in international development today. The study of these concepts reveals the importance of international development cooperation for the prospects of developing countries, but at the same time highlights the role of developed countries in mitigating the social and economic challenges of developing countries. Then we analyse the concept of international development cooperation historically, in comparison with other types of resource flows. Compared with other types of flows, official development assistance represents a fixed cash flow, intended to confront the fluctuations of the world economic environment. Moreover, we study the implications of the Covid-19 pandemic on official development assistance and the main challenges for developed and developing countries in the near future. Finally, we reconsider the conclusions of the study.

International Development Cooperation under the prism of the Covid-19 pandemic

Development cooperation is the cooperation among developed and developing countries with a focus on covering the urgent needs of developing countries. The actions of developed countries should be subject to internationally agreed concepts and this enhances the definition of the term "international development cooperation" (Alonso–Glennie 2015: 1). According to José Antonio Alonso and Jonathan Glennie, development cooperation should meet the criteria below:

1. "Aims explicitly to support national or international development priorities
2. Is not driven by profit
3. Discriminates in favour of developing countries
4. Is based on cooperative relationships that seek to enhance developing country ownership" (Alonso–Glennie 2015: 1–2)

As can be observed from Table 1 that development cooperation has certain purposes, characteristics and types. The purposes of development cooperation focus on the improvement of social protection and standards of living at a global level, and more specifically on promoting the active participation of developing countries in the provision of public goods. It is evident that the purposes of development cooperation at an international level are socio-economic and seek to reduce social and economic inequalities. The analysis of the characteristics of development cooperation underlines nonprofit actions and the importance of developing countries for the design and the expected results of development cooperation. Moreover, the study of the types of development cooperation highlights three different types with qualitative and quantitative goals.

Table 1: What is development cooperation?

Purposes	Characteristics	Types
Guaranteeing universal basic standards of social protection	Explicitly intended to support national or international development priorities	Financial (and in-kind) transfer
Promoting convergence among countries' standards of living	Not driven by profit	Capacity support
Supporting efforts of developing countries to actively participate in the provision of international public goods	Discriminates in favour of developing counties	Policy change
	Based on cooperative relationships that seek to enhance developing country ownership	

Source: Alonso–Glennie 2015: 3

The history and role of the European Union in International Development Cooperation

There are historical, moral, and strategic reasons for the establishment of the international development cooperation of the European Union. As for the historical reasons, the legacy of colonialism is to be mentioned. Countries like France and Spain, Portugal and, until the departure of the United Kingdom from the European Union, the U.K. as well were linked to the developing world with political and economic ties. The European Union, being the most developed economic integration in the world, feels a kind of moral duty to help the peripheral countries of the world economy. Finally, the European Union member states regard many former colonies and developing countries as prime markets and resource bases.

When shedding light on the policies of the European Union, we usually refer to the Rome Treaty as a number of core initiations were mentioned in 1957 already. However, at the dawn of the European integration, international development cooperation was not regarded as a key area. The treaty mentioned the overseas countries and territories (OCT) only and gave a legal framework for (re)defining the relationship between these territories and the then member states. Later, in 1975 the Lomé Convention was created, which was a trade and aid agreement between the predecessor of the European Union, the European Economic Community (EEC) and 71 African, Caribbean and Pacific (ACP) countries. The signature took place in February 1975 in Lomé, Togo (Horváth 2012).

International development cooperation became institutionalised in the Maastricht Treaty in 1992. The treaty clearly defined the aims of the international development policy of the European Union: 1. sustainable economic and social development; 2. smooth and continuous integration into the world economy; and 3. fight against poverty. In addition, the Maastricht Treaty stated that the actions of the European Union have to contribute to the consolidation of the rule of law, democracy, human and basic rights in the developing countries (Horváth 2012).

In the 1990s, international development policy was built on 5 principles:

- Complementarity: the actions of the European Union have to supplement the actions of the member states.
- Coordination: there is a need for coordinating the actions of the member states and the European Union with a special emphasis on the international institutions.
- Coherence: the aim of international development policy is to be integrated into the other policies of the European Union.
- Geographical weighting: the most underdeveloped countries are to be prioritised.
- Political condition: aid is conditional on whether there are democratic governmental structures in the recipient countries.

Almost from the very beginning there have been two tools of international development policy: the aid instruments and the trade instruments. The development aid given by the European Union member states covers many different and diverse fields (macroeconomic policies, institutional structures, healthcare and education systems, environmental projects, gender equality, etc.) The European Union in general shoulders an active role and gives help in two different ways. First of all, the cooperation agreements provide an institutional background. Secondly, the countries in need may get instant help in every corner of the world. Funding was provided by the European Development Fund (EDF), European Investment Bank (EIB) and by the special chapters of the budget of the European Union (Horváth 2012).

When it comes to trade, the preferential instruments like the Generalised Scheme of Preferences (GSP) are to be mentioned. These are one-sided tariff reductions for the developing countries. Apart from them, there are other instruments which give special market access and preferences to the former colonies and developing countries (Molnár 2018).

Currently the European Union and its institutions have been trying to eradicate poverty and achieve sustainable development in many developing countries. Taken together, the countries and the institutions of the EU are the world's leading donors of development assistance and cooperation. The legislation and the policies of the EU are clustered around good governance, economic and human development, fighting hunger and preserving natural resources. The European Union dedicates almost 10 percent of its budget to external actions. Among the forms of the funding, there are budget supports, contracts and grants to the partner countries. In the hope of increasing the support of the European Union, the member countries and the institutions alike work with the international organisations and private bodies.

In line with the Sustainable Development Goals of the United Nations, the EU institutions work together and provide funding to address the following five aspects of sustainable development: 2. People: ending poverty and hunger in all forms and ensure dignity and equality; 2. Planet: protecting future generations from environmental destruction and resource depletion; 3. Prosperity: ensuring prosperous and fulfilling lives in harmony with nature; 4. Peace: Creating peaceful, just and inclusive societies; 5. Partnership: implementing development work through global partnership (EC 2002).

The European Union cooperates with over 150 countries in the regions of Africa, Latin America, the Caribbean, Asia and the Pacific. Apart from these states, there is intensive cooperation with international organisations and civil society, as well. The European Union not only provides financial aid and engages dialogues with partner countries but conducts research and evaluation in the hope of ensuring the effective usage of foreign aid.

The EU is one of the most active players in the field of international development, as in 2019 only it gave 75.2 billion euros in the form of Official Development Assistance (ODA) which represented 55.2% of the total global assistance. The focus has been on good governance, human and economic development, tackling global issues (poverty, hunger, misusing natural resources). The development efforts try to be as effective, comprehensive and coherent as possible. As a sign of complexity, international development and partnerships are coordinated with the member countries of the European Union. The relevant stakeholders are involved in the development efforts. Also partnerships are fostered with developing countries to achieve common ambitions. The development cooperation of the European Union is built on transparency, mutual accountability and results.

The European development policy tries to reach sustainable development and stability in a number of developing countries and the ultimate goal is the eradication of extreme poverty. The external action of the European Union is built on three pillars: development assistance, foreign security and trade policies. As the European Union and its member countries give over half of the overall development aid, it is one of the world's leading donors, placing much emphasis on peace and security all over the world. The European development policy is embedded in the European treaties, strategies and agreements and it is based on a number of fundamental principles. The United Nations 2030 Agenda for Sustainable Development is a programme where the international objectives of the European Union are represented and the member countries are committed to achieving them. At the same time, 17 concrete Sustainable Development Goals are reflected in the new European Consensus on Development.

As it was highlighted before, among the international partnerships of the European Union, the cooperation with the ACP countries has been deeply rooted and shows no sign of weakening. Under the first Lomé Convention (signed in 1975) the ACP–EU partnership has proved to be a success story. Currently the relationship is framed by the ACP–EU partnership agreement (2000), also known as the Cotonou Agreement. This incorporates over 100 partner countries and more than 1.5 billion people. As of today, this is the most comprehensive partnership agreement between the European Union and third countries. At the beginning the following principles represented the building blocks for the Cotonou Agreement: 1. partner's equality; 2. global participation; 3. dialogue. Later, in 2005 and in 2010, the agreement was revised and supplemented with new focus points: 1. regional integration; 2. security and political stability; 3. the growing challenge of climate change; and 4. inclusiveness and sustainability; 5. aid effectiveness.

In April 2020 there were fundamental changes in the ACP–EU relations as the Organisation of African, Caribbean and Pacific States (OACPS) was formulated based on the former countries of the ACP group. Also, as the Cotonou Agreement was about to expire, there was a need to transform and strengthen the relationship between the European

Union and the OACPS countries. Negotiations lasted for almost three years and they were concluded on 15 April 2021. The aims are clear: 1. a comprehensive political agreement, supporting commitment to sustainable development and climate action, building on the UN 2030 Agenda, the European Consensus on Development, and the Paris Agreement; 2. more flexible, targeted and coherent relations between the European Union and the OACPS countries, thanks to a renewed partnership agreement which allows to act at various levels to protect people's lives and the planet.

Apart from these aims, the (future) partnership tries to foster inclusive growth, climate action and resilience to natural disasters, peace and security, migration management, democracy, the rule of law, human rights. The European Union countries try to increase the development dynamics and they are committed to build an even stronger relationship among the participants. The OACPS and European Union member countries represent more than half of the UN members. The Cotonou Agreement was supposed to expire in February 2020 but owing to the outbreak of the Covid-19 pandemic, they extended the agreement until 30 November 2021.

When it comes to the ODA funding trends in the European Union, it is to be mentioned that the European Union Institutions' (EUI's) total ODA was 19.4 billion USD in 2020. With this number, the European Union is the third-largest donor of the OECD DAC. The European Union and its 27 member countries together spent 0.5 percent of the gross national income (GNI) of the European Union representing 46 percent of the global ODA.

In the financial framework of 2014 and 2020, the EUI built on two key instruments for ODA: the European Development Fund (EDF), capped at 30.5 billion EUR (34.1 billion USD) and the Development Cooperation Instrument (DCI), capped at 19.7 billion EUR (22.1 billion USD). The EUI's ODA for 2020 was expected to remain stable at these levels (OECD 2021d).

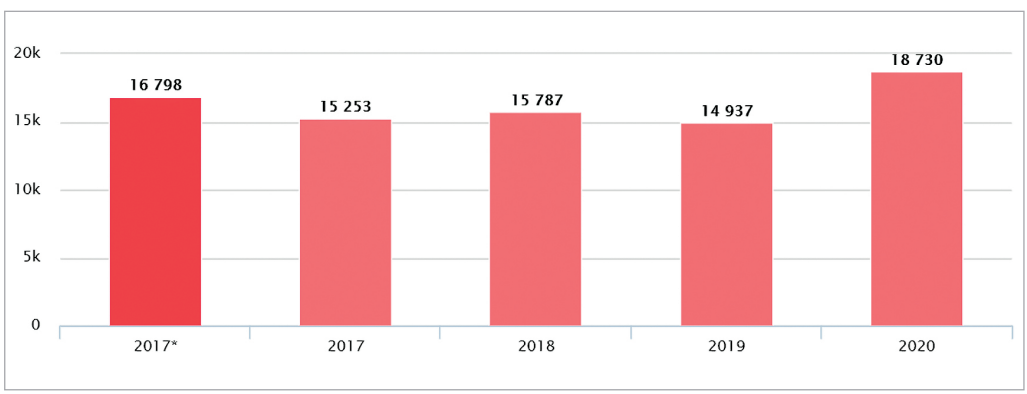

Figure 1: Total official development aid of the European Union institutions (millions of USD, 2019 prices)
Source: OECD 2021d

In December 2020, the EU adopted its new long-term budget (2021–2027 Multiannual Financial Framework (current MFF). The current MFF makes 1.07 trillion EUR (1.20 trillion USD) available for the EU budget during the next seven years. When it comes

to the latest priorities, it must be highlighted that the institutional focus in the European Union is on interlinked and interlinking sectors (development, peace, humanitarian assistance among others). The effectiveness of development assistance is to be increased by increasing partner country ownership of development strategies and combining traditional financing with private sector and domestic resources (DT 2021).

In July 2019, the President of the European Commission, Ursula von der Leyen, outlined her priorities for 2019 and 2014: 1. further investments in research and innovation; 2. renewed focus on climate change; 3. increased investments in development cooperation focused on health, education, sustainable growth and security; and 4. strengthened EU global leadership. A year later, in March 2020, the European Union unveiled a roadmap for its new strategy with Africa to serve as the basis for negotiations on a new partnership between the two continents. The priorities of the European Union include the following ones: 1. green transition and energy access; 2. digital transformation; 3. sustainable growth and jobs; 4. peace and governance; and 5. migration and mobility (DT 2021).

When it comes to the new financial framework of the European Union, the 2021–2027 MFF allocates 70.8 billion EUR (79.3 billion USD) for the "Neighbourhood, Development and International Cooperation Instrument – Global Europe" (NDICI – Global Europe), which is the new instrument for EU cooperation and development with partner countries.

The EUI's ODA from 2021 onwards is expected to decrease because of the U.K.'s exit from the EU ('Brexit'). The EU has not yet decided (nor have member states agreed on their position) on whether and how non-EU countries can contribute to future EU development instruments (European Commission 2021).

At the EU–AU Summit, currently planned for early 2022, the EU hopes to agree on a joint EU – African Union (AU) strategy. The EU and the AU have converging interests in a number of areas including climate change, sustainability, and the promotion of job creation and economic growth in Africa. However, they still have to find common ground on other issues including migration and security management (DT 2021).

Like in the previous years, the European Union was the world's leading donor of ODA in 2019. The European Union and its member states contributed to global assistance by 75.2 billion EUR representing 55.2 percent of the collective ODA (OECD-DAC 2020). The amount represents 0.46 percent of the gross national income (GNI) of the European Union which almost equals the value of 0.47 percent a year before. In order to better understand the impact of the contribution of the European Union and its members, it has to be mentioned that the non-EU members allocated 0.21 percent of their GNI on average. Despite the fact that the contribution of the EU and its member states is significant, it is also true that, since 2016, the collective effort in comparison with the GNI has been at its lowest level. It has to be mentioned that in 2019 only three European Union member states met the ODA commitments and provided 0.7 percent or even more of their GNI. These countries were Denmark, Luxembourg and Sweden. The United Kingdom also met commitments but the country no longer belongs to the European Union. In nominal terms 17 member countries of the European Union increased their ODA commitments in 2019 in comparison with 2018. These countries are as follows: Austria, Croatia, Cyprus,

the Czech Republic, Denmark, Finland, France, Germany, Greece, Hungary, Ireland, Latvia, Luxembourg, Malta, Romania, Slovenia, Spain as well as the U.K. The following ones made an even more visible effort because they increased their ODA/GNI ratio by at least 0.01 percentage points: Austria, Cyprus, Finland, France, Luxembourg and Malta. The ODA to GNI ratio decreased in 8 member states by 0.01 percentage points or more. These countries are as follows: Belgium, Estonia, Germany, Lithuania, the Netherlands, Poland, Portugal and Sweden (European Commission 2021).

Apart from the mixed results and achievements, there are promising signs as well. The ODA of the European Union to the group of the Least Developed Countries (LDCs) increased both in 2018 and 2019 (0.125 percent of the GNI and 19.8 billion EUR in absolute terms). In the year 2018, the ODA of the 28 countries of the European Union increased by 4.3 percent and reached 25 billion EUR.

ODA is only one of the instruments of help, apart from this, the member countries of the European Union try to find other ways of supporting the implementation of the Sustainable Development Goals. Domestic resource mobilisation, aid and investment are used effectively to reach the full potential of all financial flows available. The Integrated National Financing Frameworks were created with the aim of financing strategies for sustainable development from different sources of finance. The European Union plays a crucial role in creating it. The European External Investment Plan is about leveraging over 47 billion EUR in investment for the African continent and European Union neighbourhood. In addition, the European Fund for Sustainable Development guarantee shoulders a lion's share in finding additional finance for certain partner countries. The European Union helps partner countries improve tax collection and public finance.

The collective ODA of the European Union is built on the spending of the EU member states and the institutions of the European Union. According to the Addis Ababa Action Agenda, the international community trajectory of development financing was outlined in the hope that it will help the 2030 Agenda for Sustainable Development.

In 2015, the European Council (EC) showed its commitment to increase the collective ODA of the European Union to 0.7 percent of the GNI of the EU before 2030. It is true that, since 2015, the ODA by the European Union and its 28 member countries has increased by 10 percent to 7 billion EUR on a flow basis, but in nominal terms the ODA/GNI ratio has declined by 0.01 percentage points. In the year 2016, there was a spike in the ODA commitments (0.52 percent of the GNI of the European Union) but since then we have seen a quite constant decrease. To be more exact, the in-donor refugee spending has decreased by 4.4 billion EUR since 2016 and the decrease experienced in 2019 was mostly due to the drop in the European Investment Bank loans to the private sector. When it comes to the commitments towards the Least Developed Countries, the European Union is determined to give somewhere between 0.15 and 0.20 percent of the European Union GNI in the short term and increase it to 0.20 percent by 2030. Since 2015 ODA by the EU and its member states to the Least Developed Countries has increased by 25 percent (4.0 billion EUR) in nominal terms, and the ODA/GNI ratio has increased by 0.02 percentage points.

The latest data on Official Development Assistance by the EU

On a grant equivalent basis, ODA provided by the European Union and its 27 member countries have reached almost 67 billion EUR, which represents 0.50 percent of the GNI. Non-European Union countries which are also members of the Development Assistance Committee (DAC) represent 0.26 percent on average. In the light of the latest data as well, the European Union and its member states are still leading providers of ODA in 2020. 46 percent of global ODA is provided by the member states and other ODA donors. In comparison with 2019, the collective ODA of the 27 countries increased by 15 percent (8.9 billion EUR). The ODA/GNI ratio has risen by 0.09 percentage points in two years. It is to be mentioned that the increase is partly due to the fact that the collective GNI of the European Union member countries decreased by 4.7 percent in nominal terms (European Commission 2021).

As it was mentioned before, the European Union is committed to providing 0.7 percent of GNI as ODA within the timeframe of the 2030 Agenda. There are four member countries already which exceed the target of 0.7 percent of ODA/GNI. These are as follows: Denmark, Germany, Luxembourg and Sweden.

In nominal terms, ODA from the institutions of the European Union has risen by 27 percent (having reached 17 billion EUR) in 2020 in comparison with 2019. The part of the ODA which is managed by the European Commission increased by 22 percent and reached 15.8 billion EUR. One billion EUR is for special macro-financial assistance loans on a grant equivalent basis. The ODA managed by the European Investment Bank increased by 830 million EUR and reached 1.2 billion EUR.

It is interesting to see that the ratio of the ODA of EU27 member countries on global ODA rose from 43 percent in 2019 to 46 percent in 2020. When it comes to the LDCs, the collective ODA of the 28 member countries of the European Union fell by 4.3 percent in nominal terms in comparison with 2019. The 2019 value amounts to 19.0 billion EUR representing 0.12 percent of GNI. In 2019, the GNI/ODA EU collective ratio (0.10 percent) to LCDs is well above the average GNI ratio (0.07 percent) for ODA to LDCs of non-EU DAC members. In nominal terms collective EU ODA to LDCs decreased by over 4 percent in comparison with 2018 and amounted to 13.8 billion EUR. Within the timeframe of the 2030 Agenda, the European Union is committed to meeting the target of providing 0.15–0.20 percent of GNI as ODA to LDCs in the short term and reaching 0.20 percent. There are already three member states which not only meet but exceed the 0.15 percent threshold of ODA to LCDs and GNI ratio. These countries are as follows: Luxembourg (0.47 percent), Sweden (0.32 percent) and Denmark (0.22 percent). The United Kingdom is the fourth country with 0.21 percent, but the U.K. is no longer a European Union member country (European Commission 2021).

Before the Covid-19 pandemic, collective EU28 ODA to African countries went up by 3.6 percent in nominal terms if we compare it with 2018. The absolute number reached 25.9 billion EUR. 35 percent of the ODA to developing countries went to Africa before the coronavirus pandemic (2020 data will be released in 2022 only). In nominal terms, EU27 collective ODA to Africa increased by over 5 percent in comparison with 2018 and

reached 19.9 billion EUR. This is equivalent to 35 percent of total EU collective ODA to developing countries (European Commission 2021).

After having shown the development and importance of international development cooperation and under the prism of the above theoretical analysis concerning international development cooperation, we can now focus on the financial aspect of the above-mentioned term. Official development assistance is the term that has been adopted by the Development Assistance Committee (DAC) since 1961 (OECD 2021a). More specifically, the definition of official development assistance, according to the OECD, is the following:

"Special attention has been given to the official and concessional part of this flow, defined as 'official development assistance' (ODA). The DAC first defined ODA in 1969, and tightened the definition in 1972. ODA is the key measure used in practically all aid targets and assessments of aid performance" (OECD 2021a).

Moreover, the Organization for Economic Cooperation and Development analyses ODA as follows:

Official development assistance (ODA) is flows to countries and territories on the DAC List of ODA Recipients and to multilateral development institutions that are:

- provided by official agencies, including state and local governments, or by their executive agencies
- concessional (i.e. grants and soft loans) and administered with the promotion of the economic development and welfare of developing countries as the main objective

The DAC list of countries eligible to receive ODA is updated every three years and is based on per capita income. ODA data is collected, verified and made publicly available by the OECD. OECD statistics are the only source of official, verified and comparable data on aid reported by 30 members of the OECD Development Assistance Committee (DAC) and about 80 other providers of development cooperation, including other countries, multilateral organisations and private foundations (OECD 2021b).

As we can understand from the analysis above, ODA is the most official and inclusive tool for measuring the impact of development cooperation on developing economies. The Development Assistance Committee is a 30-member committee of the OECD, which deals with issues related to development cooperation (OECD 2021c). In order to understand the impact of official development assistance on the objectives of the developed economies and the results for the developing economies, we should analyse the structure of official development assistance. Figure 1 analyses the total net resource flows from DAC countries to developing countries. We can see that official development assistance has been steadily increasing in comparison to other resource flows that are interdependent with world economic prospects. The second category of flows with great impact is the private flows at market terms. The analysis shows that the prospects of these investments are affected by the economy and market conditions at any given time. Official development assistance seeks to confront the urgent challenges of developing countries, with a lower impact in relation to economic fluctuations.

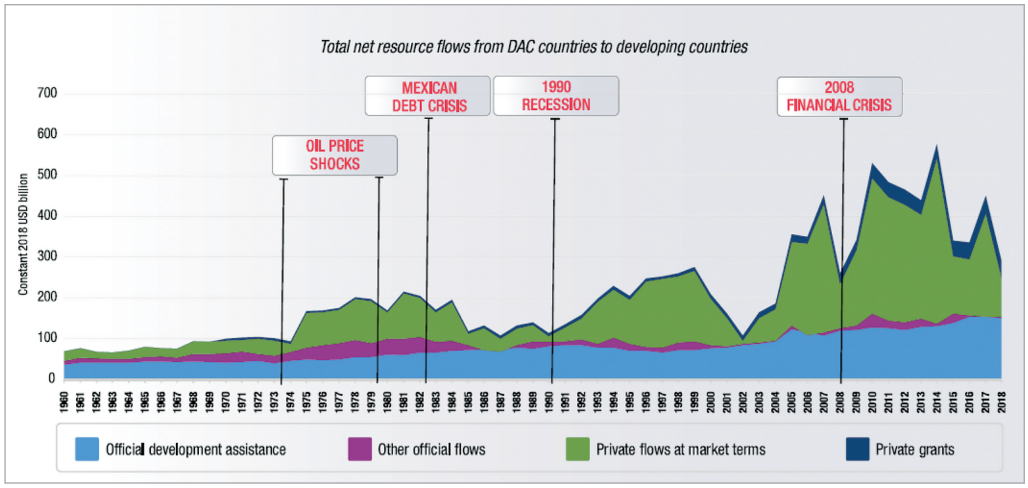

Figure 2: Total net resource flows from DAC countries to developing countries
Source: OECD 2020a: 6

In order to understand the current situation in the field of international development assistance, we can analyse the overall world economic environment and the implications of the Covid-19 pandemic. According to Spyros Roukanas and Angelos Kotios (2021), Covid-19 has much more severe negative impacts in comparison with the world economic crisis of 2007–2009.

The Covid-19 pandemic[1] affected the global economy more severely than the global economic crisis of 2007–2009. According to the International Monetary Fund, in 2009, the year with the most negative consequences as a result of the global economic crisis that first manifested itself in August 2007, real GDP growth stood at –0.1% for the world, –3.3% for the advanced economies, and 2.8% for the emerging markets and developing economies. In comparison, the corresponding percentages for the same group of countries in 2020 are estimated at –4.4%, –5.8% and –3.3% respectively. These are the most negative real GDP growth rates of the last 40 years, according to the IMF (2020). It is obvious from the above data that the world economy is facing a completely unique economic phenomenon that has to do with the depth of the crisis but also with its initial cause. During the economic crisis of 2007–2009, the initial cause was related with the U.S. subprime mortgage lending market and the securitisation of subprime mortgages (Roukanas 2016), an economic phenomenon that occurred within the functioning of the international economic system. This time, though, we had the manifestation of the Covid-19 pandemic as a public health issue with global repercussions. In 1918, the outbreak of the great flu also had economic impacts (Vinet 2020). At that time, the global economy was at the end of World War I and the extent of economic globalisation was much lower. As a result, we

[1] *"COVID-19 is the infectious disease caused by the coronavirus, SARS-CoV-2, which is a respiratory pathogen. WHO first learned of this new virus from cases in Wuhan, People's Republic of China on 31 December 2019"* (World Health Organization, 2020).

cannot compare the economic implications of the two pandemics (Roukanas–Kotios 2021).

The analysis above clearly explains the negative impacts of the Covid-19 pandemic on developing economies in terms of external private finance, as we can see in Figure 2. The global economic turmoil has a negative effect on the main categories of private finance and the impact is higher in comparison with the financial crisis of 2007–2009 in three out of four categories, with the exception of portfolio investment. As we can see, the negative effects are stronger in comparison with the financial crisis of 2007–2009 in remittances, foreign direct investments and other investment. According to the estimation, the total loss stands at approximately USD 700 billion and could be higher in comparison with the financial crisis for 2007–2009.

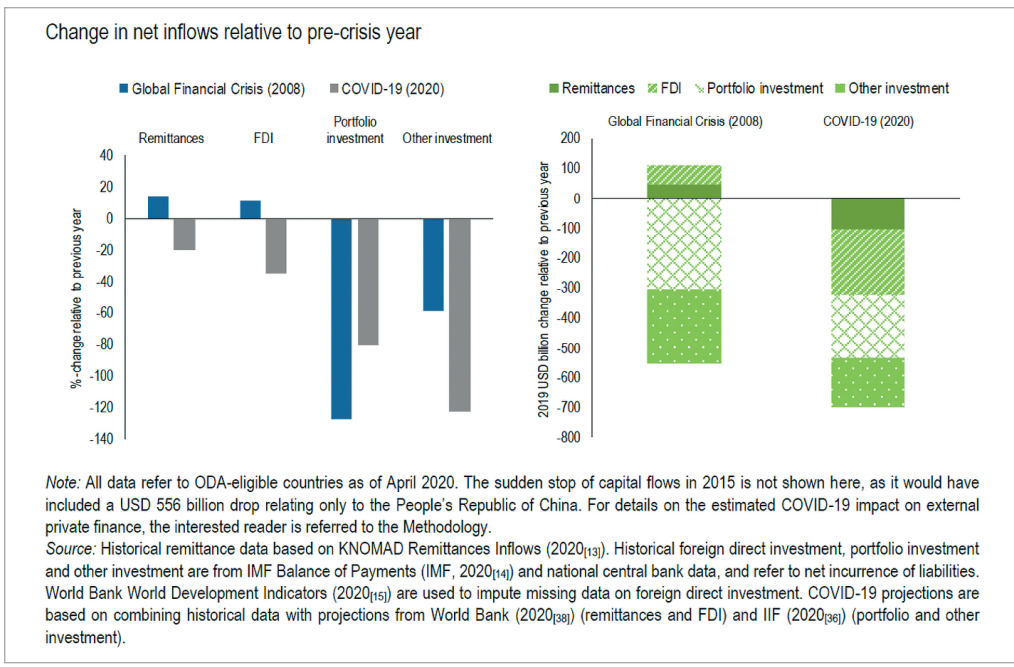

Figure 2: Change in net inflows relative to pre-crisis year
Note: The overall Covid-19 impact on external private finance in developing economies is estimated to be USD 700 billion and could exceed the impact of the 2008 financial crisis by 60%.
Source: OECD 2020b: 9

Under the prism of the above-mentioned analysis, we should examine the role of international development cooperation and official development assistance in confronting the urgent challenges that certain developing countries are facing as a consequence of the Covid-19 pandemic. The European Union remains, according to the latest available data, the leading donor worldwide. The total amount of EU ODA for 2019 stood at €75.2 billion, representing 55.2% of total ODA (European Commission 2020). The European Union's commitment to development cooperation reveals the importance it attaches to the achievement of Sus-

tainable Development Goals and, in a broader view, this commitment enhances European Union Security. Finally, the OECD has developed certain scenarios concerning the path of ODA for 2020 in relation to the impact of the Covid-19 pandemic. More specifically, the OECD analyses the prospects of ODA for 2020 as follows:

1. Many countries have signalled political commitment in support of a global sustainable recovery. The Covid-19 crisis has exposed the interdependence of countries and the importance of global public goods. Increased solidarity could lead to increases in total ODA levels and would, in turn, increase ODA as a share of gross national income (GNI).
2. As highlighted in its statement, DAC members have expressed their will to protect ODA levels. In fact, OECD DAC Peer Reviews have previously found that protecting aid budgets against short-term shocks to public finance is an established practice. If ODA levels were to be maintained at 2019 levels, the ratio of DAC members' ODA over GNI would increase from 0.29% in 2019 to about 0.32% in 2020.
3. Given DAC members' own budget pressure in 2020, the overall level of ODA could decline in 2020. The OECD calculates that if DAC members were to keep the same ODA to GNI ratios as in 2019, total ODA could decline by USD 11 billion to USD 14 billion, depending on a single- or double-hit recession scenario on member countries' GDP (OECD 2020b: 9–10).

Conclusions

This brief study tried to highlight the impact of the Covid-19 pandemic on international development cooperation. First, we studied the basic concepts of international development cooperation, development cooperation and official development assistance, in order to understand the theoretical background of our analysis. Then we studied development cooperation under the prism of the Covid-19 pandemic. The conclusions of the study are the following:

The unexpected outbreak of the Covid-19 pandemic had a much more severe negative economic impact in comparison with the financial crisis of 2007–2009. These negative implications are coming after a tough decade of slow economic recovery, and there are fewer tools available to states, international economic organisations and monetary authorities for confronting the economic consequences.

Development cooperation is a steady financial flow for developing countries no matter the world economic fluctuations in comparison with other types of flows. The Covid-19 pandemic affects both the prospects of developed and developing economies, while, at the same time, the uncertainty caused by the pandemic affects the developed countries' economic policies concerning ODA to developing economies. Sustaining ODA levels for 2020 is going to determine the main challenges for developing economies in 2021. Finally, the continuation of ODA in 2020 will also set the direction of ODA for the upcoming years.

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Humanitarian Aid, Food Security[1]

This text looks at the main issues in humanitarian aid and food security, which are key questions within the European Union. The improvement of both is an essential aspect of reliable and effective aid to vulnerable populations. But the task is not easy. The concepts and the actors of humanitarian aid are changing, implying a redefinition of the nature of humanitarian aid itself. New problems have emerged, connected to security, underlining the clash between the principles and the reality in the field. Yet, a wider involvement of local populations, together with a greater attention at training professionals in humanitarian aid, may be clues for improvements. Food security is the second topic considered. It is part of humanitarian aid, but it also deserves a specific analysis. Indeed, it is not only a constant element in humanitarian policies, but it also has the deepest impact on most of the social, political and economic aspects of crisis. Food security is looked at as an issue of public health concern. The text also focuses on its challenges and, in particular, on the way it can be more efficiently organised.

Keywords: humanitarian aid, responsibility to protect, food security, public health, human security, migration

Acronyms

DRR	Disaster Risk Reduction
ECHO	European Civil Protection and Humanitarian Aid Operations
EDRIS	European Emergency Disaster Response System
ICA	Integrated Context Analysis
ICRC	International Committee of the Red Cross
IDP	Internationally Displaced Person
IFRC	International Federation of the Red Cross and Red Crescent Societies
ODA	Official Development Assistance
PSC	Private Security Company
R2P	Responsibility to Protect
WFP	World Food Programme

Introduction

Humanitarian aid is currently evolving, as a result of the challenges of globalisation and of the growingly intricate nature of humanitarian crisis. As a result, multiple new actors are now involved in humanitarian aid, including State agencies, humanitarian NGOs and other private organisations. This change of paradigm is visible even at the heart

[1] We would like to acknowledge the contribution of João Costa Leite and Spyros Roukanas to this chapter.

of the humanitarian organisations, such as the International Committee of the Red Cross (ICRC), but also at the level of the international organisations specialised in humanitarian aid within the United Nations system or at regional level, within the European Union. In particular, old and new principles applied in humanitarian aid are being reassessed in the light of the security problems faced by populations and also by humanitarian workers in the various fields of intervention. Among them, food security is one of the most complex problems. This is due to the several possible causes of food insecurity. The food dimension of security also involves a great number of agencies, with a complex management. Food security is strategic, being not only an essential element for the survival of populations, but also a geopolitical factor for governments.

The questions asked in this contribution will look into: a) the conceptual framework in humanitarian aid and security; b) the key issues of food security within this challenging context; c) and in both cases, how the European Union is responding to the challenges.

Humanitarian aid and security

Humanitarian aid: Main concepts and principles

Humanitarian aid

Humanitarian aid is, according to a simple definition, the provision of assistance to people in danger or more generally at risk in the context of a humanitarian crisis. It is therefore essential to first define what a humanitarian crisis is.

What typifies a humanitarian crisis is the fact that the situation on the ground is characterised by an exceptional and generalised threat to human life, health or livelihood. These crises emerge in the context of a lack of protection due to pre-existing factors (poverty; inequality; lack of access to basic services). This lack of protection has consequences for the inadequacy of responses to natural phenomena (natural disasters or epidemics) or to violence accompanying an armed conflict. A humanitarian crisis is thus identifiable both by its causes (direct or indirect) and by its devastating effects, which the causes mentioned multiply. Thus, the question of security is undoubtedly at the root of the problem of humanitarian crises, and of their endogenous and exogenous causes. It is also present in the day-to-day work of humanitarian workers, the nature and tasks of which are constantly evolving, as concrete security issues arise in the field.

Although it would be wrong to limit the perspective of humanitarian aid to the issue of security, the many circumstances in which humanitarian aid is needed are also, at the same time, situations in which the security (of a geographical area, a state, or a region) has been put at risk. This is true both for conventional threats to security (such as in the context of armed conflict), and for a wider range of threats, such as those to be considered under the concept of "human security" (Hough et al. 2020).

Human security

Human security is a concept developed in the framework of the United Nations (starting with the *Human Development Report* of 1994) the core idea of which is to place the individual at the heart of security concerns, a true shift in security paradigms. The focus also changes from military threats to non-military threats, and from state to non-state actors, and bridges security concerns with human rights and development. Therefore, the structural causes of threats to human life are identified, from poverty to environmental crises, to social and political problems leading to mass migration and refuge. Besides, the often intermingled character of natural and manmade disasters, as, for instance in resource scarcity wars, or with 'environmental refugees' also emerge as security concerns and causes of humanitarian crises (Mac Ginty – Peterson 2019).

Principles of humanitarian aid

The concept of humanitarian aid is normally defined with reference to the criteria accepted by the UN, a set of four principles derived from the longstanding principles of the Red Cross and Red Crescent movement (UNGA 2016; OCHA 2012) – all of them commented by Pictet (1979) in a reference book. As a series of actions intended to save human lives and to alleviate suffering, while protecting human dignity, humanitarian aid is ruled by the key principle of humanity. A second principle, neutrality, means that the agents of humanitarian aid do not take sides in a conflict or controversy. Impartiality, that is, the delivery of aid according to needs and not to the situation (e.g. race, gender, religion or other social or political aspects) of those in need is the third principle. Independence, the fourth principle, implies that aid is kept separate from geopolitical power considerations (e.g. military, or economic). Although the formula is apparently straightforward, its ethical and practical implications are paramount (Mac Ginty – Peterson 2019).

The international legal order and the extant structure of global governance have defined patterns within which that action shall be carried out, notably international humanitarian law, but also refugee law and the human rights provisions. The question thus arises as concerns neutrality, if not as regards also independence, since those patterns do not exist in a geopolitical void and are in sum influenced (and funded) by the major world powers. At the same time, new principles are emerging which are increasingly accepted by humanitarian NGOs (and also the United Nations), such as the principle of accountability, implying a new form of governance, also within humanitarian aid itself, and accompanied by a duty of transparency in relation to the various stakeholders as to the objectives and results to be achieved or attained (Tan – von Schreeb 2015).

Humanitarian aid and its actors (Responsibility to Protect)

In the early days of humanitarian aid, in the 19th century, it was mainly the task of charitable organisations, and more specifically of the international Red Cross movement (headed by the Geneva-based ICRC).

Today, humanitarian aid implies a vast array of actors involved in the process, a rather diverse set of non-governmental actors (NGO), often associated with it, and theoretically well placed for delivering in accordance with the abovementioned four principles. However, humanitarian aid is also a task of governmental entities: the states, who retain the first level of the 'responsibility to protect' (Australian Red Cross 2011); then international governmental organisations many of which were created for surmounting the shortcomings of a traditional state-centric world order.

There is now a wide range of actors involved in the humanitarian aid process, as it has expanded to include a large and diverse set of non-governmental and governmental actors. Indeed, increasingly, however, humanitarian aid is also a task for government entities: this is a natural development, as states retain the first level of the 'responsibility to protect' (Australian Red Cross 2011), but whether they do so impartially remains to be seen. Humanitarian aid is also provided or at least coordinated by international intergovernmental organisations.

Responsibility to Protect

The Responsibility to Protect (or R2P) is a concept adopted at the UN World Summit of 2005. The concept itself was the result of a long debate on the right of (military) intervention versus the sovereignty of states, when it came to protecting human lives. It defines military intervention for human protection purposes as a last resort (after the states have failed to do so), under proper international authority (the UN Security Council) and for very specific types of threats (i.e. genocide, war crimes, ethnic cleansing and crimes against humanity). The concept also encompasses preventive and diplomatic action, but the difficulty in matching R2P approaches with that of humanitarian workers is evident (Hough et al. 2020).

Therefore, in field terms, this often means that a multiplicity of actors will be present, from the tiniest local non-governmental association to military forces involved in peace and stabilisation missions (which partially share the objectives of the humanitarians), to private security forces organised by the for-profit sector, to the media. No doubt that this scenario has led to the urgency of 'Delivering as one' (UNGA 2006), in practical terms a strong concern with coordination, organisation, logistical planning and needs assessment. Increasingly also, professionalisation has entered the field, side-by-side with the many volunteers also involved.

Some problems recurrently emerge from the practice of humanitarian aid, among which are the security of the missions and of the humanitarian workers; the involvement of private armed groups in the process; the many difficulties stemming from having to deal

with authoritarian regimes; or the ethical dilemmas of bridging principles with practice, to name but a few (Mac Ginty – Peterson 2019). The question of the physical and mental security of humanitarian aid professionals is particularly acute, in addition to that of the populations receiving humanitarian aid, given new phenomena such as terrorism.

Another question is what is to be delivered: In a nutshell, immediate crisis assistance – protection, food assistance, shelter, health, sanitation and hygiene. However, crises may last longer than expected, which leads to a necessity for a longer term or structural answers, for providing food, accommodation, health and education services (as is often the case for refugees and Internally Displaced Persons, or IDPs) to provide not only food but also non-food items, adequate housing, health services and access to education. Furthermore, the focus has shifted from the immediate problem to reconstruction, and to crisis prevention, which means disaster preparedness and capacity building, often with a view to local empowerment (OCHA 2020).

Funding remains a core issue for making humanitarian aid viable. The role of international organisations and of international governmental and non-governmental donors is fundamental, but resources are always scarce, which further reinforces the necessity for their rational use (IASC 2020; OECD 2012).

In the EU, humanitarian aid is also present, as a set of principles, a policy area and institutional structure (see Article 21 of the Treaty on European Union; and Article 214 of the Treaty on the Functioning of the European Union). Within the European Commission, the European Civil Protection and Humanitarian Aid Operations (ECHO) is the structure that directly deals with it, along with its civil protection agenda (ECHO 2020). Despite the fact that structures of common civil protection (internal to the EU) remain autonomous from the international aid ones, the structure is largely pliable to attending both to internal crises management (e.g. migration and refugees) and to delivering in the international context, and thus establishes a bridge with the EU's external action, notably in the promotion of human rights, stabilisation and rule of law action, and more broadly with cooperation for development.

In the EU, humanitarian aid policies are living an "Age of Change" (Irrela 2018), adapting to the new realities. The European Union humanitarian aid, most often channelled through NGOs which are working in partnership with the European Commission, is one of the most respectful of good practices, ethics and also one of the widest in spectrum. Indeed, it does not only provide aid to developing countries regions (Figure 1), but it also helps any country in a situation of emergency disaster (e.g. floods), as it regularly happens in the case of some Asian countries like China or to South Pacific countries, sharing logistic aid or technical tools for example (ECHO 2002; 2020).

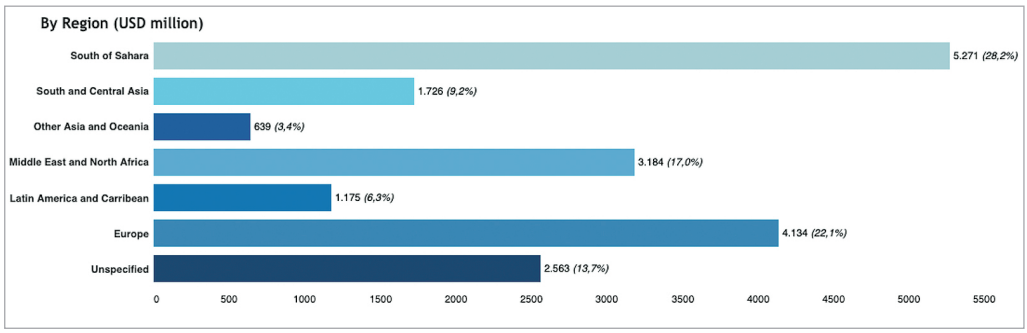

Figure 1: Regions recipients of the European Union institutional support
Source: OECD 2020

Currently, all the forms of financing humanitarian aid in the EU are clearly stated, in particular the indication of the source of funds – which are the European Commission, the European Investment Bank and the EU Trust Funds (such as the EU Emergency Trust Fund for Africa, created in 2015). Another source of funds is all the EU Member States themselves. In line with the new principle of transparency, all the recipients, countries and territories of humanitarian aid, and more generally all Official Development Assistance (ODA), are detailed in the EU Aid Explorer tool created by the European Commission (the EU institution in charge of conceiving and supervising the execution of humanitarian aid) (European Commission s. a.). The same happens with the European Union funds related to emergency disaster responses, the European Emergency Disaster Response Information System (EDRIS) also depending on the European Commission. The EDRIS mechanism includes a search tool online allowing any person to trace both donors of emergency aid and its beneficiaries, as well as specific sectors of aid that are targeted, such as, for example, food, nutrition, or more generally health (ECHO s. a.).

Humanitarian aid in context: Case studies on security issues

Humanitarian aid in a crisis area is always a complex activity. Nevertheless, it has some basic rules. Perhaps the most important is that agencies arrive at the scene to mitigate human suffering and the number of casualties, not to increase it. Therefore, the first step for humanitarian actors in an actively hostile area or in a humanitarian catastrophe is that they have to ensure their own security. Without this, they cannot provide effective support for the victims of the crisis. Furthermore, as wounded people or hostages, they become an additional burden for humanitarian actors.

Agencies should also keep in mind that the local judgement of their activity is based mainly not on their good intention and actions. Unfortunately, in many cases, (mis) perceptions, assumptions and preconceptions shape the attitude towards foreign actors. In most modern conflict zones which consist of the complex web of interests and groups, the arrival of a new actor can easily destroy the fragile balance of power. Although

agencies follow a humanitarian agenda, in many parts of the world, local powerbrokers consider the activity of NGOs and government a threat to their influence. The arrival of free food or the construction of a well weaken client-patronage systems and offer an alternative source of resources for communities. It is acutely true for a conflict area, where political struggle intensifies into an armed confrontation, which reduces trust and opens a wide arena for brutal and cruel solutions.

Therefore, the arrival of humanitarian agencies and aid cannot happen without some extents of support of the conflict parties. In many cases, it revokes dilemmas, because even if it is a terrorist organisation like al-Shabaab, some level of bargaining is necessary. In case of South Central Somalia, where more than 3 million people lived under the rule of the Jihadists during the famine in 2011, secret negotiations with al-Shabaab for access to the area were the only solution to save the life of hundreds of thousands of people. Of course, it raised sharp criticism because it strengthened the legitimacy of al-Shabaab and provided them assets which could be used to maintain their insurgency. Nevertheless, the other option was to let Somalis to starve to death, which was unacceptable for many actors.

Negotiation with local players is never easy. As we mentioned, the maintenance or even the creation of the impression of impartiality and trust is a long process and often leads to confrontation with the local government. It is understandable: as we mentioned, talks with an insurgency group easily jeopardise the credibility of central government. There are no silver bullets in these situations, and it is always a fragile balancing between the different actors.

The best protection for humanitarian staff can always be guaranteed by local top dogs, whether they are government or other actors. Nevertheless, it also hurts the impression of neutrality. Therefore, it is not accidental that many agencies use private security companies (PSC) for their protection. Although it is a costly solution, perhaps it provides the best chance that local actors will be convinced that the mission acts impartially.

In spite of all previous efforts, there is no zero risk in conflict areas. Therefore, the psychological and practical training of the staff before the deployment is essential, including first aid, a hostage-taking situation, negotiation techniques and others. Participants have to understand that there is a constant gap between the goodwill of the people of the agencies who arrive to the scene and the brutal reality of the crisis, which is inhuman and cruel – and often makes the conflicting parties also brutal. Therefore, a security oriented, realistic approach is a must.

Example: Humanitarian aid and the United Nations World Food Programme in Somalia

According to the United Nations, humanitarian aid aims “to achieve international cooperation in solving international problems of an economic, social, cultural, or humanitarian character” (United Nations 2021).

The United Nations has a network of organisations working to address humanitarian issues. In this brief analysis, United Nations World Food Programme in Somalia is examined. The aim of United Nations World Food Programme (WFP) is to "provide humanitarian and development assistance to the most food insecure and vulnerable households and communities around the world. In many cases, the beneficiaries of WFP assistance live in fragile contexts or areas prone to frequent disasters and recurring shocks" (World Food Programme Somalia 2020: iii).

In order to meet the challenges of achieving the nutritional needs of the citizens of Somalia in 2018, the Integrated Context Analysis (ICA) was developed (World Food Programme Somalia 2020). Food security in Somalia and the main trends are being examined. According to the available data in Somalia and Figure 2, "during the years 2013 and 2018, on seasonal basis, the overall average of food insecure people during *gu* [April–June] was 1,432,000 and 1,623,000 during *deyr* [September–November]. The additional number at risk (acutely food insecure) in the event of a shock was 919,000 during *gu* and 1,197,000 during *deyr*" (World Food Programme Somalia 2020: 15).

To address these urgent needs certain programmatic themes have been formulated under the prism of Integrated Context Analysis (ICA). More specifically: "ICA classifies livelihood zones in five categories based on their levels of recurring vulnerability to food insecurity and exposure to natural climate-related hazards. ICA categories and areas provide evidence to inform discussions and selection of broad programmatic strategies using thematic building blocks of safety nets, DRR, early warning and disaster preparedness" (World Food Programme Somalia 2020: 50).

In conclusion, in case of Somalia, humanitarian aid is strongly correlated with the food supply of the population and it is an issue that requires further research, development and effective treatment by the United Nations.

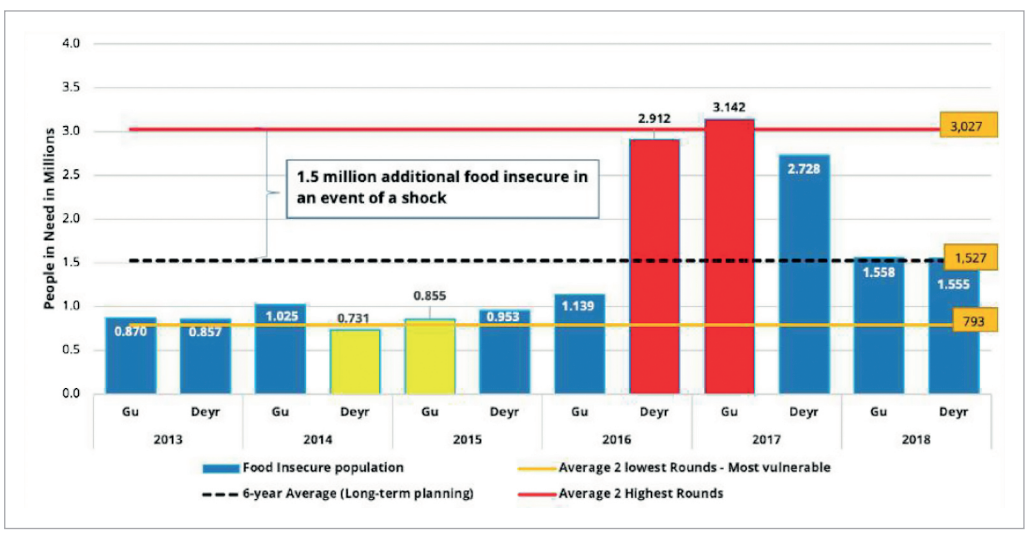

Figure 2: Number of severely food insecure people by season
Source: World Food Programme Somalia 2020: 14

Humanitarian aid and food security

According to the United Nations, food security exists when all people, at all times have physical and economic access to sufficient, safe and nutritious food that meets their dietary needs and food preferences for an active and healthy life (The Rome Declaration on World Food Security 1996). While food security is essential to support normal growth and human health, many underlying factors compromise food availability, access, stability and the utilisation for healthy and nutritionally adequate diets. Food insecurity often occurs among the most vulnerable populations affected by extreme poverty, lack of resources or low education level. Food security is threatened by different factors such as insufficient purchasing power, unavailability of foods, inappropriate distribution and inadequate use of food at the household level. This results in billions of individuals adopting poor diets both in the developed and developing regions. Diets of poor quality are a principal contributor to the multiple burdens of malnutrition: stunting, wasting, nutrient deficiencies, overweight and obesity (FAO et al. 2020). Thus, ensuring access to a safe, healthy and good quality diet is essential for achieving the Sustainable Development Goals targets of eradicating all forms of malnutrition, "ending hunger, achieving food security, improving nutrition and promoting sustainable agriculture" (FAO 2020). While it rightfully sets as the 2nd Sustainable Development Goal ('zero hunger'), food security has clear connections with many other of the global goals for sustainable development (WFP 2019b). Importantly, at the heart of sustainable development, the complexity of dealing with food security issues is linked to the malfunctioning of the food systems thus requiring more systemic approaches, in order to understand the interconnectivity of relevant aspects related to food production, distribution and consumption but also social, economic and environmental trends that may affect arising issues (Caron et al. 2018). Addressing food security as a challenging structural issue requires innovative forms of understanding its complexity. In the next decades, climate change and environmental degradation (policy area 9) including soil degradation and water availability and water quality (policy area 7) can put at risk more vulnerable regions. In the EU, the Mediterranean region will be particularly affected by such a trend. Humanitarian aid is crucial to alleviating hunger and undernutrition in most conflict regions but strong partnerships and international commitments to achieve sustainable food systems are needed to support more integrated actions to address the populations most vulnerable to food insecurity and to mitigate related challenges such as migration.

The framework of food security and humanitarian aid

Achieving food and nutrition security depends on four dimensions: food availability, food access (economic and physical), food utilisation and the stability of these conditions over time (FAO 2006). Therefore, food security may be threatened by several factors such as unavailability of foods, inappropriate distribution, insufficient purchasing power, or inadequate use of food at the household level (FAO 2006). The poor access to nutritious

food and water, in addition to the lack of sanitation facilities and basic health and social services, are basal factors that lead to suboptimal nutritional status. Furthermore, food insecurity may lead to different forms of malnutrition and consequently to the development of chronic diseases (FAO 2020).

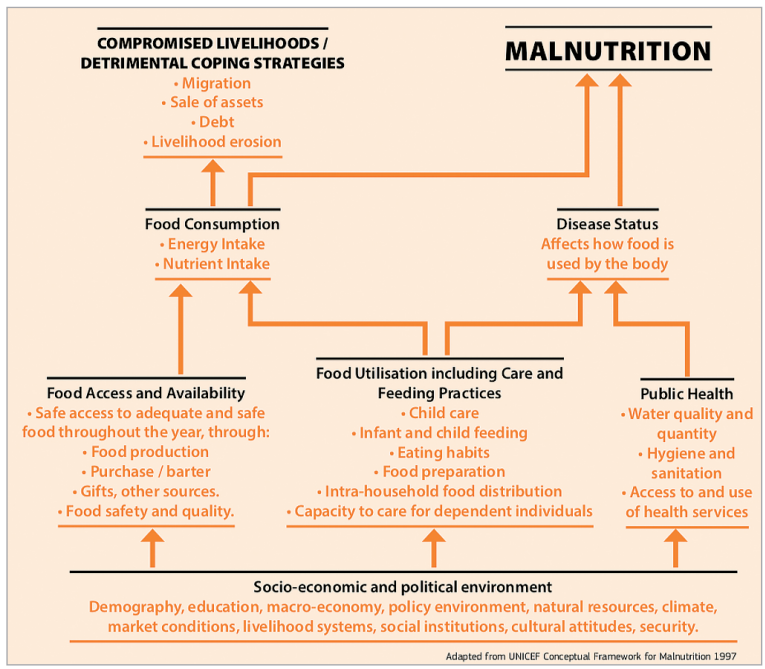

Figure 3: Framework on the causes of malnutrition
Source: European Commission 2013: 4

Humanitarian crises with food security dimensions are increasing in frequency and complexity (OCHA 2020). The situation is exacerbated by the concentration of economically and physiologically vulnerable people living in unsafe locations, in addition to the natural or human-made crises such as disasters, outbreaks, conflicts and forced displacement. Therefore, a growing number of vulnerable people are affected, which may lead to chronic food insecurity and impaired development, requiring intervention from different sectors (OCHA 2020).

Humanitarian food assistance aims at fighting inadequate food consumption and hunger to save lives and livelihoods to prevent acute malnutrition and other life-threatening effects and consequences (The Johns Hopkins – IFRC 2008). Thus, implementing adequate food aid early in combination with public health measures will prevent food insecurity and maintain the nutritional status of the affected populations (The Johns Hopkins – IFRC 2008). Food security interventions encompass several approaches including food provisioning (food aid), cash and voucher transfers, protection or restoration of productive assets and capacities. The right intervention depends on which aspect of food security has been compromised and why. Although food aid is appropriate

in several circumstances, in the cases where food is available and markets work reasonably well, food aid may not be the best intervention. Other interventions such as cash or vouchers may be more effective, more economically efficient and less damaging to local food systems (e.g. food production and marketing systems), and establish conditions to promote the rehabilitation and restoration of self-reliance. Food aid is often essential in emergency situations. The food aid distribution system must follow principles: be transparent – the target population should have information about the rations, the timing and distribution of which should take place in a public place; fair – rations should be based on need and household size; accountable to beneficiaries – distribution should take into account the social, ethnic and political divisions within the target population; gender-sensitive – women must be allowed to collect food, be represented on food committees and never placed at risk. Therefore, to improve food security, needy populations must be properly targeted, shipments of appropriate foods must arrive in a timely manner and complementary resources must also be provided (The Johns Hopkins – IFRC 2008).

EU food assistance practices are adapted to each specific situation and to the needs of different groups (e.g. children under the age of 5), by providing the most vulnerable people with essential and nutritious food items during critical times (European Commission 2013). However, complementary interventions, including those that ensure safe food storage and preparation, or access to potable water, hygiene and health services are also planned, alongside direct food assistance, to prevent or treat the malnutrition of the vulnerable people in crisis (European Commission 2013).

Limitations to the effectiveness of interventions include the capacity to assess the food insecurity situation of the populations, level of funding, sectorial balance of resource allocation, and the ability of agencies to work across different timeframes (short- and long-term). Multiple actors and limited ability of governments (and limited willingness of agencies) to coordinate are also a constraint to effectiveness. Food assistance interventions must be humanitarian and impartial in character, and worthily conducted without discrimination, respecting the human rights and international humanitarian law and principles. The challenge includes adequate operational resources, available provisions of different food groups, reaching the affected populations and the identification of people's needs.

Food security and public health issues

Inequalities in the access to energy and food resources, inadequate living conditions, poverty and education remain complex and unsolved issues that lead to poor diets as a major risk factor for the increased burden of disease globally (Fanzo 2015; Afshin et al. 2019).

In developed regions, including the EU, excessive consumption of high energy dense foods high in sugar, salt and saturated fatty acids has led to the rise of obesity epidemics, which is now regarded as a major public health issue. Globally, more than 2 billion adults are overweight as a result of the poor quality of diets (FAO et al. 2020). Actually, unhealthy diets are a leading cause of non-communicable diseases, mainly cardiovascular

diseases, cancers and diabetes, which represent a major economic burden for national health systems. In other regions, extreme poverty, conflicts and climate-related events affect the access of many populations to nutritious and diverse diets. As a result, hunger and malnutrition impair the healthy development of millions of children irreversibly, ultimately leading to poor physical and cognitive outcomes that persist later in life and contribute to an endless and vicious cycle of social vulnerability and inability to build healthier food systems. Currently, maternal and child undernutrition and micronutrient deficiencies including iron, iodine, vitamin A and zinc remain responsible for more than 50% of all under-5 years' deaths globally.

In the EU, national food policies have been implemented in the last decades and the level of implementation often reflects the political priority towards healthy eating. Still, integrated actions have been increasingly gaining popularity to address unhealthy diets in the region. For instance, policy tools that shape both the food environment and improve consumer information to make healthier food choices easier have often focused on vulnerable populations including children. Such approaches both have been promoted by the European Commission and WHO/Europe (European Commission 2007). For instance, the marketing regulation of unhealthy foods targeted at children, the taxation of sugar sweetened beverages with an impact on food industry reformulation can protect younger populations from unhealthier food preferences and are gaining momentum (Jensen–Ronit 2015; Hagenaars et al. 2019). In addition, the EU fruit and vegetable scheme funded by the Common Agriculture Policy importantly impacts on the availability of healthy foods for school age children and increases awareness towards healthy eating from an early age. As a reference for the implementation of healthy diets, the national food based dietary guidelines are relevant national policy instruments that help consumers achieve healthier choices. At the EU level, food labelling regulation provides better and more transparent information available for consumers to make smart and healthy food choices easier. While such a package of policy instruments is increasingly popular in the EU region, the recent EU "Farm to Fork Strategy" aims to accelerate the food system transformation in the region by promoting the implementation of sustainable diets that could promote both public health, the environment and the resilience of the EU communities (European Commission 2020).

In developing regions, policy actions have mostly focused on dealing with food availability and energy/protein requirements to address hunger and malnutrition as a part of humanitarian food assistance aimed at alleviating the issue of emergency crisis in vulnerable regions exposed to natural disasters, extreme events and conflicts (FAO et al. 2020). While such reactive approaches are essential during an emergency crisis, addressing hunger and malnutrition in the long term needs to integrate a more holistic perspective and examine the root causes of food insecurity and explore the potential integrative solutions that could effectively contribute to healthier, resilient and empowered communities (HLPE 2017). Investing in capacity building, education and encouraging inclusive community-based participatory initiatives that align dietary choices with health goals may induce a crucial change.

Challenges of food security

Improving the assessment of food security and nutrition situation

The planning for a humanitarian food and nutrition response begins with a local field assessment to determine the magnitude situation (geographic extent, size of the affected population, malnutrition status). Local assessment includes the evaluation of food security, child feeding practices, household livelihoods, water supply, sanitation, health care and the food distribution system (IFRC 2006). Moreover, sources of information include community leaders, local government and representatives of civil society organisations (e.g. local NGOs and religious groups). Individuals from the affected population, including women because of their central role in providing food for the family and taking care of children, should be involved in the field assessment as well as the planning of the emergency response as much as possible (The Johns Hopkins – IFRC 2008). An effective intervention depends on the analytical capacity that encompasses assessments of need, cost-effectiveness and impact. A course of action to reduce or prevent a food and nutrition emergency requires: the ability to allocate resources impartially; the ability to link analysis or early warning to a timely and appropriate response; balanced responses to food security crises, the limited ability to link the short-term protection of food consumption with long-term improvements in production and access, and the engagement of humanitarian food security actors at the policy level. Therefore, a good communication between local and national government authorities, organisations such as Non-Governmental Organizations and UN agencies (technical resources, infrastructure) is essential for an effective intervention.

Maintenance of the food pipeline

The maintenance of the food pipeline up and running is one of the first priorities of the effective food humanitarian response. However, problems with the food pipeline are not uncommon (The Johns Hopkins – IFRC 2008; European Commission 2013):

a) Inadequate food pipeline at the outset of the food insecurity assessment may occur. Therefore, reliable estimates of the target population and the number of malnourished individuals are essential.

b) Food losses during packing, transportation and storage. Inventory and monitoring systems to manage, track and account for the movement of food commodities help prevent excessive food losses.

c) Decreased food pipeline over time. The most food-insecure geographic areas and vulnerable groups of the population (children, pregnant and lactation women) may be difficult to identify and reach when the population is large or dispersed. A strategy may involve the increase of the number of distribution points for food aid and the conduct of nutrition surveys of neglected areas.

d) The main costs of food aid programs are the purchase of food and its transportation, with air freight being the most expensive option. On the other hand, transportation depends on the urgency of delivering food aid. The procurement and transport of imported food may take several weeks. Therefore, food should be procured locally as much as possible to reduce the transportation and storage costs of imported food.

e) The organisations involved should provide similar general food rations to different communities in generally similar conditions and avoid competition among them.

Climate change

Climate change is likely to aggravate existing production and consumption constraints in food insecure countries. Shifts in ecosystems, increased climatic shocks and the emergence of new or renewed crops, livestock and human diseases all pose threats to food supply, marketing (cross-border trade) and rural income streams. Current food prices are a cause for concern, requiring attention to resource constraints for humanitarian assistance, appropriate policy and programmatic responses to new populations in need, and planning for a future in which many more people may have inadequate consumption (Maxwell et al. 2010). Furthermore, there are more than 500 million smallholder farms worldwide which feed more than 2 billion people. While small farmers produce about 80 percent of the food consumed in Asia and Sub-Saharan Africa, they are extremely vulnerable to climate change (IFAD 2011: 2).

Conflict and migration

Conflicts have led to the displacement of millions of people, causing and prolonging food insecurity among refugee populations (FAO–IFPRI 2017). Refugees have been identified as a vulnerable group. When on the move, they are more likely to experience disrupted or uncertain supplies of safe and nutritious food and water, especially under difficult circumstances (FAO–IFPRI 2017). In these conditions, people may be more vulnerable to using inedible or contaminated food ingredients, cook food improperly or eat spoilt food and thus may be exposed to unfamiliar foodborne hazards (Lawlis et al. 2018).

When arriving in a new country, refugees face many challenges that increase the risk of food insecurity, including poverty and unemployment, compromised mental and physical health, language and cultural barriers, and high household expenses related to relocation (Mansour et al. 2020; Southcombe 2013). Refugees may find it challenging to maintain a nutritious and safe diet as they must adjust to life in a new community, with new markets and foods. Therefore, during their resettlement process, refugees can be highly vulnerable to food insecurity. Persistent food insecurity can result in malnutrition, inadequate dietary intake and nutrient deficiencies contributing to the development of chronic diseases (FAO 2020).

Food is a human right. Thus, ensuring that refugees have access to adequate, safe and nutritious food and water is essential for protecting the safety, health and wellbeing of this population. In addition, food security is important for refugee integration, minimising health inequality and a sense of belonging to a new country (Lawlis et al. 2018). Achieving food and nutrition security involves food availability, food access and food utilisation. In this perspective, the implementation of food and nutrition educational programmes addressing the diversity of local food products, food conservation and food preparation could provide care and support of this vulnerable group of people, contributing to the improvement of the nutritional status and overall health.

Conclusions

Humanitarian aid and food security are the key elements to guarantee human security in its broader sense. Indeed, the core principles (humanity, impartiality, neutrality and independence) have remained unchanged since their foundation by the Red Cross and Red Crescent movement. The aim of humanitarian aid is, as in the past, to restore the autonomy of populations affected by crises caused by natural disasters or armed conflicts. Yet, the forms of humanitarian aid are evolving, adapting to a changing international context: the new principles of accountability and transparency are now basic requirements for all humanitarian actors, including the European Union; the traditional areas of humanitarian aid (water and hygiene, shelter, health) integrate now new dimensions, such as human rights and advocacy. Moreover, the concept of Responsibility to Protect is also a part of humanitarian aid work. It underlines the need to integrate security as a structural element, to provide more sustainable conditions of reconstruction and development after a crisis. It also implies a new form of conceiving humanitarian aid, not only as a short-term or emergency action, but also in the long-term.

The EU, as a community of states opened to the world and sharing the core principles of humanitarian aid, is using specific tools to provide the new forms of humanitarian aid: the EU services, composed mainly of a European Commission body, the European Civil Protection and Humanitarian Aid Operations (ECHO), are able to respond to both internal crises and international ones. In doing so, the EU also promotes its own core values, namely: human rights, the respect for the rule of law and separation of powers, and transparency of the aid delivered (which is funded by the European Commission, the European Investment Bank, the EU Trust Funds and the EU Member States themselves).

Addressing more specifically food security is also a challenging structural issue, requiring innovative forms of understanding its complexity. In the next decades, climate change, environmental degradation and water availability as well as water quality, can put at risk more vulnerable regions. In the EU, the Mediterranean region will be particularly affected by such a trend. Humanitarian aid is crucial to the alleviation of hunger and undernutrition in most conflict regions. But strong partnerships and international commitments to achieve sustainable food systems are needed to support more integrated

actions to address the populations most vulnerable to food insecurity, and to mitigate related challenges such as migration.

The aim of the EU is to achieve food security as a public health priority goal, and to promote food security without leaving no one behind. To do so, it needs to embrace the food system as a whole and integrate systemic solutions to change the dynamics that result in the existing social, economic and environmental disparities. Context specific approaches need to identify the underlying causes of food insecurity and disease burden in regional and local communities (HLPE 2017; Candel 2018). Nevertheless, the developed and developing regions are not separated apart, as increasingly observed with migration issues in the EU. Such trends indicate that local actions need to be strengthened by international commitments and food trade regulations that prioritise food security, public health and sustainable food systems for wellbeing. Sustainability and solidarity promoted within the EU cannot be limited to the EU only, as illustrated by the paradigmatic issue of climate change and its impact on both humanitarian crises and food insecurity.

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Ali Aghazadeh Ardebili – Antonio Ficarella – Antonella Longo – Oronzo Mazzeo

Critical Infrastructure Resilience

Critical infrastructures and entities protection from threats and hazards has become increasingly critical in modern society, which is more and more dependent on supplied services. The importance of the topic has been proved by the interest of the European Union in developing a common policy addressing critical entities protection. This chapter aims to introduce the reader into the resilience of critical entities, which is a key concept in critical entities protection. The first section depicts the scenario of critical infrastructures/entities, illustrates the reasons that make them worthy of protection, gives some clues to traditional protection approaches and related limitations. The second section presents a conceptual model of resilience and its analysis dimensions, while the third paragraph illustrates the resilience indicators and the related assessment framework; the final paragraph, preceding the conclusions, consists of a brief excursus on European Union policies on Critical Infrastructure protection.

Keywords: critical infrastructure, protection, resilience

Acronym

CI Critical Infrastructures

Introduction

Modern societies heavily depend on the so-called Critical Infrastructures (CI), namely physical resources, services or structures whose malfunctioning or destruction would have a serious effect on the availability and deliverability of essential services, whose interruption would affect strategic fields (economy, health, security, etc.), which, in turn, would have implications for citizens and societies' wellness. Energy production plants and distribution networks, communication systems and networks, security systems, industrial plants, health care and emergency facilities are some examples of critical infrastructures. All these infrastructures are exposed to potential threats, whose origin might be either natural (floods, landslides, earthquakes, etc.) or man-made (terrorist attacks, cyberattacks, etc.). Threats can interrupt or limit the availability of services or critical infrastructures, with catastrophic consequences for the delivery of essential services and the well-being of people and society: for instance, energy systems are at the core of society. They consist of a system of assets (i.e. production, distribution, storage, etc.) that provide citizens and enterprises with electricity and thermal energy. When a power outage occurs, serious disruptions can occur in both homes and businesses. Water shortages, lack of air conditioning, internet and communication interruptions, electrical failures of medical equipment and health care facilities are, for instance, interruption of essential services due

to a power outage. A nationwide power outage, such as the one that occurred in 2013 in Italy, can even result in massive economic losses and fatal outcomes.

In recent years, the relationship between critical infrastructure protection and the well-being of citizens has gained considerable importance. As early as 2004, the Council of Europe commissioned experts to formulate general strategies for critical infrastructure protection. It also underlined the importance of making critical infrastructures able to tolerate and eventually fix the damage produced by their critical service interruption.

Risk management solutions – like proactive data-driven risk prevention employing historical data, analytics and expert systems able to identify behaviours and patterns that might result in systems' damage – were integrated with the possibility to make systems able to prevent, tolerate, mitigate, absorb, adapt and recover from an accident interrupting (or being potentially capable of destroying) critical systems' functioning, which means driving systems to be resilient.

The classical approach to improve critical infrastructure security against a disruptive event consists in employing preventive and protective programs focused on minimising the probability and consequences of possible disruptive events. However, this risk management strategy has been proved ineffective in protecting systems against rare events with major consequences, which happened in recent years. We refer to events like, for example, big electric power outages or blackouts like the one that affected 15 million European people in 2006, the one which lasted for three months in Tanzania in 2009; the severe floods in the U.K. in 2007 that brought a lack of water and electricity, transport network's failure and caused emergency facilities to stop operation; the Tohoku earthquake and the following tsunami in Japan in 2011, which resulted in a chain of accidents (i.e. water and power outages, and transport network failure), the hurricane Sandy in the U.S. in 2012 that had outcomes like losses in terms of electricity and water supplies, the recent Covid-19 pandemic that had serious consequences, impacts and damage in the health, social and economic fields all over the world. These kinds of rare events highlighted it is impossible to anticipate and prevent all kinds of disruptive events (and hazard) and consequences, at least not in all cases (Guo et al. 2021; Mottahedi et al. 2021).

The previous observations necessarily lead to the conclusion that it is important to develop an approach to critical infrastructure security based on both risk-management and resilience concepts: critical infrastructures designed in this way would be best equipped to guarantee service continuity even in the case of threats due to rare events with major consequences, like those listed in the quote above.

Resilience

The concept

The concept of resilience has run in several definitions in the past decades. The first definition of resilience was built for ecological systems as the persistence of relationships within a system, namely the ability of resilient systems to absorb internal state changes

(Holling 1973). From this first definition, the concept of resilience was adopted and re-defined in other fields: in social systems as "the ability of groups or communities to cope with external stresses and disturbances as a result of social, political and environmental change" (Adger 2000); in communities as "the capacity of a system, community or society potentially exposed to hazards to adapt, by resisting or changing, in order to reach and maintain an acceptable level of functioning and structure" (National Science and Technology Council 2005); in psychology and health systems as "the process and outcome of successfully adapting to difficult or challenging life experiences, especially through mental, emotional and behavioural flexibility and adjustment to external and internal demands" (VandenBos 2015).

Despite the difference between these definitions, the concept of resilience in any discipline can be in general defined as "the ability of a system to anticipate and withstand external shocks, bounce back to its pre-shock state as quickly as possible and adapt to be better prepared to future catastrophic events" (Panteli et al. 2017). In the engineering domain, the resilience concept is based on the ability of the system to maintain or return to a dynamically stable state, which allows it to continue operating after a major accident and/or in the presence of continuous stress (Hollnagel et al. 2006).

Morten Wied and colleagues (2020), in their paper *Conceptualizing Resilience in Engineering Systems: An Analysis of the Literature,* developed a conceptual framework for analysing the concept of resilience by looking for answers to the question: "Resilience of what, to what, and how?" Figure 1 shows their conceptual model.

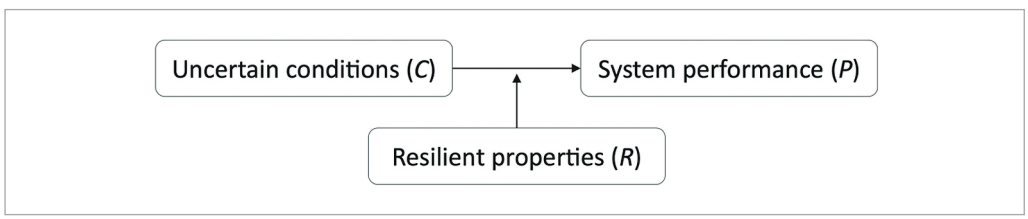

Figure 1: A conceptual model for understanding system resilience
Source: Wied et al. 2020

In this model, resilience (R) is the mediator between the effect on uncertain conditions (C) – the possible threat to the system – and the system performance (P) – let's say the system's functioning or service output. In this view, "the resilience of a system is determined by its ability to mediate between performance and uncertain conditions" (Wied et al. 2020). To systematically identify the features of a resilient system, it can be useful to structure understanding what a resilient system is supposed to preserve (the system performance [P], answering to the "of what" question) when the so-called critical event or threat happens (the uncertain condition [C], answering to the "to what" question) and in which way it can be done (the resilient properties [R], the answer to the "how" question). Some examples to the previous questions are the following:

– Resilience "of what": system function, output, service, requirement, operation, capacity, ability (function category); system state, state space, equilibrium, situa-

tion, regime (state category), system structure, components, relationships between variables, feedbacks, connectedness, persist, sustain (structure category).
- Resilience "to what": disruption, interruption, disturbance, perturbation, shock, accident (disruption category); change, shift, alteration, discontinuity (change category); event, incident, occurrence (event category); damage, disaster, emergency, catastrophe, harm, trauma, destruction, misfortune, negative impacts, accidents (adversity category); hazard, danger, risk, threat (risk category).
- Resilience "how": recover, return, self-righting, reconstruction, bounce back, restore, resume, rebuild, re-establish, repair, remedy (recovery category); absorb, tolerate, resist, sustain, withstand, endure, counteract (absorption category); prevent, avoid, circumvent (prevention category); anticipate, predict, plan, prepare (anticipation).

In the end, from the engineering point of view, a resilient system is characterised by the ability to cope with threats and uncertainty in order to continue its operations and deliver its services.

Among the several models about systems resilience, the multi-phase resilience trapezoid of infrastructure resilience in power systems presented by Mathaios Panteli and colleagues (2017) can be easily generalised to other infrastructures. It shows the effect of resilience over time on a system that undergoes a critical event.

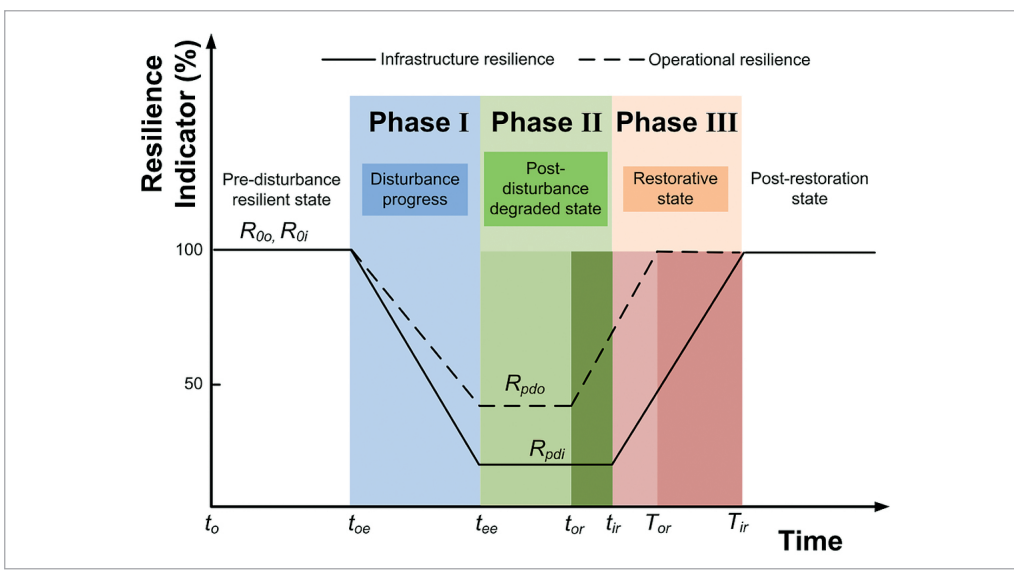

Figure 2: The multi-phase resilience trapezoid
Source: Panteli et al. 2017

The three-phase model is depicted in Figure 2 and it distinguishes operational and *infrastructure* resilience. The first refers to the characteristics that would secure operational capacity to the system (i.e. online load, online generation capacity and online transmission

lines in a power system), the latter refers to the capacity of the system to limit the portion of the system that is damaged, collapsed or, in general, becomes non-functional.

The figure depicts all the phases and transitions between the associated states that a critical infrastructure may reside in at the happening of a critical event. Looking at the dynamics of resilience, the three-phase model shows that a full operational infrastructure can undergo a critical event at time *toe*. As the disturbance persists, the system's resilience percentage drops *(toe-tee) (Phase I),* characterised by a fast reduction in the system's ability to continue operations. This dropping in resilience percentage and service availability tends to stabilise during the so-called post-disturbance degraded state *(tee-tir) (Phase II),* where a limited, if any, operational capacity can be available. The restorative state *(tir-Tir) (Phase III)* follows when resilience and operational ability increase again until they reach their pre-disturbance levels (after time *Tir*).

Figure 3 illustrates the resilience level as a function of time with respect to a disturbance event.

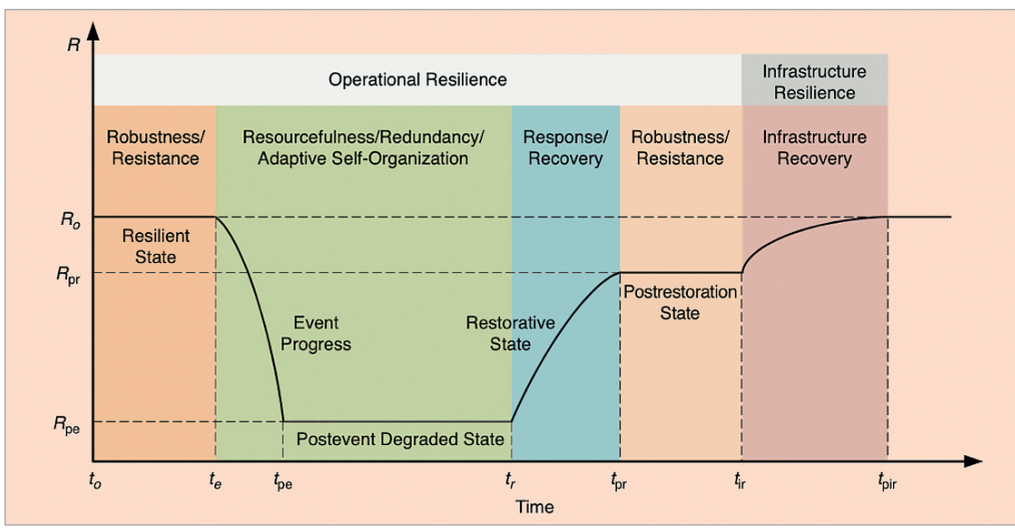

Figure 3: A conceptual resilience curve associated with an event
Source: Panteli–Mancarella 2015

Comparing the two figures, Table 1 shows some matches:

Table 1: Figures 1 and 2 correspondences

Figure 1 (Phases)	Figure 2 (Time Frames)
Phase I	*te-tpe*
Phase II	*tpe-tr*
Phase III	*tr-tpr*

Source: Compiled by the authors

The figure, as described by Panteli and Mancarella (2015), "demonstrates the key resilience features that a power system must possess for coping effectively with the evolving conditions associated to an event".

In the resilient state, the system must be robust and resistant to withstand the event's impact. After the shock caused by the event, the system enters in the post-event degraded state. In this state, the system needs to adapt to and deal with the evolving (and usually never experienced) conditions in order to minimise the event's impact on its operations and resilience. Thus, the resilience's key features requested at this stage are resourcefulness, redundancy and adaptive self-organisation. In the next step, the system enters in the post-restoration state, where its operational state is restored (operational resilience) but the post-restoration resilience, at infrastructure level, may or may not be at the same level it was at pre-event time, depending on both the event's severity and the resilience feature the system will demonstrate before, during and after the perturbing shock (Panteli–Mancarella 2015). The infrastructure recovery phase eventually follows, where the infrastructure is expected to reach its pre-event infrastructure resilience level.

The dimensions of resilience

Research identified five dimensions featuring the concept of resilience: robustness, rapidity, redundancy, resourcefulness and protectiveness. Robustness is defined as the strength of the system (or its elements) to withstand external stress or demand without degradation of functioning; rapidity is the speed with which disruption can be overcome and services restored; redundancy is the extent to which the elements of the system can be substituted; resourcefulness is the capacity to identify problems, establish priorities, and mobilise resources in the case of crisis; and, finally, protectiveness is the capacity of external works or equipment to protect the system from threats (Bruneau et al. 2003; Curt–Tacnet 2018).

Another approach to the definition of resilience dimensions in critical infrastructures sheds light on the aspect of the management process, the components and involved domains (Curt–Tacnet 2018).

As presented in Figure 4, the first dimension, named management phases, distinguishes the phases starting from the perturbative event to the time in which the system regained its operational capabilities and resilience and it is characterised by the definition of a specific strategy to manage and/or prevent the critical event. Therefore, the process can be split in planning/preparation (ex-ante phase), absorption (during the event phase), and recovery and adaption (ex-post phases). The management components (second dimension) involve anticipation (i.e. event's occurrence prediction), monitoring/detection (identification and interpretation of precursory signs), control (using the defined indicators to implement actions focused on system's recovery or adaptation), collection of feedback from experience (useful for the anticipation, monitoring and detection of future events). Finally, the field dimension of resilience refers to the different domains impacting resilience: technical, organisational, human and economic. These dimensions, with relative examples, are depicted in the following figure.

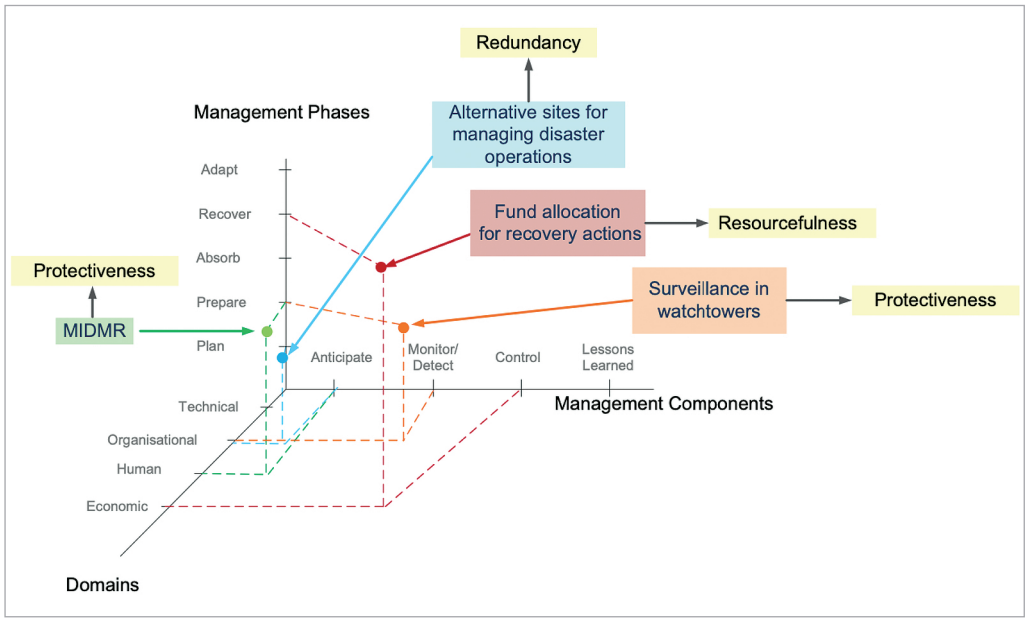

Figure 4: Different dimensions of resilience – illustration by examples
Source: Curt–Tacnet 2018

Resilience indicators and assessment framework of critical infrastructures

In order to define the level of resilience of a critical infrastructure, the system must be assessed. A resilience assessment framework for critical infrastructures (Guo et al. 2021) is presented in Figure 5. It is based on four dimensions: technical, organisational, social and economic.

The technical dimension refers to a physical system's capacity to maintain an acceptable level of performance when it is affected by a disruptive event. Thus, this dimension focuses on the vulnerability and recovery of the entire system, its components and the related interconnections and interaction. In the following, some indicators related to the technical dimension are listed:

1. robustness: refers to the capacity of the system to withstand shock and critical events without compromising its performance or functionality
2. maintenance: divided in preventive (to make the system able to withstand a disruptive event before it happens) and corrective (to repair the component damaged by the disruptive event) maintenance
3. safety design and construction: refers to those system design characteristics that are appropriate to ensure a high level of resilience
4. data acquisition and monitoring systems: data acquisition is accomplished by the data acquisition system in order to collect specific data required by the proper functioning of a system's critical part, data is then used by the monitoring equip-

ment to check whether it is in the correct value range, otherwise an alarm will be triggered

5. redundancy: refers to the availability to alternative resources (backups, replicate or alternative systems or systems' parts, etc.) able to substitute the part of the infrastructure damaged by the disruptive event in order to continue operations
6. recoverability: the capacity of a system or component to restore its original functioning and performance; recoverability is determined by available financial, material and human resources and by the characteristics of the required recovery process

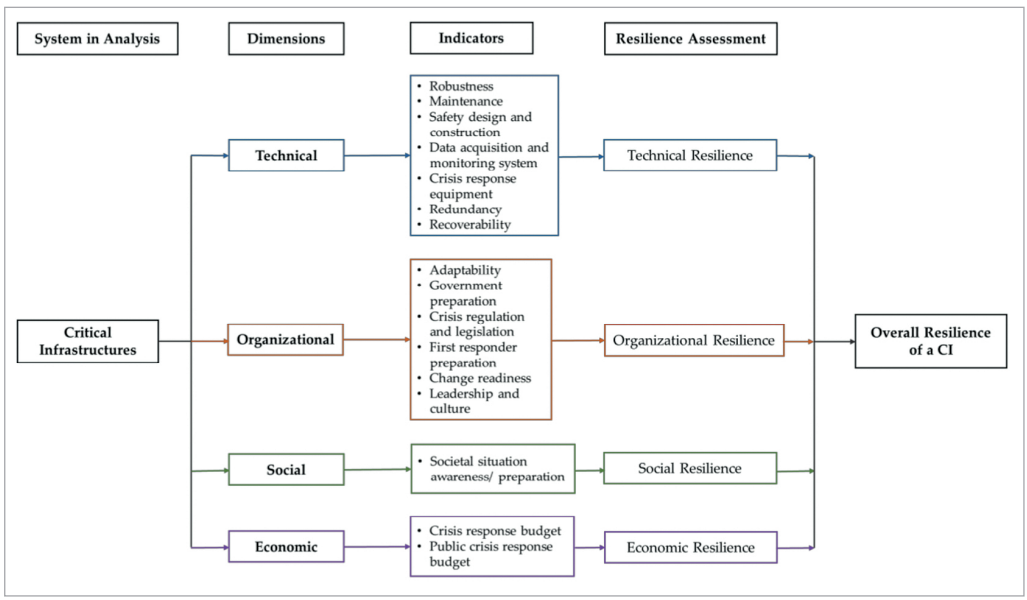

Figure 5: A typical framework for measuring the resilience of critical infrastructures
Source: Guo et al. 2021

The organisational dimension of resilience is related to organisations in charge of responding to disasters or critical events. For instance, it refers to the capacity of those organisations to decide and take actions, to prevent (or prepare for) and respond to a disruptive event involving critical infrastructures. Some indicators of the organisational dimensions are the following:

1. adaptability: the capacity of the critical infrastructure organisation to dynamically adapt to undesirable circumstances and/or uncertain environment by undergoing some change
2. government preparation: refers to a government's preparedness to anticipate events that may bring crises and the capacity to act quickly when they occur
3. crisis regulation and legislation: refers to the level of maturity and compliance with laws and regulations; the level of maturity also takes into account their level of crisis awareness and recentness

4. first responder preparation: refers to the level of first responders' (i.e. firefighters, military, police and emergency forces) preparation, training, commitment, crisis and situational awareness
5. change readiness: refers to the capacity of the organisation to change in response to changes in, and to perturbations of, the environment; the indicator takes into account characteristics like the ability to predict and identify dangers, problems and breakdowns, and to develop or adopt alternative strategies according to environmental change
6. leadership and culture: measures the capacity of an organisation to promote a transparent organisational commitment to a resilient culture, vision and values (i.e. passion for challenges, agility, flexibility, innovation, etc.)

The social dimension of resilience regards social response to disruptive events. In other words, it refers to a group's or a community's ability to cope with external pressures and disturbances (Adger 2000) and to the societal capability to reduce the impact of a disrupting event by helping first responders or acting as volunteers (Labaka et al. 2016). Societal situation awareness/preparation, namely, the public awareness level of the risks and vulnerability they may face in an unfavourable situation, is its unique indicator.

The dimension of economic resilience concerns the capacity to minimise direct and indirect losses consequent to a crisis (Guo et al. 2021). The two indicators are crisis response budget, namely, the size of the critical infrastructure's funds destined to absorb the impact of the disruptive event and repair/replace facilities in order to restore them into an acceptable state as soon as possible, and public crisis response budget, namely the size of public funds set aside as a crisis response budget.

Critical infrastructure protection in the European Union

As mentioned in the first paragraph of this chapter, starting from 2004, the importance of critical infrastructures has come to awareness in the European Union. The first framework for critical infrastructure protection was developed in the years 2004–2006 with the initial focus on protecting these infrastructures from terrorism (Commission of the European Communities 2004), then extending its protection target on all possible threats, with the *European Programme on Critical Infrastructure Protection* and the *Directive on European Critical Infrastructures* (Commission of the European Communities 2006), including network and information security (NIS Directive) hazards (EUR-Lex 2016; see also Castiglioni–Lazari 2022).

The *European Programme on Critical Infrastructure Protection* and the *Directive on European Critical Infrastructures* (Commission of the European Communities 2006; EUR-Lex 2008) created a list of the critical infrastructure classified by sectors as follows: energy, including electricity (generation and transmission infrastructures), oil (production, refining, treatment, storage, transmission) and gas (production, refin-

ing, treatment, storage, transmission), and transport, comprising road, rail, air, inland waterways transports, ocean and short shipping and ports.

In 2012, the European Commission published the "Seveso Directive" (EUR-Lex 2012) on the control of major-accident hazards. This directive can be considered a milestone in the previous European protection policies because it extends their field to health, safety and environment.

A major step and change of direction in the area of security, resilience and cooperation took place on 16 December 2020, with the publication of two proposals for new directives by the Commission. These proposals aimed to promote security and resilience improvement in both the physical and cyber domains and in essential services. In detail, the first proposal's aim was to improve the network information systems protection by repealing the old NIS directive and proposing an updated version (NIS 2.0) (EUR-Lex 2020a). The second proposal extended the need of protection to a wider class of "objects" called "critical entities". A synthesis of the critical entity's characteristics defined by the European Commission, in their *Proposal for a Directive of the European Parliament and of the Council on the Resilience of Critical Entities* (EUR-Lex 2020b), would make a definition like the following:

A *critical entity* is a public or private entity which has been identified as such by an EU Member State taking into account the outcomes of risk assessment and applying the following criteria: a) the entity provides one or more essential services; b) the provision of that service depends on infrastructures located in the Member State; and c) an incident would have significant disruptive effect on the provision of the service or of other essential services in the sectors that depend on the service.

The NIS 2.0 and the critical entity resilience directives are expected to be promulgated in late 2022 – early 2023 (Castiglioni–Lazari 2022). With the promulgation of those directives, European Member States can refer to a complete and inclusive framework useful to face the challenge in the years to come. For an extensive analysis of the normative evolution towards the regulations of critical entities resilience in the EU, see Pursiainen and Kytömaa (2023).

Conclusions

The heavy dependence of modern societies, and the wellness of their citizens, on services (material and immaterial) and goods provided by the so-called critical infrastructures and, more in general, by critical entities is well acknowledged. Their vulnerability to many kinds of hazards and threats, whose origin might be either man-made (i.e. terrorist attacks, cyberattacks) or natural (floods, landslides, earthquakes, etc.) is also so well acknowledged that, in the past decades, a plethora of risk management techniques have been employed to preserve the service continuity of critical infrastructures.

Risk management techniques, however, proved to be unable to anticipate rare events with major consequences (i.e. earthquakes, tsunamis, and, recently, pandemics and wars). To overcome these limits the concept of resilience – namely the capacity of an entity

to mediate between performance and uncertain conditions (i.e. critical and disrupting events, major accidents, or continuous stress) in order to maintain or regain a dynamically stable state which allows it to continue operations – was explored. A number of models have been identified to support the management of the resilience in order to protect critical entities.

It seems that national approaches to critical entity protection are not anymore sufficient because of the involved entities and the complexity of the threats. Moreover, having different protection policies and approaches in different European Nations became cumbersome to manage, especially when considering the interdependences of complex infrastructures crossing national boundaries. These are some of the considerations that lead to the need for building a coherent and cooperative approach to the security and protection of critical entities shared and shareable within the EU member states. This has driven the European Commission to discuss a critical entity resilience directive, which is expected to be promulgated in late 2022 – early 2023.

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Melinda Zsolt

Energy Security in Times of Crisis

The largest part of the European Union's energy needs comes from outside its borders, and although the goal of improving the import dependency rate has been set for decades, this has not substantially improved. The EU is therefore extremely vulnerable to energy imports, especially from Russia, and its energy security is thus at risk. The integration resulting from the common market also brings difficulties, as do the increasingly strong effects of climate change, while the diversity of member states' interests makes it difficult to create a common voice. The EU has laid down in strategic documents that, as part of the fight against climate change, energy systems must be changed, switching to renewable energies. For the EU, diversification also results in improved energy security; therefore, it has set ambitious goals for itself in the fight against climate change, and in this fight it is setting itself a global leadership role: becoming the first climate-neutral continent by 2050. Today, however, energy policy alone is not a sufficient tool, it is necessary to combine several policies. In February 2022, Russia attacked Ukraine and simultaneously began to use the EU's energy dependence as an economic and political weapon against it. As a result of the emerging energy crisis, the EU has accelerated decision-making, and as a solution, it is trying to become independent from Russian fossil energy sources and speed up the energy transition process. The EU has adopted a total of nine sanction packages against Russia until the end of 2022 to weaken the Russian economy to the point where it cannot continue the war against Ukraine. The sanction packages also contain a number of energy policy instruments. The set goal for the EU is to become independent from Russia and establish its energy security well before 2030, which, however, still holds many challenges.

Keywords: European Union, energy security, energy policy, climate change, energy dependency

Acronyms

EAC	European Atomic Energy Community (Euratom)
ECSC	European Coal and Steel Community
EEC	European Economic Community
EPE	Energy Policy for Europe
ETS	Emission Trading System
IEA	International Energy Agency
LNG	liquefied natural gas
UNFCCC	United Nations Framework Convention on Climate Change

Introduction

Energy supply is one of the basic conditions for the operation of the European Union: without energy we cannot heat, light, travel, and industrial production cannot proceed either. It is now clear to everyone that, as part of the fight against climate change, we

have to change our energy systems and basically the way we relate to energy. 2022 was a particularly important year from this point of view: in February, Russia attacked Ukraine, and it is not yet clear when the aggression will end, and the whole of Europe was faced with such extreme weather events that made the presence of climate change palpable.

The EU's energy mix has been constantly changing over the past decade, using less and less petroleum, whereas, to a lesser extent, natural gas consumption is decreasing, the phase-out of coal has begun, and the use of nuclear energy is also slowly decreasing, while the share of renewable energies is constantly increasing (International Energy Agency 2022a). In 2020, the EU's energy mix consisted of 34.5 percent of crude oil, 23.7 percent of natural gas, 17.4 percent of renewable energy and 10.5 percent of solid fossil fuels (Eurostat 2022). However, the EU has set itself extremely ambitious goals, as part of the fight against climate change on the one hand, and, on the other hand, to improve energy security.

The EU is considered a front-runner in the fight against climate change, as part of which it strives to replace fossil energy sources with renewable energies and thereby reduce its energy dependence. The goal is to become the first climate-neutral continent by 2050. The implementation of this requires the involvement of many policies, of which energy policy has a particularly important role.

In this article, we present the role of energy policy and energy security in the history of the EU from the beginning, and how the fight against climate change appeared on the agenda in relation to energy, as well as what role the EU assigns to itself in the recovery from the energy crisis and thereafter.

Russia's war against Ukraine has highlighted the weakness of the EU and its member states separately, the exposure to cheap Russian fossil energy sources. The significant energy dependence is not surprising. Its solution has been on the agenda for decades, yet a crisis was needed to speed up the solution process.

57.5 percent of the energy used in the EU comes from imports, almost half of which, 24.4 percent, is purchased from Russia. In addition, Russia is the EU's largest supplier of primary energy carriers, crude oil, natural gas and solid fossil fuels (Eurostat 2022).

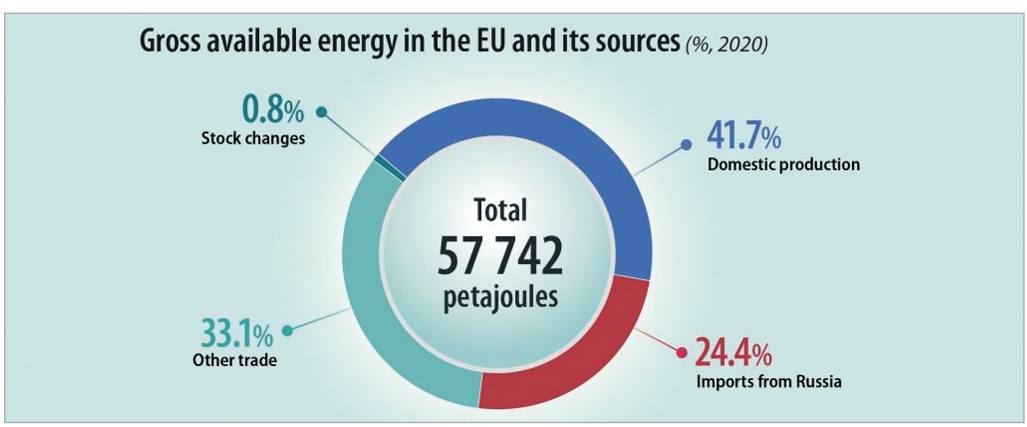

Figure 1: Gross available energy in the EU and its sources
Source: Eurostat 2022

If we only consider natural gas, the EU imports 90 percent of the natural gas it needs, and 45 percent of the imports come from Russia, but this proportion differs greatly when broken down by member state. In 2020, Lithuania imported 96.1 percent from Russia, Slovakia 57.3 percent, Hungary 54.2 percent, Cyprus 1.7 percent, Ireland 3.2 percent and Luxembourg 4.3 percent (Eurostat 2022). 25 percent of the EU's oil imports and 45 percent of its coal imports come from Russia (European Commission 2022a).

It is now clear that the conflict is not only taking place on the Ukrainian battlefield, but is also having a serious impact on the European and global markets.

The EU and its member states were thus forced to use new solutions to replace the lost Russian energy to ensure their energy security. This opens up new opportunities and Europe plans to take a leading role in the transition to green technologies and the promotion of fair and sustainable development.

The concept of energy security

The concept of energy security in the discipline of security studies is based on the sectoral theory of the Copenhagen School of Security Studies. In their book *Security. A New Framework for Analysis,* published in 1997, Barry Buzan, Ole Waever and Jaap de Wilde create the analytical conditions for examining the different sectors of security: military, environmental, economic, societal and political (Buzan et al. 1997). They present the broadening of the concept of security from the 1970s, when non-military and political factors threatening security appeared, just think of the two oil crises. Since the end of the Cold War, the concept has continued to expand, the focus of security has gone beyond the threat to existence, and new sectors and actors not directly linked to states have appeared (multinational corporations, terrorist organisations, etc.).

Energy security used to be treated as a part of economic security, since energy is the basis for the functioning of the economy, but today, as a result of climate change and the energy transition, it is closely connected to other sectors, especially the environmental sector, but we must not forget the political and social effects of these challenges either. Digitisation is also crucial for the development of the energy sector; thus, cybersecurity is inseparable from energy security, as well. The Russian invasion of Ukraine, which can also be considered an energy war from a European perspective, is only the latest proof of the relationship between energy security and military security.

The current international energy supply system was formed in response to the 1973 oil embargo. On the one hand, it was intended to deter the oil-producing countries from using the oil weapon, and on the other hand, to prepare for coordination in the event of a supply interruption. In 1974 the International Energy Agency (IEA) was created to ensure the security of global oil supplies. The core mission of the organisation is still ensuring energy security and creating a framework for energy policy cooperation. It also helps prevent supply disruptions, supports information transparency, energy efficiency, sustainability, research and development and technological collaboration (International Energy Agency 2022b).

The IEA defines energy security as "the uninterrupted availability of energy sources at an affordable price" (International Energy Agency 2022c). It distinguishes between two aspects: "Long-term energy security mainly deals with timely investments to supply energy in line with economic developments and environmental needs. On the other hand, short-term energy security focuses on the ability of the energy system to react promptly to sudden changes in the supply-demand balance."

Another frequently used energy security concept is based on similar foundations, as the first two elements of the 4A concept, availability, affordability, accessibility and acceptability, are also found in the IEA definition (Cherp–Jewell 2014). Accessibility is typically a geopolitical challenge when the energy source is available, but access is not necessarily guaranteed. Acceptability is basically a social and political approach, i.e. whether a community really wants to use the given energy source, which arises, for example, in the case of nuclear energy.

The meaning of energy security also differs by geographical area: there are energy exporters, energy importers and energy transit countries. The production, export and transport of energy resources has become a strategic issue, so the stability of energy-producing countries and regions is crucial to maintaining the balance between supply and demand, which is reflected in foreign and security policy.

The European Union and most developed economies typically supply a significant part of their energy needs from imports, so for them energy security means a continuous supply from the given energy source in the right quantity and at an affordable price.

According to the latest EU data from 2020, 57.5 percent of the energy used comes from imports, which shows a slight decrease compared to 60 percent in 2019, but this is presumably due to the Covid-19 economic crisis. In 2000, this ratio was 56 percent, which means that the vulnerability of the EU has not improved significantly (European Commission 2022b).

The role of energy in European integration

The establishment of the EU was determined from the beginning by energy policy. When the community was born, the goal was to guarantee long-term peace between European countries, so the international supervision of the coal and steel industry was meant to support the reconstruction after the Second World War and prevent the rearmament of Germany and France (Zsolt 2022).

In 1951, with the signing of the Treaty of Paris (entered into force in 1952), the establishment of the European Coal and Steel Community (ECSC) marked the first step towards integration, in which common political interests were represented and cooperation was realised.

The aim of the international organisation founded with the participation of six countries (Belgium, West Germany, France, Italy, Luxembourg and the Netherlands) was to create a common European market for coal and steel, the most important energy

carriers at the time, providing conditions for free movement without customs duties or taxes and access to production resources.

The six member countries further deepened the integration on 25 March 1957, when, with the signing of the Treaty of Rome, the European Economic Community (EEC), i.e. the common market, was born. On the same day, the same six countries signed the second Treaty of Rome, which established the European Atomic Energy Community (EAEC or Euratom), another institution of European cooperation on energy policy. Both treaties entered into force in 1958. The signatories are committed to the peaceful use of nuclear energy and to cooperating in the development of the nuclear energy industry with the aim of ensuring their energy independence and security of supply with nuclear energy.

European integration in the field of energy policy has changed after the dynamic initial years, on the one hand, because the role of coal in energy supply has decreased and, in parallel, crude oil has become increasingly dominant. In addition, due to the different energy structure, supply routes and energy market structure of the member states, different interests appeared in the community, which stood in the way of deepening energy policy cooperation. Already in the 1960s, one of the biggest challenges of the EU's energy policy, the question of energy dependence, was formulated, while the energy markets of the member countries operated separately from each other because of protectionist policies.

In December 1968, the European Commission, in its report entitled *First Guidelines for a Community Energy Policy* (European Commission 1968), called it a "dangerous trend" that the common energy market had not yet been established, and set the goal of implementing a community energy policy that fully integrates the energy sector into the common market. "A community energy policy is also necessary in order to counterbalance within the community the risks arising from the great dependence of the Member States on imports and from insufficient diversification of the sources of supply" (European Commission 1968).

The global energy market of the 1960s was generally characterised by abundant availability and relatively low prices, and although difficulties sometimes arose, the community was able to ensure its energy supply under favourable conditions during that period (European Commission 1972). At the same time, in the outlook for the period between 1975 and 1985 published in 1972, the Commission stated as a problem that 95 percent of the EC's (European Communities) oil needs come from imports, and even if they increase supplies from the nearby North Sea, most of the supply still depends on distant suppliers. Meanwhile, the world oil market also underwent significant changes, which caused the price of oil to rise.

The 1973 oil crisis confronted Europe with how vulnerable it is to external suppliers and thus to energy supply disruptions. As a result, a new energy policy strategy was adopted in 1974 on the proposal of the Commission, which for the first time formulated community energy policy objectives and covered the period up to 1985 (European Council 1974). The strategy approved by the Council emphasised the importance of common energy policy and coordination between member states, referring to changes in the global energy market. The strategy indicated the improvement of the security of energy supply by developing nuclear energy production, the use of own hydrocarbon and solid fuel

sources, as well as the diversification of imports and the technological development of various energy sources. Finally, it specifically emphasised the environmental protection aspects in the field of energy production and energy consumption.

As a result of the second oil crisis, the Commission put the implementation of the community energy policy back on the agenda. The document *The Energy Programme of the European Communities* (European Commission 1979), published in 1979, included a revision of the 1974 energy strategy and set new goals in the key areas of energy policy; focused on the issue of dependence on petroleum, describing dependence on external energy supply as dangerous.

By the 1980s, it became clear that, although several strategic documents stated the need to create a common energy market and reduce dependence on crude oil through more rational energy use, as well as to increase the diversification of energy supply, this did not lead to the creation of a comprehensive European energy strategy. At that time, the community energy policy typically covered only the application and development of nuclear energy, but renewable energy was already mentioned as a means of diversification.

Meanwhile, following the oil crises of the 1970s, the world market price of oil fell again in the mid-1980s, and the energy supply was once again characterised by relative abundance. It was clear that a single internal market, of which energy is an integral part, could significantly increase Europe's competitiveness.

The Maastricht Treaty was signed on 7 February 1992 (entered into force on 1 November 1993), which marked a huge step forward in European integration: the three-pillar structure and the European Union itself were born. Although it was on the agenda for a long time that the field of energy should be included in the treaty independently, this had to wait until 2009 (the Treaty of Lisbon). Primarily, the member states with raw materials hindered the Commission's efforts to raise the energy policy to the community level (Langsdorf 2011). Maastricht can still be considered a step forward in that the economic provisions of pillar I extended to the field of energy together with the common market, but, for example, the development of the energy infrastructure and foreign relations were still only listed as goals.

By 1995, the white paper of the unified energy policy was born (European Commission 1995), which formulated three goals: general competitiveness, security of energy supply and environmental protection. The document named market integration, management of import dependence, promotion of sustainable development and development of energy research and technology as means to achieve the goals. The first internal energy market measures did not have to wait long: directives for the gradual opening of the internal markets of electricity in 1996 and natural gas in 1998 were published.

Meanwhile, the issue of environmental protection gained more and more attention. In 1997, the European Union signed the Kyoto Protocol, the treaty that extended the United Nations Framework Convention on Climate Change (UNFCCC 2015), in which it committed itself to reducing its greenhouse gas emissions by 8 percent by 2012 compared to the base year of 1990. It also became clear that the fight against global climate change at the nation state level can no longer bring the desired result, which has also set a common

goal for the European Union, and not least Europe has been devoting itself a leading role in this fight.

At its meeting on 8–9 March 2007, the Council defined an action plan entitled *Energy Policy for Europe* (EPE) for the period 2007–2009 (European Council 2007), which can be considered the birth of the first unified European energy policy. The adopted measures included the development of the internal electricity and gas market, security of energy supply, joint European action in energy external relations, increasing energy efficiency and the spread of renewable energies, as well as the development of energy technologies.

In the spirit of the integrated European climate and energy policy, it was declared that the EU would reduce greenhouse gas emissions by 20 percent by 2020 compared to the base year of 1990, increase energy efficiency to 20 percent, and also increase the share of renewable energies in total energy consumption to at least 20 percent (20/20/20). In 2009, the directive on increasing the share of renewable energies also set these targets broken down by member states (European Parliament and European Council 2009).

The Treaty of Lisbon was signed in 2007 (entered into force in 2009), in which – for the first time in the history of integration – energy policy was given a separate chapter. The goals of the EU energy policy were the operation of the energy market, the security of energy supply, energy efficiency and energy saving in order to protect the environment, as well as the development of renewable energy sources and the interconnection of energy networks. The issue of exploiting one's own energy sources, the choice between energy sources (energy mix) and the definition of the general structure of energy supply, which also includes maintaining external relations, remained within the competence of the member states.

European Energy Security Strategy

In 2014, the Commission proposed a comprehensive energy security strategy (European Commission 2014). Following the dispute between Russia and Ukraine in 2006 and 2009 and the armed conflict that broke out in early 2014, dependence on Russian gas imports has been a crucial problem for the EU, as Russia was the only supplier for six member states.

Also in 2014, the energy and climate policy framework until 2030 was presented, which further raised the 2020 targets. The EU has committed itself to reducing greenhouse gas emissions by 40 percent, increasing energy efficiency by 27 percent, and providing at least a 27 percent share of renewable energies in total energy consumption.

Energy Union: Energy security, climate policy and single market

In 2015, the Commission published the *Energy Union Strategy* (European Commission 2015), which seeks to bring together the energy security strategy with the energy and

climate policy framework. Its aim is to "ensure affordable, secure and sustainable energy for Europe and its citizens", which is based on five pillars: energy security, integrated internal energy market, energy efficiency, decarbonisation of the economy, research and innovation. Overall, the energy union seeks to respond to the most important energy challenges, namely, climate change, energy dependency and aging energy infrastructures.

In order to implement the energy union, in 2016 the Commission presented a package of proposals entitled *Clean Energy for all Europeans,* all elements of which were finally accepted by 2019 (European Commission 2016). As part of the package, the energy policy goals set until 2030 were revised and it was set to increase energy efficiency by at least 32.5 percent, as well as to increase the share of renewable energies to at least 32 percent of total energy consumption.

Also in 2015, the Paris Agreement was signed (UNFCCC 2015), which was supposed to replace the Kyoto Protocol that expired in 2012, but it took a long time to reach an agreement. Finally, at the Conference of the Parties (COP) to the UNFCCC held in Paris, world leaders agreed on new, ambitious goals in the fight against climate change. The most important goal of the agreement is to keep the increase in the global average annual temperature below 2 degrees Celsius compared to the level before industrialisation, but they try to ensure that the increase does not exceed 1.5 degrees Celsius.

European Green Deal

The EU continues to strive for a leading role in the global fight against climate change, therefore, in accordance with the Paris Agreement, it has set itself the ambitious goal of becoming the first climate neutral continent by 2050. The European Green Deal (European Commission 2019) presented in 2019 marks the way to this end by involving a number of policies in which energy policy plays a key role – this is called energy transition.

The document (European Commission 2019) prioritises the issue of energy security, and states that the integrated and digitalised common energy market must be created in line with the energy union. The rate of emission reduction and the spread of renewable energy sources must be accelerated, and energy efficiency must be increased with special emphasis on improving the energy performance of the buildings. The document highlights the importance of sustainable energy production, decarbonisation and modernisation in energy-intensive industries, in parallel it aims to phase out coal from energy production. Finally, it sets the development of trans-European networks, thus, the connection of energy infrastructures with innovative and intelligent technologies.

The member states submit energy and climate plans on their national contribution, which contain ambitious commitments in accordance with the energy union and climate policy aspects to achieve the EU goals. Overall, the European Green Deal in addition to net zero emissions intends to implement a new growth strategy taking into account the concept of a socially just transition.

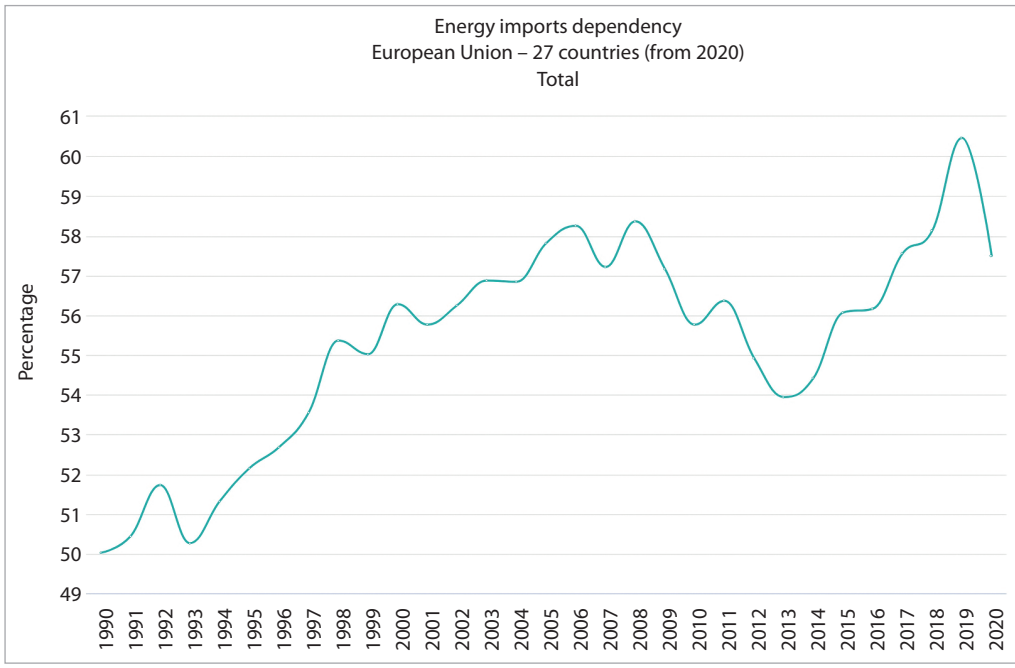

Figure 2: Energy imports dependency, EU, 1990–2020 (% of the total energy needs)
Source: Eurostat 2022

Fit for 55

On 14 July 2021, the European Commission adopted the *Fit for 55* package of proposals as part of the European Green Deal, which aims to strengthen the EU's global climate leadership and set the path for the EU to reduce greenhouse gas emissions by 55 percent by 2030. The package modernises existing legislation and introduces new policy measures (European Council 2021).

The package of proposals therefore deals primarily with large polluting industries, such as the reduction of transport emissions, also assigns real prices to pollution by expanding the Emission Trading System (ETS) not only in industry but also in the transport sector. *Fit for 55* further supports the spread of renewable energies and tries to provide adequate frameworks for weather-dependent solar and wind energy to obtain permits to connect to energy networks. It will increase the target for renewable energy in the energy mix from 32 percent to 40 percent, and the target for energy efficiency from 32.5 percent to 36 percent for final and 39 percent for primary energy consumption. It also covers the issue of land use, the energy performance of buildings, energy taxation and deals with the social effects of the measures.

Repower Europe

In February 2022, Russia attacked Ukraine, which put Europe and especially the member states in an uncertain situation, and the resulting crisis accelerated decision-making. The European Commission presented its REPowerEU plan on 18 May 2022 (European Commission 2022c), which served a dual purpose. While it is necessary to reduce the dependence on Russian fossil energy sources, which Russia uses as an economic and political weapon against Europe, it is also urgent to speed up the energy transition and thus the fight against climate change.

In fact, the REPowerEU plan did not include completely new measures, it builds on the *Fit for 55* package, only the priority and speed have changed (European Commission 2022d). The deadline for resolving dependence on Russia is 2030, but with the stipulation that it can be done much earlier (European Commission 2022a).

The most important areas of REPowerEU are: energy saving, clean energy production and diversification of energy supply, for which legal and financial instruments have been assigned. The spread of renewable energies and electrification is therefore accelerating, new partners must be agreed upon to achieve diversification, in industry, transport and the heating of buildings, which are most dependent on fossil fuels; the emission of greenhouse gases must be reduced through energy saving, energy efficiency and the use of alternative fuels.

Energy policy and foreign affairs in a strategic framework

On 18 May 2022 the EU also presented its External Energy Strategy (European Commission 2022e) as part of the REPowerEU plan, which links energy security with the global clean energy transition through external energy policy and diplomacy. Thus, it can simultaneously respond to the energy crisis caused by Russia's invasion of Ukraine and to the existential challenges of climate change. Implementation therefore requires close cooperation between foreign affairs and energy policy decision-makers, energy security can no longer be ensured solely by means of energy policy. The strategy also reveals that, just like the fight against climate change, the EU also strives to play a leading role in solving the energy crisis, and assumes responsibility for mitigating the global effects of the crisis through partnerships, especially with developing countries (European Commission 2022c). The support can be financial, technology transfer, assistance and trade cooperation.

The energy crisis also means that new solutions must be found: Europe is taking a leading role in the transition to green technologies and promoting a just and sustainable development. However, for this, it must ensure its energy security, the defining element of which is diversification, including the resilience of supply chains and access to critical raw materials required for energy transition.

Consequently, the strategy aims to reduce energy demand, save energy, promote energy efficiency and spread renewable energies, and promote the EU's clean energy industry globally (European Commission 2022f).

One of the biggest challenges facing the EU is dependence on Russian gas supplies, which it aims to completely eliminate. In order to diversify the gas supply, it forms partnerships for the purchase of liquefied natural gas (LNG), but it does not completely stop the supply of piped gas, and it also prepares for the trade of renewable hydrogen.

The EU takes part in ensuring that, despite the war, Ukraine's energy supply is continuous in the field of gas and electricity. The document also deals with the reconstruction of Ukraine's energy infrastructure. The strategy states that Russia's invasion of Ukraine threatens the energy security not only of the EU, but of the entire world, and sees the transition to green energy as the only solution.

Sanctions

From the very beginning, the EU strongly condemned Russia's invasion of Ukraine as unprovoked and unjustified military aggression, and urged a negotiated diplomatic solution to the conflict (European Council 2022a).

As a response, the EU introduced a series of sanctions against Russia: a total of nine sanction packages were adopted by the end of 2022. The purpose of the sanctions is to weaken the Russian economy so that it does not have access to the technologies and markets it needs to generate revenue and continue the war in Ukraine. Energy plays a key role in this, as Russia has enormous fossil energy reserves, and most of the state's income comes from their export, and one of its largest markets is the EU.

Even before the attack on Ukraine, Europe was hit by ever-higher energy prices, then, after the start of the invasion, Russia reacted to the news of the sanctions, and by using energy as a weapon further worsened the situation of the energy market with high prices and endangering the security of supply.

On 8 April, the EU adopted its fifth package of sanctions, which included a complete ban on the import of coal and other solid fossil fuels from Russia. Coal was then the first energy source from Russia to be restricted by the EU. The measure entered into force on 10 August (Euronews 2022). Considering that ten EU member states have already phased out coal, and another ten have set the date for the complete phase out of coal in the coming years (European Commission 2022g), this measure made it less difficult to ensure the energy supply of EU member states. Natural gas and crude oil were the bigger challenge.

In preparation for the winter, the EU started diversifying its gas supply, while Russia significantly reduced its gas exports to the EU. While Russia's market share was around 50 percent in the second half of 2021, by August 2022 the share had dropped to 17.2 percent (European Council 2022b). At the same time, the EU reduced gas consumption by 15 percent (European Commission 2022h). The EU replaced most of the Russian gas

with LNG, which it bought primarily from the United States, but Norway, Algeria, Qatar and Nigeria were also suppliers.

The ban on the import of Russian crude oil and refined petroleum products was included in the sixth sanction package adopted on 3 June (European Council 2022c). The restriction on crude oil came into effect on 5 December 2022, and on refined petroleum products on 5 February 2023. Exceptions to the ban on the import of crude oil are those countries that do not have direct access to seaports and therefore can only get oil via pipeline, the sanction still affects 90 percent of Russian exports to Europe, so Russia loses significant revenue (European Council 2022d). The sanctions were designed in cooperation with the G7 countries in such a way that the price of oil on the world market remains in balance, the details of which were provided for in the eighth package of sanctions adopted on 6 October.

Challenges of the future

The EU's crisis management is particularly important not only for Europe, but also for the rest of the world, as Russia's invasion of Ukraine goes far beyond the region due to global energy commodities. The world is in the middle of "the first truly global energy crisis", as Fatih Birol put it (Euractiv 2022). The executive director of the IEA also said that this crisis could be a turning point in the history of energy by accelerating the clean energy transition. "Energy security is the number one driver (of the energy transition)."

Achieving the set ambitious goals requires a strong commitment on the part of the member states, however, due to the differences between the energy sources at their disposal, geographical location, and historical and geopolitical conditions, divisions are characteristic in several areas of energy policy (Leimbach–Müller 2008). In the years since the end of the Cold War, the member states tried to represent their interests in a constantly changing environment, which is why we can only talk about a common European energy policy since the Treaty of Lisbon. However, you can distinguish cooperation between the member states along certain interests, from new ad hoc alliances formed as the energy transition process takes place.

The issue of the energy transition divides the member states into two groups, the axis being drawn between the old and the new member states (Mata Pérez et al. 2019). The states that joined between 1958 and 1995, with their more developed energy markets and modern energy infrastructure, see the rise of renewable energies as an economic opportunity, which reduces import dependence and greenhouse gas emissions. For them, the integrated market means joint management of challenges.

In the states that joined after 2004, the energy infrastructure is old and outdated, so in its current state it is not suitable for providing significantly better connections with other countries in order to improve the security of supply. Energy markets are therefore less resilient, and the applications of renewable sources are also less developed, thus they see a greater risk in the energy transition and market integration. The countries

of the region must therefore bear huge costs in order to realise modernisation in all areas of energy.

Accelerating the energy transition and the integration of the energy sector has many positive benefits for the EU, but it also brings serious challenges. Throughout the energy crisis, too much emphasis is placed on the security of supply and on ensuring the right amount of natural gas. The EU thus risks that the investments focus on the development of the infrastructures necessary for natural gas transport, such as the increase of LNG capacities, the return on which is increasingly uncertain in the long term in view of the changes in the energy market, while other dimensions of the developments may be unjustifiably pushed into the background (Dennison–Zerka 2022).

Parallel to all this, the use of renewable energies is increasing as a result of the energy transition, however, the European industry is not yet sufficiently prepared and does not have the necessary raw materials and tools, while China, for example, plays a leading role in the renewable industry. The EU may thus find itself in a trap where it replaces one kind of foreign energy dependency with another similar foreign energy dependency.

Presumably, some form of dependency will be present in the future as well, but ideally this will not mean one actor. The EU must be able to ensure that the renewable energy industry obtains and processes the necessary minerals that form the basis of the technology. The EU must be prepared that, on the one hand, their quantity does not necessarily meet the global needs associated with the energy transition, which generates competition and price increases, on the other hand, it is often necessary to maintain trade cooperation with countries with unstable political systems, which will therefore not always be reliable partners. At the same time, a leading role must also be played in the field of clean technology innovation (Bordoff–O'Sullivan 2022).

Conclusions

Overall, the European energy policy has come from complete fragmentation to a phase where integration is gradually realised, while we witness the complete transformation of energy-related areas. The EU is committed to the fight against climate change, and considers the widest possible use of renewable energies to be a particularly important tool for this. Energy produced in Europe, such as renewable energy, also serves as a tool to reduce the EU's energy dependence by bolstering diversification.

Accordingly, the European Green Deal laid the foundations for reducing import dependence, which has been a challenge since the 1950s. The integration could not be realised for a long time precisely because of the different interests of the member states, but the impact of the common market on the security of supply and the fight against climate change moved the process in the direction of cooperation, then Russia's invasion of Ukraine accelerated solutions to strengthen energy security and realise the energy transition.

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Qualitative Methodologies

This chapter is the presentation of the main characteristics of qualitative research so as to highlight its approaches and goals. A specific focus on the use of the interview in qualitative research is developed. Issues related to preparing and carrying out a semi-structured interview are presented. Two forms of analysis of interview-collected data are presented.
Keywords: qualitative research, interviews, semi-structured interview, content analysis, thematic analysis

Introduction

This chapter is a text on methodological aspects of qualitative research in social sciences, namely on the use of the semi-structured interview. As such, it should be read as a text on procedures, supplying guidelines as to ways of carrying out data collection and data analysis that could be useful (and used) by researchers interested in any of the topics that constitute the main contribution of this book.

Qualitative Research: approaches and goals

When conducting a scientific inquiry, it is the research focus (the so-called central research question) that defines the suitable method to use. In striving to familiarise ourselves with social, political and cultural phenomena related to security, resilience and sustainability in the European Union, we aim at obtaining scientifically grounded, systematic knowledge.

For instance, if population attitudes on security threatening illegal migration are at stake, a large-scale standardised survey seems to be both an appropriate research design and data collecting tool. However, it is hard to design a good survey without it being preceded by field observations or interviews on the topic. The latter would help designing a useful (i.e. research goals-effective) questionnaire, by helping designing the themed units and respective questions.

Although big data and statistical analyses are overwhelmingly present in the scientific field, there are more methods to be chosen from. Let us suppose a scholar aims at studying the environment-related behaviour of children, such as, for instance, behaviour in the school playground during recess periods. An on-site observation would definitely be an appropriate method to use. Another typical topic of field research is deviant behaviour, which is difficult to inquire about directly, from the people involved. A researcher can choose to approach such a discrete topic by making on-site observations. Other than that, should someone be interested in the motivations of middle-aged people to participate

in cancer screenings, s/he/they would be advised to conduct either one-on-one or focus group interviews with a sample from the target population. On the other hand, stakeholders' messages are best approached via discourse analysis, whereas fake news on internet sites can be more fruitfully analysed via content analysis.

According to Burnard (1995), whatever qualitative method chosen, the researcher's self-reflection is the qualitative research's distinctive feature. Unlike quantitative methods that aim at producing number-based expressions of social phenomena (the latter being, more often than not, segmented in its take by the researcher), qualitative research strives to obtain a more meaning and narrative-based understanding of social reality, taking it, overall, in a more holistic approach when compared to quantitative approaches. The need for a statistically representative sample is not a central issue in qualitative analysis, and usually a relatively small size, non-probabilistic sample can be used as a base for the collection of information. This situation is possible because the data collected aims not at being treated statistically. Qualitative-based methods are thorough and detailed: besides getting to know the attitudes, views and meanings regarding the phenomena to be studied, their emergence, intensity and causal mechanisms are also possible to be known. Also, qualitative research can be both exploratory and explanatory (depending both on the stage and goals of the research), but it will always have an emphasis on descriptive and narrative forms of knowledge.

Nevertheless, it is useful to keep in mind that the use of multiple data collection methods in research (i.e. triangulation) is advisable for any study, and thus, also advisable in the study of social life.

Some common methods in qualitative research

In the paragraph below some qualitative research methods will be presented, which, based on the authors' experience, can be used to address research questions related to the European Union's security and resilience issues. Certainly, there are many more methods to be chosen from, and we advise the readers to supplement their knowledge with further readings.

Some methods of qualitative data collection, like field observations, are direct and on-site, others, like interviews, can be more indirect ways of understanding people's behaviours and attitudes. Methods that imply direct contact between a researcher and a social subject exert some observer effect upon the subjects of study by either the research instrument, the personality of the researcher or the site where the study takes place. On the contrary, research methods that do not require such direct contact use secondary data, and as such, do not influence the social subjects' behaviour to any extent.

Field observation

This ethnographic method is popular for its low cost, however, it is very labour- and time-intensive. The researcher goes on-site to observe and to register the behaviour of people in the space of their social life. Extended time of stay and direct contact by the researcher with the reality under study are hallmarks of this particular form of data collecting.

In this form of data collecting, it is desired that the researcher will acquire some form of participation in the life of the community so as to gain a more in-depth knowledge of the social universe under study. The so-called informants, that is, the insiders from the population to be studied, provide useful information, either through action or words. However, the information thus collected needs careful cross-checking (triangulation). This data collection method often needs inventive and resourceful researchers so as to better integrate into the collectivity they study (Babbie 2020). However, the presence of an observant should always be understood as a situation of social interaction between differentially located social actors: the researcher(s) and the informant(s) who mutually construct the observed social reality. Data gathered on the field is best recorded if immediately written down as field notes, diaries or minutes, so that it is available for detailed analysis at a later time.

Visual-based techniques

Paintings, drawings, photos, hypermedia, films and videos can act as data sources. They are easily accessible, which makes them a popular source of research.

Visual techniques like completion technique, collage/concept boards, mind mapping, graffiti or ideas wall offer an alternative to traditional discussion groups by facilitating the enunciation of opinions. As such, these visual-based resources are efficient in engaging population segments (such as youths or marginalised groups) that can prove difficult in cooperating with the research goals (MacDonald–Headlam 2009).

Usually, visual-based data is treated via content analysis, where either a manifest (surface) or a latent (deep structure) analysis can be performed. The stages involved in content analysis are the decontextualisation, the recontextualisation, the categorisation and the compilation (Bengtsson 2016). Different software helps classify and arrange unstructured information, discover patterns and draw conclusions from the data.

Document analysis

This method of analysis relies on written sources. In the context of the European Union security, resilience and sustainability issues, plausible objects of analysis can be, for instance, the following: Parliament and Commission meetings, summits, public speeches of politicians and stakeholders, press conferences. Minutes of meetings, policies, codes

of practice, newspaper articles, press-releases, books, websites. These sources mostly allow secondary analysis, which is sometimes used as a research method in its own right, but mostly for supplementing other methods like on-site observations, interviews or surveys. Documents provide context, are appropriate means of tracking change, allow the additional verification of results from other sources, and draw the researcher's attention upon questions that need to be asked with further research tools (Bowen 2009). In some cases, such qualitative data will be quantified during analysis, like, for instance, measuring the occurrence of a word or a concept, for instance, in fake news research.

Discourse, as the ensemble of the words pronounced/written, is thus being studied as a text occurring in social practice, and can be approached from a linguistic perspective. The focus of the analysis is the language, the interaction mediator, and emphasis is on the rhetorical and argumentative structure of the text (Silverman 2011). Such elements are then the core matter of the so-called discourse analysis. Applied initially mostly to written texts, it has been used for the analysis of spoken words, i.e. conversations (see below).

The benefits of this type of data collecting and analysis are its low cost (since it does not require high-tech materials or infrastructures), its non-interference with the phenomenon studied, the possibility of dividing the research process into multiple stages and, finally, that coding created can be repeated/used with other similar sources. There are, however, some remarkable disadvantages: it can be very time-consuming, it only allows recorded communication to be studied, and there might be a biased selectivity particularly in the context of organisational research, as documents issued and archived usually align with the policies and the agenda of the organisation (Yin 1994).

The interview in the research of social sciences: Typology and usage

Whether occurring naturally or being planned ahead, interviews-as-conversations are heuristic starting points for qualitative study. Interviews are best used if the research aims at exploring the thoughts and feelings of people, which requires a conversation. A good interview is the intellectual performance of two or more persons, where the interviewer has an inspiring attitude and contributes to the success of the research.

Interviews, taken as conversations, can be classified following different factors. For instance, concerning the nature of the information collected, they can be classified as objectivist interviews that aim at obtaining concrete facts like data from the life course, happenings, views on specific topics, or as emotionalist interviews that strive to collect honest subjective accounts regarding certain experiences like, for instance, childhood school encounters (Ratner 2002).

But interviews, taken as conversations, can also be classified concerning their content and technique used. Thus, we can classify interviews as in-depth, ethnographic and narrative. In general, in-depth interviews contain to a large extent subjectivist elements, whereas narrative and ethnographic interviews follow a more objectivist approach.

In-depth interview

Most flexible and most personal of all types, the focus of in-depth interviews is directed to the intimate sphere of respondents, with a large freedom of the interviewer, who can, however, have some pre-defined topics and questions to ask. It is the interviewee who defines the thread, the interviewer follows his/her train of thought and sometimes leads the conversation back to its main focus. Behaviours, gestures, moves and even posture can also be object of analysis since they also transmit messages.

Narrative interview

The narrative interview aims at accessing experiences and events from the life course of individuals. An example would be a biographical interview with a politician, which can be either thematically focused on those experiences that led him/her to choose this profession, or on a specific stage of the life course, like the most successful period of the politician's career.

Ethnographic interviews

Particularly useful, for instance, in the study of immigrant populations and subcultures, ethnographic interviews tackle the description of a culture or of a migration experience based on the narration of the culture's representatives/social subjects.

As far as the degree of control by the researcher is concerned, interviews can be classified as unstructured, semi-structured and structured interviews.

Unstructured interviews

These interviews resemble everyday discussions, with the interviewer simply presenting/putting to the interviewee(s) the main topic of the data collecting exercise. The researcher/interviewer will have to adapt his/her interventions to the course of the interview as created by the respondent's answers.

Semi-structured

This format of interviews has a set of pre-defined topics that take the form of an interview script (see below point 3). Within each topic the technique resembles the one of the unstructured interviews (see above).

Structured interviews

This type of data collecting takes a format almost like a questionnaire with open-ended items, addressing the same questions in the same order to all respondents.

Focus group interviews are an extension of the classical interview, emerging as one of the most popular qualitative research methods. They involve a small number of respondents (up to 12 people) with whom the interview/research topics are discussed. This method needs further observers on site to help studying the group dynamics and communication chains.

Interviews are preferred as highly valid and flexible research tools, as respondents are requested to formulate their own thoughts, however, because they are not based on probabilistic principles, the degree of inference to other groups of their results is limited. Additionally, the high value of the interview-as-conversation for data collection, is that subjects being interviewed will relate well to the exercise: everybody is familiar with talking to other people, while not everybody is familiar with having to fill in a questionnaire.

Carrying out an interview – Core content

The semi-structured interview – Guidelines

Main point to be held: A semi-structured interview should be experienced as a conversation by both participants (researcher/interviewer and informant/interviewee). This is not always something easy to achieve because the semi-structured interview is in fact a technically informed way of collecting information (Blackstone 2012). Nevertheless, if you keep in mind the main point to be held referred to above, it should be easier for you, the interviewer, to carry out a semi-structured interview in a successful manner.

And what makes a semi-structured interview a successful one? Two things: 1. that you are able to access the information you seek; and 2. the register of the information conveyed will allow for proper treatment of the data collected. In order to achieve these two goals, some matters need to be taken into consideration at the preparation stage and the carrying out stage.

Preparation stage

Writing of the semi-structured interview script

Although a semi-structured interview does not have a list of questions as such to ask the interviewee/informant, you must produce what is called an interview script (Blackstone 2012).

The script is a set of topics that you aim to address during the process of data collecting, i.e. during the semi-structured interview *cum* conversation that you as researcher will

hold with the person you choose, i.e. with your informant. The script will act as guidance to the inquiry process, i.e. to the development of the conversation with your informant. As such, the script should have the list of topics you want to address (for instance: level of formal schooling; feelings of insecurity in public space; perception of main dangers in the Covid-19 pandemic, etc.).

The list of topics in the script will be closely related to the overall research aims, to the questions identified as central to them, and to the variables seen as relevant to the aforementioned questions and research aims. Thus, a good semi-structured interview script is not something that can be produced without thought and careful consideration of the research matters at hand.

Being the collection of the data carried out via a semi-structured interview, the level of control of the conversation framework by the researcher should not impose itself over the frame of reference (whatever that one might prove to be) of the interviewee/informant. And what does this mean, exactly? It means that, whatever topics you are addressing in the conversation (and that are listed in your script), they should be allowed to be voiced by the interviewee/informant within the set of values/interpretations/meanings s/he/they deem as relevant. This relevance will be mostly and foremost expressed by associations made by the interviewee/informant between topics.

The main consequence of this foregrounding of the researcher/interviewee's frame of reference to the carrying out of the interview is that the order of the topics in the script will most likely not be mirrored by the order they will happen throughout the conversation/interview (see below).

Choosing the interviewee(s)

The choice of the person to interview is directly related to the information that the researcher is hoping to retrieve.

Semi-structured interviews should take place at a stage of the research where the researcher already has some reasonable knowledge of the terrain and its contents via field work carried out. This should be so for two reasons:

1. the researcher is able to write a good/useful interview script (see above on topics of interview script)
2. there is some sort of relationship between researcher and informant (i.e. between interviewer and interviewee)

The fact that some level of interpersonal knowledge might already exist previously to the actual interview/conversation is advantageous in terms of guaranteeing the fluidity of information throughout the interview. And again, because a semi-structured interview, if carried out well, will feel like a conversation, the guaranteeing of fluidity of information

between the two people taking part in what is really a situation of social interaction is extremely beneficial to the goals of carrying out a successful semi-structured interview.[1]

There is another very relevant consideration in working on the relationship with potential interviewees/informants before the stage of the research in which the collection of data via semi-structured interviews is scheduled to take place: the need to record the conversation held – and often people might feel uncomfortable with a recording taking place. If a researcher has developed a trusting relationship with interviewees, then the authorisation to record should be less difficult to obtain. The recording of the interview is fundamental for two reasons:

1. the researcher/interviewer can fully emerge him/herself/themselves in the conversation as such
2. a full transcription of the semi-structured interview can be produced so as to allow data treatment

The choice of the interviewee(s) should also contemplate the research aims, the questions identified as central to them, and the variables seen as relevant to the aforementioned questions and research aims. As such, the researcher might need to contemplate selecting interviewees according to gender ratios, age sets, levels of formal education, experience with Y or with Z, etc.

Choosing the place to carry out the interview

The choice of the place where the interview will be carried out should be left to the interviewee/informant, and as to why it should be so is next explained.

As stated above, carrying out a semi-structured interview is a social interaction situation (Ryan et al. 2009). As with any situation of social interaction, issues of power are at play. When it comes to the differential of power between interviewer and interviewee, it is widely agreed that the one who asks the questions (the researcher/interviewer) holds more power than the one who answers them (informant/interviewee). To add to this, there is the additional status/power held by the researcher as someone who holds specialised knowledge and is studying the social universe of the informant. This is more acutely so when the social scientist is 'studying down', i.e. is studying social universes of less empowered individuals (for instance, sharecroppers, illegal immigrants, homeless, etc.); if, instead, the social scientist is 'studying up', i.e. is studying the social universe of more empowered individuals (for instance, members of the upper classes, members of political elites, CEOs, etc.) the power differential might be less – or even actually overturned!

The researcher should act so as to diminish the power differential in an interview situation (something easier to achieve in a 'study down' context than in a 'study up' context). Leaving the choice of the place where the semi-structured interview will take

[1] It should be noted that the interview (even if carried out as a conversation), from the researcher's side is always a methodological stage in which information is being technically collected.

place to the interviewee/informant works precisely toward such a goal since the interviewee will indicate a place that is familiar to him/her/they: the interviewee/informant will feel on home ground, while the interviewer/researcher will have to adjust to what most likely will be less familiar grounds.

Also, and considering the need by the researcher to create the conditions for a fluid exchange of information, i.e. the need to carry out the data collection via semi-structured interview as a conversation (see above), the act of leaving the choice of the place where the interview will take place to the interviewee/informant will also work toward fostering such fluidity of information: the interviewee/informant, by being on familiar grounds, will feel safer and thus more willing to open herself/himself/themselves to the curiosity of the researcher/interviewer.

Only two things overrun all of the above:

1. guaranteeing a good quality recording of the conversation held
2. guaranteeing the safety of the researcher/interviewee; thus, the researcher should not agree to a noisy place or to a place which, she/he might feel, will endanger her/his personal safety (or that of the informant) – an alternative and suitable location should be jointly found

Conducting the interview

Once you have a good script, the right informant (and you have secured his/her/their consent to record the conversation) and a suitable location, you can start the interview.

Opening and closing the interview

Because the researcher will not hold a tight grip on the order of the script's topics throughout the actual interview/conversation in a semi-structured interview, there are, however, two things the researcher/interviewer can and should control. Those two things are the way the interview starts and the way the interview ends.

The topics to be approached initially should be topics that are easy-going, i.e. topics that are not contentious or sensitive (Ryan et al. 2009). The aim is not to alienate the interviewee from the interview, i.e. not to create a feeling of distrust or insecurity in the interviewee/informant. The way an interview should progress is toward approaching more sensitive matters (which vary widely from social context to social context) only once you are deeper into the actual conversation, i.e. once interviewer/interviewee bonds have had a chance to develop (see below).

Once the interviewer/researcher considers that the information required has been collected, the end of the conversation/interview can take place. It is here that the researcher gains again stronger control over the course of the conversation. As quite often a reasonably long time has been spent in conversation in which the informant has supplied information on views, opinions, feelings and event from his/her/their life, and because

quite often this might have a cathartic effect on the interviewee/informant, it is a moral and ethical obligation of the researcher/interviewer to move the topics of conversation toward topic matters that are 'light', even mundane, topics that are able to remove the informant from any sombre place.

At the beginning of the interview, the explanation as to the goals of the conversation should be given in a format that is relatable to the interviewee. The consent for the recording of the conversation should also be secured at the beginning.

Both at the beginning and at the end of the conversation/interview, it should be asked from the interviewee if there is anything s/he/they would like to ask or anything that s/he/they would like to talk about and that was not yet discussed in the conversation held.

Both at the beginning or at the end of the conversation, the researcher must thank the informant for the willingness to share with the researcher and the research project their view on the matters to be addressed or already addressed.

At the end of the interview/conversation an openness to a future and additional contact should also be secured in case, once going through the analysis of the interview, any additional clarification on any specific point is needed.

During the interview

As already stated, a semi-structured interview should feel like a conversation, and an amicable one to that. One of the main things the interviewer must convey to the interviewee is calm and a sense of trust. This is achieved through words, but also through body language and by conversation prompts in which the interviewer is able to let the interviewee understand that what is being said is being understood and is important (Walters 2002).

Working toward the goal of carrying out the interview as a conversation is the issue of the correct use of language (vocabulary/expressions). The researcher should strive to make use of a language that brings him/her/they close to the informant. This will be made more possible if the language used is the closest possible to the language used by the informant. Technical or over-academic terms should be avoided (no one holds a conversation using such terms) and the use of the language by the researcher should be one that leaves the meaning of the questions clear to the informant.

The formulation of value-laden questions should be avoided.[2] The formulation of questions that are already suggesting a specific answer must equally be avoided.[3]

[2] Example: *Your decision to go to hospital to give birth was because it is the right place to have children?* vs. *What guided your decision to go to hospital to have your children?* (value-laden question – in as much as in the first formulation you are stating that the hospital is the right place to have children – what, considering the power differential in the interview situation – makes it very difficult for any other reason to surface; in the second formulation of the question you are leaving the direction of the answer completely open and thus unbiased.

[3] Example: *What kind of problems do you have with your boss?* vs. *How is your relationship with your boss?* (question suggesting a specific answer – a description of problems with the boss – in as much as in the first formulation you are assuming that the informant has problems with the boss; in the second formulation of the question you are leaving the direction of the answer completely open and thus unbiased).

The ability of the researcher to be aware when s/he is formulating such a type of questions is something that does require some self-reflexivity and some degree of training – but it is a fundamental skill to develop as an interviewer.

The most difficult thing for the researcher to achieve in the process of carrying out a semi-structured interview is the balance between giving the necessary freedom to the interviewee as far as responding to the questions posed and the keeping to the topics of the script. It will happen that practice will add to better performance, but perhaps the first times you are interviewing or are using a new script there will be occasions when you feel the need to go back to the written script in order to make sure you have not missed anything, or even just to figure out where to go from where you might be in the conversation at one certain point. It is fine to do so, but the more practice you have with one script the easier it will get.

Technical matters

The following are some points to keep in mind when carrying out a semi-structured interview as described above.

Before the actual interview, make sure you verify the working state of your recording device. Additionally, make sure you go to the interview with the necessary batteries, so you do not run short of power during the recording.

Once you are at the location where the interview is going to take place, and once you have secured the authorisation to record the conversation, do a trial recording (a couple of minutes will be enough) to check that the quality of the recording will allow you to fully understand what is being said.

Never go with limited time for an interview. Although some informants are less, and others are more talkative – having to say to someone who has made him/herself available to talk to you about matters pertaining to their lives, that you have to stop the conversation and go is something that will most likely jeopardise the researcher–informant relationship. Always go with total availability of time so you can listen and relate to the interviewee's life and perspectives.

Although more costly timewise, a full transcription is always preferable: it might cost you a reasonable amount of time to do so (or cost you funds in order to pay someone to do it), it is worth it: once you have the full transcript you are left with a solid working document you can recur to time and time again. Just make sure that you register in the transcript where in the timeline of the recording that part of the interview/conversation is (for instance, every ten minutes of recording, list the recording timeline point/number in the transcription; this notation works similarly to page numbers in a book:

Due to the power differential talked about in the main text, the informant, although possibly not considering that has problems with the boss, will try and find something that will fit what is obviously the expectation of the researcher: that the relationship with the boss has problems.

it will allow you to swiftly go back in the recording to specific moments of the interview when needed).

Analysing the data

Qualitative data analysis can be defined as the process that aims at making sense of human experience by reducing, data identifying patterns, and making sense of large amounts of information, often from diverse sources. In this process, the researcher aims at achieving a research objective by answering one (or more) research questions, usually, but not necessarily, following an inductive logic-based process, in which, from descriptive information, a profound explanation or interpretation is developed. Data may consist of interview transcripts, observation logs, field notes, documents, multimedia content, among others. Qualitative data analysis, while it may include image and video, pays attention primarily to the spoken and written word, considering its context, consistency and contradictions.

We distinguish six major types of qualitative data analysis among which we choose based on our initial purpose. The most commonly used methods are: thematic analysis, content analysis, grounded theory, discourse analysis, narrative analysis, and, lastly, phenomenology or heuristic analysis (Richards–Morse 2012). During this course we will cover the first two methods, namely the thematic and the content analysis.

Content analysis

Definition, purpose and types

According to Krippendorff (2004) content analysis is the systematic reading of a body of texts, images and symbolic matter, not necessarily from an author's or user's perspective.

Content analysis is often used to analyse texts, documents, audio or video recordings, to which we refer as content. The main goal of the method is to look for frequencies of words, patterns or sequences of occurrence of specific words in the content (text, movie, etc.). Although the method of content analysis does not usually rely on data provided by participants such as surveys, interviews or observations, it can also be used for these.

The literature distinguishes between two types of content analysis, namely the quantitative and the qualitative content analysis. The quantitative analysis is more concerned with the manifest meaning of the analysed data, while the qualitative analysis is mostly applied to context dependent meaning (Schreier 2013). In other words, quantitative content analysis is used to discover facts from counting the occurrences of words, expressions, phrases or situations represented in a content, and often counting their percentage to the total found in the original content. These are called categories and represent the major point of interest of the researcher. The categories were chosen/created

by the researcher and are closely related to the overall research aims, to the questions identified as central to them, and to the variables seen as relevant to the aforementioned questions and research aims.

For example, we might use an EU document as our content, while the categories might be concepts such as "terrorism", "power" or "security threats". Since these are broad concepts, during the analysis they need to be broken down into more specific categories, named "codes". For example, the category "power" will be broken down into codes referring to "hard power" and "soft power". During the analysis the codes will be counted and the results will be represented in various tables, graphs, charts showing the relationships between these codes and categories.

Qualitative content analysis is different mainly in its focus on discovering and describing meaning in context. In a qualitative content analysis categories and codes are looked for and counted in the content even if the terms might be present only implicitly. Qualitative content analysis does not stop at showing occurrences and frequencies of the categories: it tries to explore the existing relationships between the categories (for instance, opposition, strengthening, complementarity, etc.). It is appropriate to be used in cases when a researcher's purpose is to find categories in a large data collection, and to draw conclusions based on the frequency and relationship of codes. For example, a researcher might want to learn about the support or opposition regarding a particular topic in a content. In this case, the category "opinion" might be created, having the subcategories "morally justified", "morally wrong", "not taking decision", etc. The overarching theme will be elaborated based on the frequency of codes.

Differences between content and thematic analysis

The terms content analysis and thematic analysis have been associated with many definitions and are often used interchangeably with a vast number of other terms such as content, category, domain, unit of analysis, phase, codes and sub-codes. There is a considerable diversity of research where thematic analysis is considered a special subtype of qualitative content analysis.

Since content analysis has been embraced to a certain degree by the quantitative researchers as well, quantitative content analysis is more often used. In the following, when referring to content analysis, we will refer to the quantitative content analysis as it has been more frequently used.

Content analysis and thematic analysis have different main purposes. Content analysis uses the deductive approach, since it starts with a general statement or hypothesis, and examines the possibility of its applicability in a logical way in a particular case. In this sense, this approach is more objective and systematic because the various categories and codes are created beforehand based on theoretical considerations. The researcher counts the frequencies of the codes and draws conclusions based on the relationship among the codes and categories.

Thematic analysis, as it will be discussed below, uses more often the inductive approach, although not exclusively. By carefully examining a specific situation, the researcher is concerned in finding major themes across texts, by showing the overarching relationships among these themes, and aims to draw conclusions on an abstract, general level.

In this case, the frequency of the themes does not play a central role when creating a thematic map, as opposed to content analysis. It is rather organised so as to represent some level of response pattern or meaning within the data set (Braun–Clarke 2006) and it captures something important in relation to the overall research question (Spencer et al. 2003; Braun–Clarke 2006).

As a conclusion, the two types of analysis are appropriate for answering different types of research questions, and thus, applicable to different research designs. Quantitative content analysis is used to test hypothesis, is more objective, but might miss on important aspects present in the data. Thematic analysis is appropriate to explore new meanings and nuances; therefore, it is mostly used in building hypothesis.

Thematic analysis

Definitions, main characteristics and paradigms

Thematic analysis is a widely used qualitative data analysis method aimed at identifying, analysing and reporting patterns (themes) in the data, enhancing the understanding of explicit and implicit meanings associated with textual data (Braun–Clarke 2012). According to the same authors, thematic analysis encompasses a set of core concepts, namely:

- theme
- sub-theme
- code
- central organiser
- thematic map

For a practical understanding of the development of the thematic analysis, we recommend reading the work published by Young et al. (2018), regarding humanitarian workers' views on their stressors and coping strategies. In this research, participants were asked to answer the following open-ended questions: *What are your top 3 stressors in your role as an aid worker? What are your top 3 most effective strategies you use to cope with stress related to being an aid worker? What are your top 3 least effective coping strategies?* Thematic analysis of responses to the three open-ended questions revealed 4 broad themes and 19 sub-themes, representing 106 codes used 1,805 times (Young et al. 2018). Let us next look at the conceptual description of each element.

A *theme* allows capturing common patterns throughout the data, considered important in the context of a research question. A *sub-theme,* although not being compulsory, captures a specific element of a theme, corresponding to a subdivision. *Codes*

correspond to smaller units of analysis, which identify a particular feature of a data segment. They translate a summarised idea of the units of record of the analysis, which are coded text segments. The *central organiser* of the analysis is a main idea around which the data is grouped and relationships between themes are established. It is an idea that allows answering the research question (or questions) and the relationship of all themes in the analysis. It captures the meaning of the themes and gives them coherence. The *thematic map* is a graphic representation that displays the overall conceptualisation of data patterns and the relationships between them.

One of the main characteristics of thematic analysis is flexibility, as this method of data analysis can be used regardless of the theoretical framework adopted, research questions, data collection methods and number of participants. Thematic analysis allows a rich description of an entire data set or a detailed description of a particular aspect of the data. It can be a more inductive or deductive analysis, although Braun and Clarke (2012) consider the possibility of conducting mixed analyses, i.e. combining inductive and deductive forms. The themes may be semantic or latent and the paradigms guiding the analysis may be essentialist or constructionist.

Phases

In addition to a set of concepts and paradigms that should be clarified when starting a thematic analysis process, Braun and Clarke (2012) have defined a set of phases (or stages) to follow in order to guide the whole analytical process. These stages allow guiding the researcher in a reflexive and engaged process with the data, particularly if the analysis is guided through a constructionist lens. The authors propose a set of six phases (or stages) to be fulfilled within the scope of thematic analysis, namely:

- familiarising yourself with the data
- generating initial codes
- searching for themes
- reviewing potential themes
- defining and naming of themes
- producing the report

Each of these phases is discussed below.

Familiarising yourself with the data: at this stage, the aim is to get to know the collected data in detail, sometimes in audio format. In this case, it is necessary to transcribe the interviews. This is a very important phase as it is the phase which provides the basis for the rest of the analysis.

Generating initial codes: at this stage, the most interesting characteristics of the data collected are coded systematically throughout the entire data set, collecting relevant data for each code.

Searching for themes: this stage aims to combine the codes into potential themes and consider the relationship between codes, themes and sub-themes. At this stage,

graphical representations may be useful. It should be noted that themes are not necessarily determined by the number of times they appear.

Reviewing potential themes: at this stage, it is essential to check whether the themes agree with the coded excerpts and the whole data set. It is in this phase that the themes are refined, and the thematic map of analysis is produced, selecting the excerpts that are intended to be made visible. This phase ends when it is considered that the refinement no longer adds anything substantial to the analysis.

Defining and naming of themes: in this phase, the specificities of each theme and the general story that the analysis tells are refined, i.e. the central organiser. To this end, per theme, the excerpts are returning to, the most illustrative ones are chosen and organised into a coherent and consistent explanation, accompanied by the researcher's narrative. It is at this stage that the story each theme tells is identified and how it relates to the wider story that the data show through the central organiser. It is at this stage that the researcher names each theme. Each theme should have a clear focus, scope and objectives and together the themes should provide a rich, coherent and meaningful picture of the prevailing patterns in the data that answer the research question (or questions).

Producing the report: at this stage, examples are selected from the most illustrative and easily identifiable extracts of the subject under discussion. It is important to reinforce that the examples are only meant to illustrate and are not intended to justify any discussion that is being developed. This last phase is also the final analysis of the selected excerpts. We return to the analysis, the research question (or questions) and the literature and write the report. This report writing brings a narrative that, in addition to describing the data, problematises it, bringing arguments in relation to the research question (or questions) and the research objectives, which are answered from the central unfinished sentence.

Conclusions

In qualitative research, the numbers and types of approaches have become more clearly visible during the 1990s and into the 21st century (Cresswell 2014). However, in qualitative research the delineation of the sequence of stages can be seen as more controversial than in quantitative research because it exhibits somewhat less codification of the research process (Bryman 2016). It is hoped that this text, while focusing specifically on the use of the semi-structured interview as a data collecting tool, as well as focusing on a form of treating the data thus collected, will help the reader in the procedures related to carrying out research using these particular tools.

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