



NATO Foundation
Defense College

GAME CHANGERS 2020

A NEW FUTURE DAWNS
ON INTERNATIONAL SECURITY



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The NATO Science for Peace
and Security Programme

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GAME CHANGERS 2020**A new future dawns on international security**

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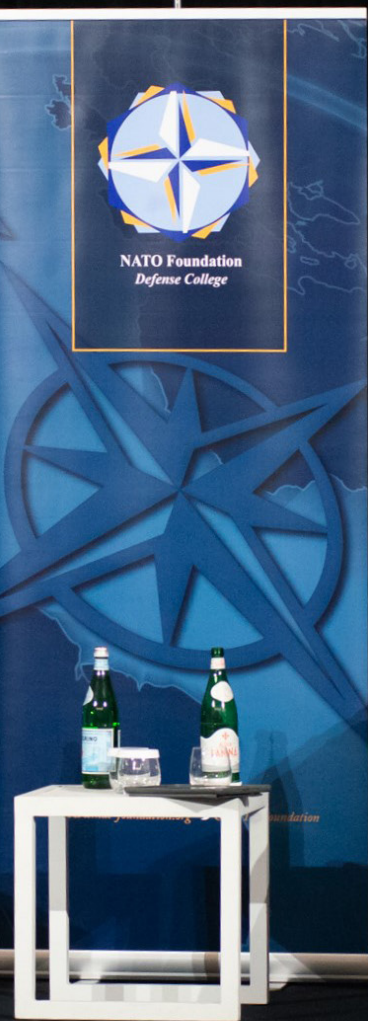
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ALESSANDRO MINUTO-RIZZO
President, NATO Defense College Foundation, Rome

FOREWORD

The modalities of this event are unusual because of strict sanitary regulations. We hope, however, to offer you an interesting event, due to the issues that we have chosen and the quality of the speakers, promising to develop a high-level debate. We have made a big effort to offer an attractive programme with special features, to make the event interesting in substance and also entertaining for the public. We are using all our energies to produce the best possible outcome in spite of this difficult environment.

Why calling the conference “Game Changers: A new future dawns on international security”? The answer is that we live in special times, presenting special challenges. They need awareness in terms of understanding the issues at stake to prepare ourselves to manage them. To explain myself better, we are all walking in an unprecedented international environment, where we see surprises at every step; reality is multifaceted and is changing at a fast speed. Somebody says that “We live in a liquid world”, where no one is leading but everybody is present. Another question in everybody’s mind is: How is the pandemic affecting present balances in international affairs? How to identify winners and losers? And of course, we wish to be on the winning side. The Foundation has been working for long months on those issues trying to focus on emerging realities and to make sense of their importance for our future both the immediate one and the longer term. This challenging endeavour resulted in a dossier where 17 international experts have analysed 12 key issues in a concise and effective way.

Today international security has different ingredients. What do I mean? Normally nation-states were the actors and normally their action was determined by military elements. Today non-state actors are frequent and on the other hand technology and natural events have come to the surface in all their relevance.

In our perception about the future we have chosen three key topics for today’s discussion. Climate change, modifying the planet with unforeseen disputes and perhaps conflicts at the horizon. Then we see the new and important connection

between health risks and security, to be declined in many ways. At the same time there is a major shift in the transatlantic relationship. We have yet to measure its impact, but it will certainly be relevant. Artificial intelligence is not a new concept, what is new is its fast development in the economy, technology, as well as in military affairs, including the new military space dimension. Here ethical issues are also relevant.

I wish to recall that we will have three separated discussions, today and tomorrow, to make the entire event easy to follow and interesting as much as possible. We have collected an impressive group of speakers and chairmen for the three panels. Some panellist cannot be in presence but they will be easily available all the same. Our Foundation has a methodology aiming at a high level, respectful and scientific discussion. Our tenth anniversary is approaching and we are proud to continue this work which is meant for the general public and not only for security experts.

I wish to thank moderators and speakers, the public connected with us and of course the entire staff of the Foundation for their effort and dedicated work. Special thanks from our heart to those who supported us: Philip Morris International, Compagnia di San Paolo, the Policy Center for the New South NATO Science for Peace and Security Programme and the NATO Defense College. Enjoy the conversation.



OLIVIER RITTIMANN

Commandant, NATO Defense College, Rome

WELCOME REMARKS

Welcome to this new and important conference organised by the NATO Defense College Foundation, with whom we are always happy and pleased to partner with.

2020 was from any perspective a different year. Change was imposed upon us and change we had to carry out. According to some, the changes we have seen accelerated the trends which would otherwise take a decade, like the diffusion of online shopping, remote working or the penetration of some digital technologies. Whether this is correct or not is open to debate, but this year has definitely taught us that without foresight there cannot be any preparation. Without preparation, there cannot be any resilience. And without resilience, our societies, our economies and our armed forces are doomed to face significant challenges, struggle, and sometimes even fail or collapse. Understanding future game changers is thus a first step for future resilience.

The three themes around which this conference is designed are not only related to important changes we are observing, but they are also tightly connected to what we have seen in 2020: climate change, or the interaction between nature and human beings; healthcare, or our attempt to handle biology and the dynamics of nature; and artificial intelligence, or how we try at least in part to overcome some of the very same forces of nature.

From a transatlantic perspective, these three themes remind us how complex are the times we live in, as well as how broad are the challenges we face. But these three themes remind us also of the enormous opportunities we have in front of us. Climate change may push us to develop more sustainable sources of energy, thus not only protecting the environment but also altering the geopolitics of energy for the decades to come.

Healthcare may contribute at addressing unfavourable demographic trends or major diseases or current pathogens, including pandemics. Artificial intelligence may represent a new, major technological revolution, that will help create enor-

mous wealth but also improve the effectiveness of our armed forces and more generally of our actions.

NATO and the NATO Defense College have long paid attention to these issues. Energy security emerged prominently 15 years ago in transatlantic debates. The threat of pandemics is already referenced in the 2010 Strategic Concept, but it was only this year that NATO stepped up to support Allies during the hard days of the crisis. Finally, as you may know, in 2021 NATO will probably adopt an artificial intelligence strategy to guide Allies' development and exploitation of AI and its related technologies.

I am very pleased to be with you today to listen to an extremely prominent group of experts about these issues. Let me thank once again the NATO Defense College Foundation for this event and Ambassador Minuto-Rizzo for the kind invitation.



IAN LESSER

Vice President; Executive Director, Transatlantic Center, The German Marshall Fund of the United States, Brussels

OPENING REMARKS

Let me just make three points to you, and I think they are not just transit points, as we are speaking about the way in which game changers will affect security in the context of a current crisis. This is not just a current crisis, it is likely to have some very durable effects – certainly it will in the economic realm and we are going to deal with them for many years to come. So, whatever the health path we are facing in the next months, this is not going away anytime soon, and therefore the conditions that will exist in security terms are longer term questions as well.

The first point is the conventional wisdom that sees COVID-19 pandemic and its aftermath as an accelerator of trends, and this is almost certainly true in many technology areas and you are going to discuss this, but it is not necessarily true in all areas. I think we need to be a little bit cautious about this, or maybe a little contrarian. A few examples here. First of all, there has been a belief that somehow populism is a political phenomenon and all the security consequences that flow from that are somehow inexorable, that this is simply the wave of the future that we are going to have deal with, and we have seen manifestations of this trend on both sides of the Atlantic and globally. Is this really so? In fact, populist movements in general have had a rather bad crisis if you want to put it that way: Donald Trump has lost an election in the United States, similar kinds of right-wing movements in Europe have not done well in electoral terms recently, so it is not a foregone conclusion that this is a trend that we are going to see continuing out into the future. Publics, on the other hand, are now having I would say a grudging respect for competence, measured above all in terms of health policy but also in other ways on the economy, social inclusion, and many other things that have come to the fore in recent months.

Therefore, governance – the ability to be competent, effective, and relevant to security interests, among other things – I think is going to be a new metric indeed for societies on both sides of the Atlantic and globally and That is something to

reckon with, it is not necessarily what we would have expected.

Then mobility: we have come to expect that mobility of people and ideas increases year on year really without any halt, and we have seen a dramatic reversal of that. Obviously, the fact that I am sitting here talking to you from Brussels rather than being in Rome is an evidence of that. By rough calculation, I was thinking the other day this is the longest stretch I have not been on an airplane since I was 10 years old. Well, this I hope will change in a few months, certainly in a year, but we will all go back to the same way of doing business, we will all be on airplanes quite as often, and we have to think in security terms what would it mean if we simply have fewer people moving around. In some senses this can be complicated, in other senses it can be helpful if the objective, for example, is to monitor threatening cross-border flows. If there are fewer flows, this may be easier to do. There are all sorts of implications that we need to think of, think about that maybe fly in the face of what we have always assumed about the future.

Second point, I would make it is really a question, and that is: what may happen in international security terms when we are not looking, when global leaders are distracted, when we have other things to think about in terms of domestic public policy? There are a lot of existing tensions and crises around the world that truly are not going away. There are non-state actors that are already active, such as proxy groups and others, who may see an opportunity in acting when they believe leaders and adversaries are not looking. They may or may not be right in that judgment, but they may be emboldened to try anyhow, and I think we need to be prepared for the consequences of that kind of calculus – and maybe miscalculation.

Third, I think we may see new insurgent movements, there may be new forms of terrorism and political violence that basically flow from public anger, and the kinds of stressful situations societies are facing today may deepen the risk of this kind of transformation. We have seen this before in other epochs, the old forms of terrorism clearly are not all of them going away, and at this point radical Islamism, ISIS, or Al-Qaeda phenomenon and things of that nature are not new anymore. This is going to persist, we will have to think through whether they are now in a better or worse position to fulfil their kinds of aims, but there may also be movements that simply seek disruption, somehow inspired by COVID-19 economic crises, seeing some advantage or something to emulate in this. There may even be groups that begin to look again at the acquisition of capabilities for bioterrorism. Most experts agree that this is not very easy to do, but does it mean that no one will try to? We need to think through that and I assume you are going to talk a little bit about that in one of your sessions. There also will be a lot more capacity around some of these issues. In response to bioterror risks we need to think about where that balance will leave us, and then it will also maybe be more difficult for those spent on political violence and terrorism to grab the attention of people around the world, with violent acts that may be a deterrent but it may also be a stimulus for more lethality. We have seen that kind of trend in the past and we perhaps have assumed that it

got away, but there may be a return to that look for kind of mass lethality terrorism that we saw perhaps a decade or 15 years ago, something to ponder.

Finally, I think more in general terms, we have come from a moment of very important reflection about not just the international security environment, but frankly the nature of security and what people will demand of governments in terms of security. How do we define it? How do we insure it? Who are we protecting? What are we protecting ourselves against? You know what are the priorities for the security project: more and more leaders are talking about countries, institutions, Europe, alliances that protect, to use that term and also more attention to sovereignty. There is an important debate going on about this, about strategic autonomy if you like to use that term, that can take many forms: it can be about conventional defence, or even about nuclear strategy, but it can also be about a much broader set of security capacities that publics are going to focus on more and more, including health. I was on an event not too long ago where the EU High Representative for Foreign Affairs and Security Policy, Josep Borrell, concluded his remarks about strategic autonomy by waving a face mask and saying “This is also about strategic autonomy, the ability to produce and to have these things domestically”. We will need to think through those kinds of things as well. To conclude, I think we are at a moment where our thinking about security and how to insure it is a way off autopilot, and this whole question of warning – thinking ahead over the horizon to these game changers – will be ever more important.



ALESSANDRO POLITI

Director, NATO Defense College Foundation, Rome

POLITICAL SUMMARY

The conference, through three transnational issues like climate change, the security-health nexus and artificial intelligence (AI), has clearly laid bare that purely national approaches, even when they seem quicker and more expeditious, are insufficient to respond to such challenges.

Despite some past naysayers, global warming is a fact with concrete consequences in everyday life and hence on global security and military preparedness. The nexus between security and health (on which the Foundation is working since end 2019 and to be published shortly), has been shown empirically in the most tragic way by the present pandemic and, far from requiring a militarisation of health issues, it needs functioning transnational networks across different public and private bodies. Artificial intelligence seems to be just a hi-tech powers affair, but its implications are very similar to the management of nuclear weapons, because responsible ownership is guaranteed by reciprocal and multilateral checks.

The Alliance has reacted and acted during this global crisis as best as possible by coordinating medical supply and fighting back another flurry of disinformation, but evidently the future has bigger challenges in store.

The NATO 2030 exercise and the NATO 2030 Young Leaders' proposals have prompted calls for a more political and global NATO, apart from underlining the need for a new Strategic Concept. A more political NATO is indispensable, otherwise the risk is that pure security and military considerations may overtake political leadership and oversight with results that history has proven to be catastrophic in the past century. A global NATO has been already invoked at the beginning of this century and probably it is more realistic for NATO to rethink, reshape and revamp (three Rs again) its existing regional partnerships and those across the globe (some of them also in the Pacific Ocean). Africa was considered by one of the speakers a major stake

The three mentioned challenges are not surprising “black swans” but more often than not very visible “grey rhinos”, that surely need stronger cooperation among

democracies, but also wise and guarded collaboration with authoritarian actors. During the Cold War some of our allies were outright dictatorships or military juntas and collaboration existed even with Soviet Union.

NATO, in terms of climate change, has to do its bit in a very concrete way: reducing the impact on vital infrastructure (among which bases); assist partners whenever sensible and reduce the ecologic footprint and waste of military operations. A more austere military force is a more survivable one in the coming climatic changes where the country is barren and poor.

Regarding the immediate health crisis, besides upgrading its medical and emergency coordination bodies, the Alliance can contribute in a wider context to four important sectors: diffusion of best practices in terms of working continuity and disease prevention measures; rethinking biowarfare especially from non-state actors; strengthening in a serious way the Biological Weapons Convention by increasing multilateral controls of very high security laboratories and preparing a list of critical sanitary supplies to be under governmental control. One should not forget that in a not so distant past, the military produced essential medicines and sanitary items (some countries have still some capacity).

AI, like nuclear weapons, has its own triad consisting of: 1) new software capabilities; 2) deep neural network and machine learning; 3) the explosion of data, but the cultural framework to correctly manage these burgeoning capabilities is still missing and outdated. As an example: the 30 minutes that were considered available in the past to decide if a missile launch had to be considered a threat or not, may be reduced to 20 minutes or less by new hypersonic weapons or may be inexistent if Russia will field its new high-speed strategic underwater vector.

The emerging dilemma may be that high-speed threats by WMDs require high-speed machine-assisted analysis with the end result that times remain compressed and that the decision maker, who is trying to be in- or on-the-loop for the final choice, will be stranded in a handful of seconds.

Less extreme instead promise to be the scenarios envisaging the use of AI in information operations/disinformation campaigns. Here the means to multiply the messaging are already highly automatised, but the time needed by the information stream to shape societies is still rather long, beyond fleeting pictures offered by instant polls. Nevertheless, fast paced action needs much more reflection and human expertise than it seems because wrong decisions could affect the stability of a government and a country.



ALESSANDRO POLITI

Director, NATO Defense College Foundation, Rome

BACKGROUND POLICY PAPER

The international security arena is increasingly and rapidly marked by issues that are transnational and complex. The Foundation's Game Changers 2020 Dossier has offered a balanced and diverse overview on 12 pivotal security issues that will change profoundly the global strategic dynamics. In this conference we have singled out three of them: climate change, the security-health nexus and artificial intelligence.

Climate change is unfortunately a fact and it is remarkable that in some important US companies almost half of the stakeholders declare their interest about environmental, social and governance (ESG) investments, signalling that this is not a purely political issue. The debate on how major countries are not reaching their objectives pledged in the 2015 climate Paris Agreement and if even agreed measures are sufficient to avoid an irreversible warming of the planet is still ongoing: China is evidently a partner to reckon with, considering its level of emissions. On the other hand, NATO has already to face concrete problems. First of all, climate is indeed inextricably intertwined with the scarcity of water, arable land and sufficient crops' yield because warmer temperatures favour on one hand a process of desertification, and on the other extreme rainfalls that wash away fertile soil. This has since long been pinpointed as a recipe for local and international conflicts (e.g., water wars and several land conflicts in Latin America, Africa and Asia) and has been a historical object of contention. Then, as shown by repeated debates in the US Congress, all major bases of the four services are already affected by unfavourable climate changes. Naval bases could be unserviceable with rising waters, for instance. Finally, logistics, especially expeditionary ones, are heavily influenced by the availability of drinkable water and edibles.

The nexus between security and health has been, since more than a year, explored by the Foundation and it has been clearly shown by the present pandemic. Nevertheless, its wider implications on the transatlantic relationship have still to be assessed beyond past media debates. One area is of course a coordinated action

and reaction vis-à-vis diplomatic forays by competing powers (Beijing's mask diplomacy or the targeted medical missions of Moscow), but the other regards how to strengthen political and operational mechanisms within NATO and with the European Union. It is clear that the initial reaction may be considered satisfying, but it is far from perfect and systemic. A vigorous coordinated policy in terms of controlling high security biolaboratories in the framework of the Biological Weapons Convention needs to be devised and enacted. At the same time, vastly diverging approaches in managing the pandemic at national level are defensible with the sovereignty argument, but unhelpful against a transcontinental disease that impacts global trade to say the least. Finally, NATO's out of area missions have been quite effective in retaining operational capabilities and in supporting local populations, but again the sanitary chain needs to take full stock of the lessons.

The 3rd of December 2020 the Chinese Jiǔzhāng (Nine Chapters) quantum computer established a new computational record, completing a complex task in some 600 seconds against the 600 million years needed by the fastest conventional computer, and overtaking the precedent result of the quantum Sycamore Google machine. These technological milestones are some of the elements necessary to build the future Artificial Intelligence environment. That AI might be desirable in abstract is clear in a vast number of defence and security sectors: multimedia intelligence analysis, encipher and decipher, automatic surveillance, automated/autonomous defence and attack systems, scenario and predictive analysis, cyberwarfare, criminal intelligence, for instance. What are still largely uncharted waters concern the man-machine interaction with very high-speed operations, in other words how can an operator still be the indispensable decision-making element in the loop. Some precedents are not exactly encouraging, as it happened with highly automated air defence systems that shot down civil aircraft or fired against friendly ships or with highly automated financial systems creating major problems. It is evident that, regarding strategic deterrence decisions also in the cybersphere, current AI error rates might be considered unacceptable vis-à-vis the risk of an accidental nuclear exchange or of an unintended catastrophic international shutdown of critical infrastructures. Moreover, the prospect of having fully autonomous weapon systems might raise the reasonable issue of a new arms control regime. More than ever the challenges for the international community and the wisdom of major decision-makers are unprecedented and complex.

Conversation

CLIMATE CHANGE
AND SCARCE RESOURCES:
RISING CONFLICTS



Team of United States airborne infantry men in desert





STEFANO SILVESTRI

Vice President, NATO Defense College Foundation, Rome

CLIMATE CHANGE: AN ISSUE FOR NATO. GOING BEYOND THE STRATEGIC CONCEPT

Climate change is of course a very important topic and is becoming one of the additional factors to be considered when assessing threats, risks and developing operational responses. There are things that are changing due to climate change, for instance the growing importance of the High North in the Atlantic in consequence of the greater maritime availability of passages in the Arctic area. This goes hand in hand with completely different problems, for instance desertification and water shortage, that are creating a lot of conflicts and rivalries, aggravating the overall security situation for the population South or East of the Mediterranean, thus increasing other kinds of risks and problems, like migratory pressure and terrorism. New security challenges are emerging with rising importance in this situation. Climate change is linked with the resilience of energy and communication grids and this resilience has to be insured and defended. I think NATO is perfectly aware of all these problems and it is working on them.

Speaking about the pros of considering climate change, the question is how far should this issue go and how it is changing NATO itself. Let us take the NATO 2030 report that just came out, written by a team of wise people for the Secretary General. It is a very good report, as it mentions a number of these new kind of threats in the technological, environmental and political fields. There is an increasing awareness that risks, threats, and responses will have to be considered in an increasingly global context, and responses and management will have to be much more political and economic as well as military or technological.

Thus, NATO has a problem: this alliance is a very effective tool, it has survived many challenges that persisted after the end of the Cold War, it has survived its projection out of area from the Balkans down to Afghanistan, it has survived the Trump administration (which is no small feat), and it will have to survive also this increasing call to globalization and to politicisation. But we cannot forget that the reason why NATO is not a normal international organization is due to Article 5 and its military nature, and the fact that it is built in order to answer with

solidarity against military attacks that are conducted against our territories and in a limited area of the world – the North Atlantic, North of the Tropic of Cancer.

Now, I agree that this is not enough, and also that, in order to be effective in this limited area, it has to deal with all these different things, yet we should never forget that its strength, the reason why NATO is survived and can be still useful, derives from Article 5 and its military nature. Can we have an increasing global and political Atlantic Alliance without destroying it? This is the question that we should try to answer. Let's take the NATO 2030 report for instance which, I repeat, it is very good. It suggests a more political and global Alliance, taking up the request of the new Biden administration of an Alliance of democracies against totalitarianism, that would bring together both the Atlantic side and the Pacific side, the two oceans for the United States.

Of course, the Atlantic Alliance may have a few problems in this effort, because not all our member states are, let's say, fully working democracies, but let's forget about that and let's take this as a model. How would this be perceived outside of the Atlantic Alliance? Can we export democracy through military means? Can we fight terrorism with a military leadership? Sometimes yes, sometimes no. Can we work on a number of things through a system that is basically a military defensive alliance? Now, I am not saying that it would be impossible, on the contrary I think that the pressure of change is so great that the Atlantic Alliance will be obliged to become more global, more political, more involved with these difficult challenges, but the process will create an enormous problem for the Alliance itself and will require a very good management, a lot of political finesse, a lot of moderation, and a lot of balance.

In the 2030 report there is the call for a greater role of NATO Secretary General, especially by bolstering his chief executive role. I agree with that, I think it will be necessary especially if NATO has to confront this kind of new challenges, but not only. I think also that we will need a new Secretary General who should be indeed a very exceptional person.



MAHMOUD KAREM

Professor, British University; former Ambassador to NATO and the EU, and Commissioner, Human Rights Council, Cairo

WATER, CLIMATE CHANGE AND SHARED WATER RESOURCES

Today I speak in my personal capacity as Special Advisor to the British University in Egypt (BUE), and my views do not represent those of my Government. Now I would like to address three main points.

First, the erosion of the rule based international order. In the past few years, a dangerous phenomenon happened, namely the sudden withdrawal from legal international treaties that have been painstakingly negotiated. This diplomatic phenomenon became a trend leaving the international community in a state of despair and confusion. Withdrawal examples abound and they include the withdrawal from: the INF, the Paris Agreement, the optional protocol to the 1961 Vienna convention on diplomatic relations, the Universal Postal Union, Open Skies, to cite a few. The withdrawal from these well-established international treaties, especially by key industrial nations and important players, cannot be condoned and is a threat to our legal system, customary international law, and the international law of treaties. The legal system of climate change needs the participation of all players none excepted. The COVID-19 pandemic has revealed that global problems need global solutions. Here the Security Council of the UN should be mandated to redress some of the shortcomings and present proactive recommendations on how to accelerate “multilateralism” regarding climate change and water scarcity issues. The fate of humanity depends on this.

Second, water scarcity in times of climate change is causing unprecedented threats to the survivability of nations in the wake of desertification, global warming and severe droughts. Recently water started to be traded on Wall Street as a valuable share and commodity, like gold and silver. Therefore, building dams on rivers that are shared by downstream and upstream nations, with millions of people depending on this water for their daily lives, cannot be simply done under pretexts of sovereignty or need for power generation for development.¹

¹ The Greek historian Herodotus called Egypt the “Gift of the Nile”, since the kingdom owed its survival

The right for development is highly respected as the quest for power generation from dams. However, when these rights conflict with the right for life from shared river waters downstream and upstream, we need to pause and work together harmoniously for the benefit of all.² In my view, consultations between all the nations sharing the same river resources must be an *a priori* prerequisite before any dam construction begins. *Fait accompli* policies will lead to international problems that may eventually spill over endangering international peace and security. Sound political mediation role by regional organization such as the African Union, and the UNSC as a measure of preventive diplomacy to bridge gaps, harmonise, and reach agreements is very much needed. With respect to the controversy over the Grand Ethiopian Renaissance Dam, for instance, eight points can clarify the present situation:

- The necessity for achieving a comprehensive and just legally binding agreement between the 3 parties.
- The need for better using expert level meetings, including experts from specialized international organizations, in order to change negotiation methodology since has been blocked and reneged at the very last minute by Ethiopia. A good example is the Washington Agreement under the auspices of the World Bank, in which the President of the USA met with all the parties and encouraged them to reach an agreement. The results of the Washington Agreement were later refused by Ethiopia despite its initial agreement.
- Discussion of future plans by Ethiopia, or any nation, to build additional dams on the Blue Nile in addition to the Renaissance Dam.
- Discussing the safety of other existing dams, like the Roseires Dam in the Sudan that is only 15 km away from the Ethiopian Dam.
- Agreeing on a Dispute Settlement Mechanism.
- Avoiding the policy of a *fait accompli* by Ethiopia, which resulted in preempting and short circuiting the negotiation by the early filling of the dam with water before any agreement was reached.
- The need for a time frame, to conclude these very long and arduous negotiations.
- Addressing water needs for all the parties, including Sudan and Egypt, especially in difficult times of drought.

Third, mitigation, improvement, and modification. Governments need to put forth mitigation plans to reduce the impact of both water scarcity and climate change. We have a situation in which actually 1,8 billion inhabitants drink contaminated water and, since agriculture requires the highest amount of water, reducing consumption or dispersion and setting up a water waste management plan

to the annual flooding of the Nile and the resulting depositing of fertile silt. 95% of Egyptians live around the Nile Banks, agriculture happens on only 5% of the land, the rest is desert.

2 43.849.260 inhabitants in the Sudan, 11.193.725 South Sudan, and 102.334.404 in Egypt as well as 114.963.588 in Ethiopia.

are important priorities. There are several ways of mitigating water scarcity, which include the flow control in rivers and controlling water intakes from rivers and lakes.

Short-term measures, essentially to be taken up at local level, include laws against soil scrapping, adjusting actions to optimize agricultural production without major systemic changes in the system of agricultural production. Other measures include: earlier sowing, changing plant varieties, deep ploughing, soil loosening, mulching, rainwater harvesting, artificial recharge of groundwater, comprehensive water saving schemes such as deficit irrigation, devising appropriate cropping patterns, making combined use of surface and groundwater, prevention of evaporation losses from reservoirs and the use of sub-optimal quality water for agricultural needs.

The list continues with the following items: growing variety of crops resistant to drought, reducing vulnerability against droughts, introduction of new crops, new irrigation management strategies, advanced irrigation technologies and management, development of small water retention, watershed management and development, agro-climatic regional planning, creation of ground water storages, integration of small reservoirs with major reservoirs, integrated basin planning, inter-basin transfer of water, development of community-based natural resources management plans, new land management techniques, and developing a water saving consciousness among people.

Here I wish to add that NATO can help indeed with projects and solutions through its Science for Peace and Security Programme. Disseminating awareness on the seriousness of this problem can also be done under the auspices of NATO Public Diplomacy Division. These initiatives would well with NATO's civilian responsibilities which was manifested during COVID-19 crisis (please see footnote from NATO press release).³ In conclusion, how can the international UN System cope with these challenges? By bringing all the stakeholders and game changers to the same negotiating table under a clear UNSC mandate, including FAO, IAEA, World Bank, UNESCO, UNICEF, WHO, the WHO/UNICEF Joint Monitoring Programme (JMP) for Water Supply and Sanitation, UN-Water, World Water Council, the Pacific Institute, civil society, and so on. This collective effort and a rich, diverse, and wide-ranging expertise auger well with the gravity of the problem. I said earlier and I repeat: global problems need global solutions.

³ "NATO is supporting innovation through research and scientific collaboration on COVID-19. For example, the NATO Science & Technology Organization has tapped into its network of 6,000 defense scientists through the NATO Chief Scientist's Challenge. Launched in April 2020, the Challenge tasked Alliance researchers with identifying solutions to some of the most pressing challenges posed by COVID-19. More than 40 projects are now being taken forward, addressing topics such as understanding and countering pandemic disinformation, as well as improving military training for pandemic relief operations". The Euro-Atlantic Disaster Response Coordination Centre (EADRCC) NATO's main civil emergency response mechanism has helped a great deal. Also see NATO crisis management and disaster response contributions.



KIDANE KIROS

Senior Fellow, Policy Center for the New South, Rabat

CLIMATE CHANGE AND INTERNATIONAL SECURITY. A VIEW FROM THE SOUTH

The topic I am going to briefly discuss is climate change and international security from the Southern perspective and from the African perspective, so I will address three main points. One is on the fact that temperature in Africa is rising, and vulnerability and adaptation to climate change are the major concerns of Africa as a continent at large, and the third one would be that competition over the use and allocation of scarce resources, that may have the potential to increase conflicts and threaten international security.

So, coming back to the first topic, African temperature, if you look at the report that is prepared by the intergovernmental panel on climate change (IPCC), the observed trend in terms of temperature for Africa in the last 500 years is that the temperature has been increasing by about 0,5 degree centigrade or more. Then, in terms of projected trends for the 21st century, temperature in Africa will rise faster than the global average increase during this period, so the issue is what is the implication for security? What does an increase in temperature in Africa mean? What should we expect? Well, we will be having heat waves to happen more often, they would last longer, and of course most probably they would also cause some sort of illness – maybe heat stroke or even death in some cases. Warmer temperatures lead to a chain of reactions and changes across the continent by affecting the weather patterns, plants, and animals as well, but also the oceans, and then one way or the other especially the weather. But the change in weather patterns and the effect on plants and animals is also visible in the continent. At the same time, having warmer temperature means that we will have more severe impacts on people and of course on the environment. Maybe there will be major effects on agriculture, energy, water supply, health plans, the ecosystems, forests, and so on.

So, if that is the case, then what we witness is that vulnerability and adaptation to climate change are the major concerns of Africa, basically because this is a major issue. There are two important things that we have to discuss about this particular issue. First, owing to its slow industrialization, Africa of course contributed the

least to the projected anthropogenic or man-induced global warming but it is suffering the most as a continent, so there is a paradox. Second, we need to take into consideration that there is population pressure and also widespread poverty. These two basic issues exacerbate the problem that we have at continental level. In order to address these issues, governments in Africa have to do something: they have to develop, they have to exploit the environment, because development happens on the expense of the environment. So, as it is now, because of widespread poverty it would be very difficult for Africa to cope up with the adverse effects of climate change, since most people who are poor in Africa depend for their level of goods on natural resources such as forests, land, rivers, the seas. One way or the other, this climate induced environmental hazards are going to affect the continent at large.

Evidence shows us that the change in temperature has affected health, livelihood, food productivity, and water availability in the continent. If you look at the development process at large you need an input for your economy, which you will be getting from the environment, and then you will have an output in terms of gross national product. But at the same time, when you have output you will have also waste, and this means that the environment will be affected by pollution., then it will be about resource depletion, and if you have it then it will be also difficult to add further production in the economy, so it is a vicious circle. In this case, adverse climate change is of course predictably becoming the highest source of insecurity in Africa, and we can explain it in different ways. Especially in terms of vulnerabilities, Africa is vulnerable to desertification, sea level rise, reduced fresh water availability. You have deforestation, degradation of woodlands, health issues, and impacts on food security. So, in terms of responding to climate change, you have mitigation and adaptation. Especially adaptation is very difficult, because of the issue that I mentioned, including the population pressure that we witness at continental level.

Finally, and briefly, what I would like to say is that it is very difficult to establish a closer relationship between climate change and conflict or security in Africa or at the global level, but what I can say is that climate-induced environmental disasters can potentially contribute to the increase in the number of conflicts both at national and international level, especially when we talk about the allocation of scarce resources. For instance, take the Nile river basin, where you have around 10 countries looking for access and use of its water in a region where there is population pressure, a need for development, the impact of climate and so on. There is a competition for that scarce resource, so potentially that competition may contribute to exacerbating potential conflicts, even violent. But what does this mean to international security? I think it is clear that if there is fire in Africa, definitely there will be the smoke somewhere in Europe, it will have international implication to international security. In terms of solutions, I do agree that negotiation is very important and necessary, but that negotiation should be genuine.



VINCENZO CAMPORINI
Former Italian Defence Chief of Staff

STRATEGIC CONSEQUENCES OF CLIMATE CHANGE

I am optimistic by nature and I hate to sound catastrophic, but I believe that the picture we have in front of us, that has been described by previous speakers, is one where we are facing changes in all aspects of environment with a potential to reshape completely the civilization on the globe. I read that, once all the ice above the water (in the Antarctica, in Greenland, and so on) melts, the sea level will raise by 50 meters. I was very sceptical, so I tried to make some calculation and I found out that it is true, it is almost impossible in the present circumstances that this happens but, if only 10% of this happens, it means that the average sea level will raise by 5 meters. It will take time, but this time is very scarce anyway.

What will happen if something like this occurs? I believe that the first consequence is that a large portion of the earth, that is now inhabited, will not be so in the future, and most of the world population now living on the coast, will have to move. When we complain, or discuss, or analyse the reasons for the migration crisis we are facing today, I believe that we are facing something that is much smaller in order of magnitude to what we can have or foresee in the not-too-distant future. Not tomorrow, not by the next year, but for sure by the next 50 years things will change dramatically and this will cause such a revolution in international affairs to the point that now it is extremely difficult to predict or foresee anything and to be prepared for anything. This has to do with the flow of people in the globe that will be increased dramatically by a number of factors that have been described so far, for instance the scarcity of resources and basic goods.

Water has been quoted several times, and we already had a lot of controversial issues on the problem of the availability of water. I think there is a slide that shows some of the main water hotspots, and of course we have to say that these crises are due to basic needs for life. Without water we cannot have any society living, and here we have a number of crises that already exist and create the roots for conflicts. Just a few weeks ago we learned about the controversy between China and India on the Brahmaputra river, and this is just one example, but what will be the

consequences in terms of military capabilities? Well, military capabilities are also dependent on the environment, and if the water of the sea raises, as I said before, we will have a large number of military facilities that will be useless. I think there is another slide showing the US military bases that are at risk, but we have similar examples in Italy. Two of the main air bases in Italy (Pratica di Mare and Pisa, both in Central Italy), would be flooded and no longer usable, and the same thing can be said about other sites.

Our military capabilities could be necessary to manage the crises I described in the beginning, but they will be already under a serious stress not mentioning the necessity to prepare to new difficult environmental conditions. Our soldiers are ready to fight in both warm and cold climates, but extreme weather conditions will be exacerbated so they will need to train even more. Will we be able to offer them the support to do that? I have some doubts that this can be done with the present state of business and I believe that our governments must be extremely careful about the future, because of course they have problems to solve for today and for the next week, but they have to think also about the problems that we will have to face in the next 10, 15, 20 years.

Conversation

THE SECURITY-HEALTH NEXUS AND THE TRANSATLANTIC RELATIONSHIP



First aid field hospital for Covid-19 patients





FREDIANO FINUCCI
Journalist, La7 Television

POLITICAL AND MEDIATIC LESSONS FROM THE COVID-19 CRISIS: THE ITALIAN LOCKDOWN CASE

The Italian COVID-19 lockdown was the first imposed by a big western democratic country, a founding member of the European Union and a member of NATO. The quarantine started on the 9th of March until the 18th of May 2020, for a total of 70 days. During those 70 long days, Italy was headlined in newspapers and newscasts all over the world. These are the four pictures that will remain in our minds and in the books of history:

- a column of Italian military trucks carrying dozens of coffins in the city of Bergamo, North Italy;
- people singing from balconies all over the country every day at 18.00 CET;
- the special plastic helmet – called chip – used to provide oxygen to people in intensive care unit;
- an exhausted nurse after a night of overwork in the hospital of Cremona, Lombardy. Her name is Elena Pagliarini and she has been awarded a very high honour by the Italian President Sergio Mattarella.

The Italian lockdown 9th March – 18th May 2020



1

70
days



3



2



4

So, these are the symbols of the Italian lockdown. But for our discussion today there are more interesting pictures, which show how foreign countries decided to help Italy with hidden goals and different ambitions.

RUSSIA



The Russian aid 22nd March – 7th May 2020

46 days



After a controversial phone call between Italian prime minister Giuseppe Conte and Vladimir Putin at the end of March, 15 Russian military planes landed in Lombardy with doctors and technicians, as well as trucks and equipment for disinfection. The operation was called “From Russia with Love”. Some newspapers speculated that Russians were gathering intelligence, but as Alessandro Politi, Director of the NATO Defense College Foundation wrote, “[...] *it is unlikely because it takes years to set up effective and secret intelligence networks*”. It is a matter of fact that the Russians may have easily collected samples of coronavirus, since at that time Russia was not hit by COVID-19 yet. According to my colleagues in Moscow, the operation was developed primary for internal propaganda, but suddenly two problems arouse. First, Russians were mainly involved into sanitizing retirement houses, quite a simple task. So, the Italian journalist Jacopo Jacoboni from *La Stampa* asked why not engaging Italian private companies instead of asking Russian Army to do that. The journalist was threatened with death by major general Igor Konaschenkov, Russian Defence Minister’s spokesman, who tweeted “*Who digs a pit for others, falls himself into it*”. Second, on the 13th of May, the newspaper *Corriere della Sera* reported that 150 Russian-made breathing machines, given by Putin to different hospitals in Lombardy, were of the same model that exploded in Russian hospitals, killing 6 people. After 5 days, the Russians suddenly went back home overnight with little explanation: they said “*our mission is over*”.

ALBANIA

The Albanian doctors: 9th March – 18th May 2020

“Today we are all Italians”



EUROPE



War
Invisible enemy
Bravery
Line of fire
Deadly force

Italy's Last Unexpected Eurosceptic Friend: 32 days Edi Rama and his “Lesson to Europe”

On the 29th of March, the Prime Minister of Albania Edi Rama delivered a speech that really impressed the Italian public opinion. Standing on the tarmac of Tirana's airport, surrounded by 10 doctors and 20 nurses – all dressed in white, he said: *“We are among the smallest countries in Europe but we do not forget friends who helped us in the past. Today, we are all Italian. That's why we will send – and pay for – a medical team in Italy for one month”*. The speech impressed the media because it was a kind of war declaration, stated in a perfect Italian, against COVID-19, since he used words like *line of fire*, *deadly force*, *war*, *invisible enemy*, *bravery*. The message was clear: the poor Albania is giving a lesson of friendship while very rich countries, said Rama, have turned their backs on others.

AMERICAN EVANGELISTS

The American Evangelical doctors 19th March – 10th May 2020

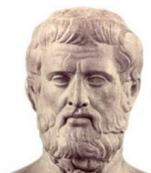


On the 19th of March, just 10 days after the beginning of the quarantine, this big airplane landed at Verona's airport. It was a special aircraft sent by the Samaritan's Purse evangelical relief organization, which set up an emergency field hospital in the city of Cremona with a total of 32 doctors and nurses and high-tech equipment. Everything was so professional, they even had a media team that reported the activity on the ground with pictures, videos, and stories available on a website. Considering that Italian religious associations usually adopt a very low profile, Italians – 71% of them are catholic and pope-friendly – realized for the first time how powerful are American Evangelists. After they finished their shifts at the field hospital, doctors from time to time were praying all together. The president of the association is a guy called Franklin Graham, a big supporter of Donald Trump, by the way.

CHINA AND CUBA

*We are waves from the same sea,
leaves from the same tree,
flowers from the same garden*

Writing on Chinese aid boxes (Seneca)



The Chinese aid
and the Cuban doctors

9th March – 18th May 2020



70 days



Last but not least, the aid from Communist countries. China provided millions of surgical masks and technical equipment since the very beginning of the lockdown. Aid from Beijing's government, as well as from private companies, had the same label in the payload quoting the Roman philosopher Seneca: "*We are waves from the same sea, leaves from the same tree, flowers from the same garden*". Moreover, a small team of Chinese doctors made a tour in Italy (in Rome and Milan) to brief national experts on how to face COVID-19 according to their experience in Wuhan.

Finally, on the 23rd of March, a team of 52 doctors and nurses coming from Cuba landed in Lombardy, called from the local government. They worked 2 months in the city of Crema, the salary of the doctors – between 4.000 and 6.000 dollars per month – was paid by the rich region Lombardy, ruled by the nationalist, far-right party Lega Nord (Matteo Salvini's party), well-known for its rhetoric against Communism. By the way, salaries were paid directly to the Cuban government, but doctors and nurses received only the 30% of their remuneration as reported by Italian newspapers.



DANIELE RIGGIO

*Press Officer; former NATO Political Advisor
in Afghanistan, NATO HQ, Brussels*

ACTION IN THE FIELD AND AT HOME. LESSONS FROM OPERATIONS

I would like to start from a premise: I am Italian, and I would like for obvious reasons to recall a note, penned by the Secretary General Stoltenberg for the newspaper *Corriere della Sera*, essentially highlighting the admiration for the resilience shown by the Italian population and Italian authorities in dealing with the pandemic, from the health workers looking after their patients through the security and defence personnel. That op-ed also made clear that Italy did not stand alone. On the contrary, Italy has received medical personnel, ventilators, and critical medical supplies from different Allies. But the country has also did his part as a security contributor in response to the pandemic, by deploying for instance medical teams and support to Kosovo and Bosnia-Herzegovina, and as well as in making some of these assets available to the Alliance. I would have felt at fault if I had I not started with a reference to my home country.

I will be very brief. First of all, I will provide a short overview of the NATO response to the pandemic. Then, I will try to address the other aspect of the equation, how NATO has done its best to ensure not only that it swiftly reacted to the pandemic, but also in making sure that the health crisis could not turn into a security crisis. NATO simply did not have the luxury to shut down business as a result of the pandemic. In conclusion, I will provide a few remarks towards the future, particularly from the point of view of the NATO 2030 process.

From the point of view of the response to the pandemic, let me address a few critical points. First of all, the very critical role performed by the military forces in the first half of the year. NATO Allies flew more than 350 flights to support medical personnel, transported more than a thousand tons of equipment, and helped to build almost a hundred field hospitals and over 25.000 treatment beds. The second point, the shared solidarity not only in words, but also with the concrete actions. To cut a long story short, allied countries came to rescue each other and provided mutual support, and in this respect a critical facilitating role has been played by our clearing house, the principal civil emergency response mechanism

within NATO, the Euro-Atlantic Disaster Response and Coordination Centre, that has been coordinating 22 requests for international assistance, translated into more than 125 offers, all in support of the mentioned requests.

Let me also make another point. I think it is fair to say that NATO has been playing its part to coordinate its efforts as much as possible with other important international institutions – namely the European Union, the United Nations Office for Coordination of Humanitarian Affairs, the World Health Organization, and the World Food Programme –, all with the aim to make sure that our respective efforts could be as mutually supportive as possible.

However, there is another point that I would like to make with respect to the response given by the Alliance in the first wave of the pandemic, consisting in the assistance provided to partner countries as well as to countries where NATO has deployed the troops.

In Afghanistan, for instance, our Resolute Support Mission has helped to provide critical supplies to Afghan security forces in 14 provinces. In Iraq, in coordination with our NATO Mission, Spain has delivered essential medical equipment, and also additional help has been provided to Iraqis by Turkey and Poland. In Kosovo, our KFOR Mission has donated personal protective equipment to hospitals in Pristina and Gračanica, and delivered more than 50 donations of food and clothing to 14 Kosovo's municipalities.

NATO has also started to act in response to a second wave: it has approved an operational plan to deal with that, and it has also set up the Pandemic Response Trust Fund, that includes a stockpile of critical supplies (some of which has already been made available to Western Balkans' partner and allied countries).

In this context, the challenge for NATO has been twofold: how to be as reactive as possible to the pandemic itself, while at the same time ensuring that it could maintain operational readiness and continue to perform its core task of defending and protecting around one billion of its citizens. This means, in a nutshell, that the main themes in the NATO agenda have continued to be addressed. In Afghanistan, for instance, you may be aware of the recent statement issued by the North Atlantic Council reaffirming support to the peace process, particularly in light of the agreement or the new rules and procedures at the Doha's talks. But the statement also makes several points clear, and I would focus on two of them. First, the reaffirmation of the condition-based approach of our engagement in Afghanistan and second, our continued support to the Afghan Security Forces in performing their tasks.

NATO continues to be present also in Iraq, and early next year discussions will continue on finalizing an expanded scope of our capacity-building mission there. NATO continues its mission in Kosovo under the United Nations Security Council Resolution 1244 of 1999, providing a safe and secure environment and freedom of movement for all communities in Kosovo. It is also coupling that with the continued political support to the EU-sponsored dialogue between Pristina

and Belgrade. Within the agenda, NATO has continued also to strengthen its partnerships, particularly with the European Union. It maintains a dual track policy *vis-à-vis* with Russia. So, this is to say that the main themes of the agenda have continued to be addressed.

Now, as we look ahead, I think an important takeaway is represented by the NATO 2030 process. You are aware of the report by the group of experts that was submitted to NATO Allies. As the Secretary General has said, this is one input of the broader process that will continue to feature consultations by the SG with all Allies, members of the civil society, and the think-tank communities. Three overarching objectives from the secretary general standpoint continue to inform the 2030 process: 1) keeping the military edge of the Alliance; 2) making sure that the Alliance becomes an even more active forum of the political consultation (without shying away from the issues that exist among Allies), and last but not least, 3) keeping a regional profile while further developing a global approach to security challenges, because – whether we like it or not – they affect all of us.



JAMIE SHEA

Former Spokesperson of NATO, Overijse (BE)

NEW POST-PANDEMIC LEADERSHIPS WITHIN AND OUTSIDE NATO

When you get a kind of global catastrophe (since in terms of health crisis, number of people who have died, number of people infected, the economic hit, you probably can describe the pandemic as a catastrophe), the impact of this sort of cataclysmic event:

- reveals a lot about the state of the world as it already exists or existed, shining a cruel light on many of the vulnerabilities that were always there but were not exposed or acknowledged;
- drives the international agenda forward in the new ways that we are going to have to deal with for generations to come.

So, what I would like to talk about is number one, the cruel light on the existing vulnerabilities, and secondly, a sense of where we will be left after the COVID-19 pandemic, once it does eventually subside and the vaccines will be there – in my country, the UK, they have already been rolled.

Looking at the wreckage afterwards, I think in the first place COVID-19 has sort of shown that we are vulnerable to shocks and in a surprising way, not because we did not know about them or not because we did not have lots of potential analysis. For example, anybody who studies international relations will know that a couple of years ago the learned journals were full of reports on the next pandemic, building on the early warnings that we had had from things like SARS, MERS, the avian influenza, Ebola, and so on. Many of our countries, including my one the United Kingdom, had conducted large exercises to prepare, the United States even set up a special unit in the National Security Council to prepare for pandemic response. But as the initial warnings, like with SARS and avian bird flu, did not produce the catastrophes that had been predicted, we sort of stepped back from those efforts and we allowed many of those preparations and stockpiling to fade.

France, for example, which was struck by a pandemic 20 years ago, would have been in a very good position to respond because it had domestic companies that

produced respirators, medical equipment, testing kits, and it had also a large degree of domestic sourcing of the chemicals needed for medicines. But by the time that the pandemic came round, France was not even able to produce its own paracetamol any longer, it had allowed all of that industry to be taken into foreign ownership or to be effectively offshored.

So, in many respects we are vulnerable to things that we have already sort of known about on our radar screen, but because they did not happen when we thought they were going to happen, we demobilized.

Despite all of the emphasis that NATO the EU have put in recent times on resilience, we still have a number of vulnerabilities. We prepare for the scenarios we do expect, but not for the ones that are likely to hit us. So how we do a better job in the future of linking what it could happen to what it can happen and to prepare, I think that is going to be a key thing. I mean, one thing that we know about COVID-19 is that it is showing just how easy it is for a new virus to spread from the animal world into the human world, particularly at the time when the two are increasingly mixed in, and to mutate. Therefore, we know that this pandemic will not be the last. Rather like climate change, where events that once only took place every hundred years are now taking place every ten years or even every year, there has been a sort of compression in the sense that, just like the last great pandemic was a hundred years ago with the Spanish influenza, now we will not have to wait another century for a similar event. Like climate change and extreme weather events, pandemics will occur every 10 years or every year, so the very first thing of this crisis is to learn the lessons so that we are better equipped next time around.

Secondly, COVID-19 has also shed a very cruel light on social inequalities. The poor ethnic minorities and people, who live in cramped conditions in multiple family units in inner cities, have been way more exposed in terms of infections and deaths, while the elderly have been isolated in care homes from the rest of the population. Unfortunately, it is the case that the wealthier you are, the less likely to have caught it and the more likely to have been able to survive. COVID-19 does show exactly that when a pandemic like this comes around, people for example in the United States who lack health insurance are more exposed.

Therefore, resilience in many respects is going to go along the way of reducing social equality and building up better health care and better welfare systems. Those countries with good, robust healthcare systems (and several regions in Italy, Germany and others are the case) have been much better able to deal with this than countries with very weak health care systems, to which many people do not have access.

COVID-19 has also had a greater impact on polarized societies, and unfortunately the United States – which has been the country suffering the greatest number of infections – is a country with a high degree of political division and polarization. This makes it more difficult for the centre to coordinate with the states. A decentralized system makes it easier for fake news, disinformation, anti-vaccine

campaigns, anti-masks wearing campaigns, and refusal to heed government advice to circulate.

Countries in Asia with a high degree of social cohesion and a high degree of social discipline have fared a lot better. Take Taiwan: a country of 24 million people, which is a democracy, has suffered only 9 deaths so far from COVID-19, so clearly there is something about the way in which social models are constructed. Countries like Germany, which is a decentralized nation with its *Länder* but where the central government has had a much more effective working relationship with the regional entities, have fared better from the start, so there is something about polarization and political systems which also plays into resilience.

A further point is supply chain dependency. We have seen with COVID-19 the opposite side of globalization, where the dependence upon a very lengthy supply chains outsourcing can be a vulnerability in a crisis. We have had to go to China (the previous speaker showed that with the images of Chinese protective clothing being delivered) even for basic things, even for masks that we should be able to produce ourselves in Europe but we have not because of relative de-industrialization.

One of the big issues that we are going to have to face as we go forward is to what degree do we repatriate or do we reassure those critical supply chains. Can we believe that *grosso modo* globalization worked? I mean, at the end of the day we have been able to procure the supplies even if we have been often competing with each other at the beginning, or paying exorbitant prices. To what degree do we continue to depend upon the just-in-time delivery of globalization, or repatriate for greater self-reliance, if not autarchy?

Political leadership again has been critical. Trust in political leadership, clear messaging, clear communications, public willingness to do what they are being told (even if they do not particularly like lockdowns, or tier 1, or tier 2 systems), and the quality of political leadership has really mattered in this crisis.

But unfortunately, I would say that, in terms of shining a cruel light on our existing state of affairs, the pandemic has shown that the multilateral system in which we put so much faith and trust actually is not quite as effective as it should be. We invoke multilateralism rightly because it corresponds to our notion of a liberal rules-based international system. I support that wholeheartedly, but when a big crisis comes along does that multilateral system really work? Take the UN Security Council: it took nearly six months from the outbreak of COVID-19 before the Security Council held its first meeting, it has been largely absent from the debate.

The G20, which played such a massive role back in 2008 in managing the international financial crisis in the wake of the collapse of Lehman Brothers, has been again largely absent from the debate, and the G7 as well. The World Health Organization has been frustrated by the politicization of many in the debates, and of course the US withdrawal halfway through health crisis. The WTO, at least in

terms of trade policy and relief, has been paralysed.

What we have seen, and which I think is going to be very interesting for the future, is a kind of new multilateralism. Asian countries, without the US and even without China, have formed their own coalitions and their own consortium, the EU has stepped in with Covax, a system to be able to make sure the vaccines are donated to the developing countries who could be at the end of the queue, Bill and Melinda Gates have given far more to vaccine development, including 250 million dollars to many countries. We are seeing a new multilateralism emerging in the wake of COVID-19, based on smaller coalitions, coalitions of the willing involving NGOs, private sector, countries who are willing to back an issue and work together largely, bypassing the more bureaucratized, immobilized existing institutions.

One thing the pandemic has done is revealing the absolute cruciality of science. You cannot get out of the crisis unless you innovate. You cannot get out of the crisis with old vaccines and old medicine. You have to invent something new, and of course one of the success stories of COVID-19 has been the way in which new vaccines have been developed so quickly. This is a great triumph for science and a great triumph for human ingenuity, but the lesson for all of us is that if we do not have an innovative, R&D-focussed economy, if we do not invest sufficiently in R&D and in new technologies, if we cannot mobilize human talent fast in such a crisis, we are going to be dependent upon others. Or we are going to be in the slow layer of the slow lane.



ANDREW SPANNAUS
Journalist and Political Commentator

SHIFTS IN TRANSATLANTIC ATTITUDES CONCERNING THE SECURITY-HEALTH NEXUS

The four years of the Trump presidency have been characterized by strained relations between the United States and the European Union; however, this may actually produce the benefit of a clearer view of current global strategic challenges. There have been worries about Trump pulling out of areas such as the Middle East, and questions about what the real U.S. policy towards Russia is. These issues have not been fully resolved, and will also depend on the evolution of events in the future, but some things are clear: the US is reluctant to get directly involved in the Middle East militarily, and while there are many who still emphasize Russia's role as a bad actor, the main focus has shifted: now the strategic posture is concentrated on China, and Asia in general. Formally, this has become an issue for NATO since last year; in my view, it will increasingly be the conceptual framework for discussion of strategic issues.

Although this has been the direction for some time, it is worth repeating that the transatlantic relationship now exists in a world dominated by strategic competition between the West and China. As the Biden Administration calibrates its diplomatic approach to China, that will be more multilateral but build on the realism introduced by Trump, there will be strategic and economic implications for transatlantic relations across multiple sectors. There are different views of the current and prospective situation with China. We are not necessarily entering a new Cold War, although some may see it that way. The context is properly defined as one of great power competition, in which the consideration of strategic interests will influence the amount of engagement or decoupling possible in the coming period.

Major changes were already underway in the West before 2020, that have been heightened by the COVID-19 pandemic. Consider trade policy, but more in general the rethinking of an economic policy too heavily based on free-market ideology and finance, that now requires a focus on resilience and national security. These issues were expressed in the populist political swell in both the United States

and across Europe, a tendency which requires institutional forces to remodulate policy, assimilating some of the changes demanded by political outsiders who have exploited popular unrest. This will produce pressure for a reorganization of supply chains in certain areas of the economy, for example. Yet it does not mean simply going back to the past; we are living in a new technological world, the digital era, which has a major impact on the organization of the economy.

In fields such as telecommunications networks and artificial intelligence, a necessary debate is underway over current capabilities and the prospects for Western technological progress, likely to be driven by a new policy from the United States. The goal must be to rebuild the core economic strength which has been heavily damaged with misguided policies over decades. This can be done through a concerted focus on technology – as it impacts infrastructure and manufacturing, for example – in the context of competition with China and the need to maintain superiority in key areas. These challenges will provoke a rethinking of the relationship between economic policy and security across sectors.

One of the key sectors, of course, is health. I want to speak briefly about the success of military forecasting in regard to a pandemic emergency, and of Operation Warp Speed in the development of vaccines for COVID-19. Without having the time to go into detail, a very important economic principle is at issue here, regarding the ability of the public sector and national security institutions to anticipate and rapidly address emergencies. The success in forecasting what would happen – despite the failure of political implementation of the necessary safeguards – provides indications for corrections to essential forms of public planning that have been neglected in recent decades.

The Worldwide Threat Assessment Report is produced by the office of the Director of National Intelligence (DNI); every report in recent years has referred to the possibility for a pandemic outbreak, a global event. For example, in 2019 the reports stated: “*We assess that the United States and the world will remain vulnerable to the next flu pandemic or large-scale outbreak of a contagious disease that could lead to massive rates of death and disability, severely affect the world economy, strain international resources*”, and goes on to talk about the jump from animals to man. In 2017, the Pentagon produced a plan entitled *Response to pandemic influenza and infectious disease*, which stated “*The most likely and significant threat is a new respiratory illness, particularly a new influenza illness*”, referencing coronaviruses in particular. The plan went into detail on a potential multinational health crisis, indicating the risk of a lack of ventilators, personal protection equipment, masks and gloves. Or consider the work by the National Center for Medical Intelligence (NCMI), a component of the Defense Intelligence Agency (DIA). The Center detected a flu event in Wuhan starting in October of last year. This fact is somewhat disputed publicly, but well-informed sources confirm the timeline.

It is not only military institutions, obviously, but other government bodies as well. We have seen extensive cross-agency coordination, such as the Crimson

Contagion simulation from January to August 2019, led by the Department of Health and Human Services. The exercise foresaw contagion with a “*respiratory virus that began in China*”, involving 15 government agencies and also state and local organizations. The goal of citing these examples is not to say that we need to militarize pandemic preparedness, but it is important to recognize that there is a very important capacity here to be exploited, and that the military has often been on the front lines of public health in the post-war period.

This capacity can be integrated into economic policy-making needs, that require coordination across government. Military plans were very prescient on the dangers of such a crisis, for instance working with the Department of Homeland Security to determine what could happen to the healthcare system, transportation, and in the workplace. Military planning represents a very important resource, because by definition the goal is to map out unexpected, emergency events – something that the private sector, and other government agencies as well, have unfortunately cut back on, in line with short-term thinking dominated by budget cuts and the goal of balancing the books.

Health security is certainly an area eligible for transatlantic coordination, that can pass through security cooperation. It sounds nice to say we need to be transnational and multilateral, but the reality is that everything is conditioned by interests, and takes place in the context of global competition; it is not just Donald Trump’s rhetoric, but the impact that the efficacy of our policies have on allies and delicate areas around the world. Military institutions play a role in many non-strictly military areas, and offer a vehicle for strategic coordination which policymakers would do well to consider, in the context of a more general shift towards a new concept of resilience and national security.

Special Intervention

DETECTING AND DEALING
WITH “GREY RHINOS”



Ursula Von der Leyen, President of the European Commission, and Jens Stoltenberg, Secretary General of NATO at the European Commission





FRANCESCO MARIA TALÒ

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We are dealing with the key issues of this time, indeed. As Ambassador Minuto-Rizzo previously said, these are special times in a “liquid” world, in the age of uncertainties. How to deal with something that is uncertain? We would really need to look forward to the next years to imagine and forecast the future, and it is not a simple task. The easiest thing to say is that we should expect the unexpected; it is somehow a catchphrase, something quite obvious, but we are prepared. In fact, in the first panel Roberto Menotti was asking whether NATO has the conceptual capacity to deal with unprecedented challenges. I should say “yes, definitely”, and we had the proof just recently, with the report of the so-called “Reflection Group”: a group of experts which has been nominated by the Secretary General of NATO, focussed on the key issues that we are dealing with today and with which we will tomorrow. All these issues (pandemics, climate change, disruptive technologies) are all really crucial in this report, and actually there is another thing that is somehow more structural.

At NATO headquarters, there is a Division that is called “Emerging Security Challenges”. I think this is really meaningful: I do not think that many organizations have divisions, have structures, with such telling and somehow visionary names. They invite us to look at what is emerging, but also to what is underwater. I am not a technology geek, but I think that we should at least imagine, if not really understand, of what is made of the larger part of the iceberg, the one that is under water and not on the surface.

We certainly have many phenomena that one cannot imagine or expect, but if you think twice then you understand that one should have expected many of them. This is the case of the pandemic: one should have expected something like this, so probably it was not the “*black swan*” described by many, but, probably, it was rather closer to those phenomena called “*grey rhino*”, and now I entered somehow in the field of zoology.

A “grey rhino” is a highly probable, high impact, yet neglected event; “grey rhi-

nos” are not random surprises, but they occur after a series of warning signs and visible evidences.

Well, this is definitely the case for disruptive technologies, for climate change, and, in the future, it should be the case for pandemics. Perhaps we might have a justification to be caught unprepared once, but the second time we would have to be ready to deal with these events that are going to be permanent, structural factors in our lives, and they will all have a strong impact on our security as well.

For instance, at the beginning of the pandemic, organizations and countries were all caught by surprise, to be honest. In this sense, I think that Ursula von der Leyen has been very sincere on the mistakes made by the European Union in managing the first phase of the first wave of the pandemic, and the open excuses she presented had raised admiration in Italy for the openness of her approach. Further down the road, the European Union and NATO proved greatly effective in reacting to the crisis. It has been repeatedly said, and this is very important, that we avoided the risk of transforming a health crisis into a security crisis.

And here I would like to add another crucial word and concept: *resilience*.

Resilience is probably the trendiest of trends. In 2021 resilience will be really a main topic for all our activities. This is something important, because it is not a concept that has to do with foreign policy or military affairs only, but rather an encompassing concept. A concept that involves to a great extent our efforts also on the “home front”, the first line in the fight against the kind of issues we are confronted with in these days. Well, those issues do not only pose challenges to us but also opportunities, and somehow, we have to “replace” the black swan fatalism with a grey rhino constructive pragmatism.

I think that NATO’s history is quite interesting in this sense. It shows a line of continuity, which is to say the link to our values, something that makes us the longest existing alliance in history. Since 1949, values are still the same, they are strong, and they make this alliance unbreakable. On the other hand, the Alliance remains unbreakable also because of its capacity to adapt to new challenges and to absorb the developments of technologies. This is very clearly demonstrated by the increase of the number of military domains. We started maybe 10.000 years ago fighting each other on the field, on the ground, which was the only one dimension in conflicts. Then somehow, maybe at the time of the wars of the Romans against the Phoenicians of Cartago, the maritime dimension was added to the “count”, and we lived for 2.000 years with only two military dimensions of conflicts. Then, 100 years ago – please note the tempo, the rhythm of changes that occurred –, we witnessed the addition of a new dimension, air power. And then, in just a few years, in a very short time lapse, we added two new dimensions as operational domains: in 2016, the cyber domain, and in 2019, at the London summit, space.

These two new dimensions have something in common. They are somehow extra-territorial; you cannot necessarily be able to link them to a precise territory. For example, it is extremely difficult to say that a cyber-operation is being carried out

from a certain country, because it is often impossible to establish from where the attack comes from or, in certain cases, where exactly it is directed. The same goes for the extra-atmospheric space. I mean, a satellite can rotate around the Earth in a few minutes, so this means that they are, in a sense, really disruptive. These two operational domains are “horizontal” as well, because they have to do with all the other domains, and we are entering somehow in a completely new area also for our mind-set, for our way of thinking. This is especially true when we think about artificial intelligence and all of its related consequences. In this sense, we are facing somehow a “*Sputnik moment*”. The challenge probably lies in how to exploit this moment, and Andrew Spannaus already mentioned this while referring to pandemics and how to deal with other countries.

We should exploit this “Sputnik moment”, but first we have to understand how much this moment is different to the one of about 60 years ago, when the Soviet Union sent its first vehicle into the space, representing a challenge to the United States. At that time, Americans were so strong that, in a few years, they had been able to face the challenge and to overcome again the Soviets, becoming the first country to send a man on the Moon’s surface.

Back in the 60s, few European countries had already some limited capacity (including Italy), but the US was more than capable to work alone. Now this is no more possible. Now no country of the West, as strong as it can be, can face the current challenges alone. Even if, nowadays, the European Union is capable of having all of its member states coming together to pursue strong projects, develop complex capabilities, invest great amount of money and resources, and demonstrate good political will, would never be able to face these sorts of challenges alone, and the same goes for America. So, Europe needs to hope for the USA to be stronger just as much as the USA needs to hope for a stronger EU. We have to work together, and we can be stronger together to face all these challenges.

Certainly, disruptive technologies require a lot of money to be invested on them and a lot of data to be made available, which is another very important resource we need to put together and on which we are limited. We have decided to respect the privacy of our citizens, namely with the European GDPR regulation, which is very important, but our challengers do not have this kind of rules. For instance, there is a country with 1,4 billion people, China, that does not have this kind of regulations to respect the privacy of its citizens. In this sense, to deal with disruptive technologies, we have to work together as EU member states in collecting the data respecting our citizens within a clear legal framework, while at the same time investing much more financial resources on it.

The same goes obviously for climate change, on which we really need to cooperate all together. It is a matter which should unite all peoples, and that is why it is a challenge for the United Nations, and for countries united under the Paris Agreement. And, again, the same approach is required to tackle pandemics. They know no borders, and we have to work all together when the public health is at stake.

At the same time, there are issues or challenges where we have to work in a framework of like-minded countries. I appreciated the appeal of Jamie Shea on the need of technological resilience for our democracies – I would say for Euro-Atlantic democracies. This is really crucial: work together, build resilience together (also because we have to face somehow all these “grey rhinos” coming together), be interlinked and get stronger because of a cumulative effect.

When we face a group of grey rhinos (a so-called “*crash*”, that is the zoological term for the group), we really need to overcome these challenges to get out of them stronger. The grey rhinos are not hidden; they are not like the black swans. We have therefore a special responsibility, because we can see them, we can do something, and we have to do something together as an alliance, as like-minded countries sharing the same values. Together we will be stronger, because we have been able to overcome similar challenges in the past.

This is the history of the last 500 years, and this history is particularly linked to Italy. To speak about 500 years ago means referring to the Italian Renaissance, that was a turning point because it was the moment when the West gained its technological edge, which was translated into a cultural hedge, and *vice versa*. I mean, these are two faces of the same coin, and it was also the start of a political edge that one can also see in negative terms, colonialism is one of them. But certainly, that turning point is also connected with the affirmation of our values, which have evolved through time. It is important to think to our values when we consider this kind of challenges. This is particularly true when we speak about artificial intelligence, because ethical questions are crucial. And this is why it is important that we deal with these issues from a Western perspective, a perspective that puts human rights at the centre of discussion. Human rights are indeed at the very centre of our Alliance and of its preamble.

I have mentioned climate change, and I really hope that 2021 will be the turning point for climate change. The United Kingdom, together with Italy, is going to host COP26, and we really think that the nexus between our security and climate change is evident. We had some interesting considerations during the previous panel, and we see how much nowadays, from the high North to the South, climate change is having major implications that could also have consequences on our security. We have been putting forward the issue of climate change for a common debate here at NATO for one year or more, and last September, together with our British colleagues, we organised for the first time a seminar devoted to climate change and the environment at large and their impact on our security. We did it by involving also the European Union, as well as the African Union, because I think it is very important to work with these partners. Here we have a double-face challenge. On the one hand, we have to deal with possible new risks and threats, which are consequences of climate change and they can come from the South and from the North. They could be related, for instance, to the possibility of using new maritime routes in the Arctic Sea. Therefore, we could be threatened much more

from the North, and not only from the East and the South. On the other hand, it is clear that climate change in the South is a cause, for instance, of desertification, and we know how much desertification is intertwined with instability. And instability is indeed a cause of security threats. So, everything is connected.

In conclusion, we have huge challenges in front of us. And since we can already “see” them, we must deal with them. In this sense, we have a special responsibility. And I think that we will be able to overcome them somehow. Today and tomorrow’s conference is about “game changers”. Clearly, COVID-19 has been the game changer of the year, but actually all the above-mentioned grey rhinos are game changers as well. Disruptive technologies, artificial intelligence, and climate change are game changers. What I would like to suggest is that the best perspective for us is not to be passive victims, run over by rhinos, but to become the real game changers of our age.

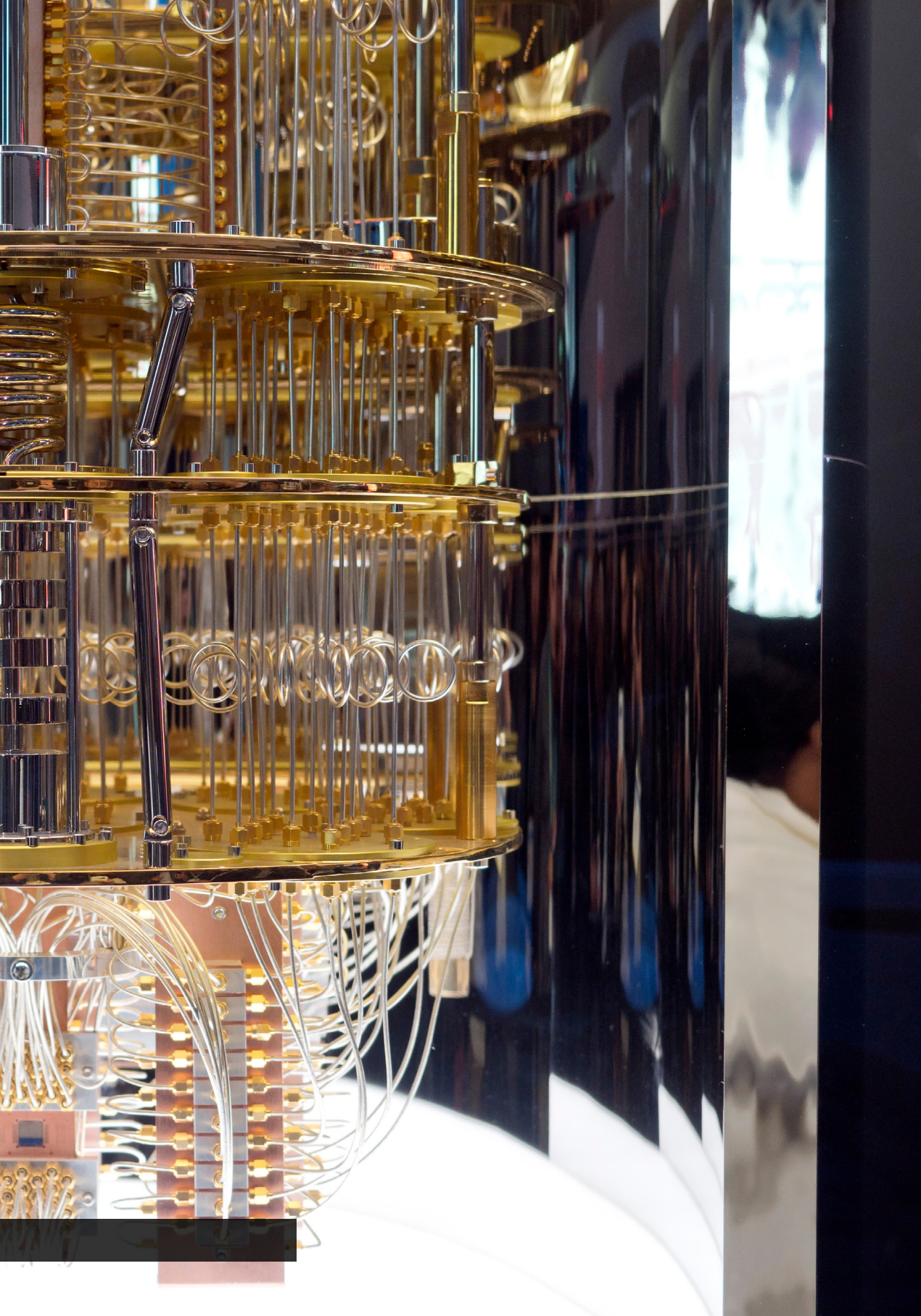
The game changers are ourselves.

Debate: Pros vs. Cons

ARTIFICIAL INTELLIGENCE
AND GLOBAL SECURITY:
THE CUTTING EDGE



IBM Q System One quantum computer at the Consumer Electronic Show CES 2020





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THE RISKS OF UNSUPERVISED AI APPLICATIONS IN THE INTERNATIONAL ARENA: MULTILATERAL APPROACHES

I will try to keep on track on this topic to focus on the relatively unique challenges – many challenges, actually – of using AI in the defence sector. The thing I would like to focus on is the issue of making sure decisions taken by artificial intelligence are in fact acceptable. One of the challenges we often face is that the situations we observe, be they in combat, in monitoring activities, in preparing for countermeasures as if we come under attack, happen with a relatively low frequency in reality. This means that we are building systems typically for situations or for occasions that we may not even have observed yet. We are building systems on the eventuality that somebody is going to launch a missile at us, or that somebody is going to attack us, and we build systems that are basically meant to increase both the speed with which we can respond to such activities and the quality of the response that we give.

How do we detect somebody launching a missile? We have a whole decision chain that needs to be fulfilled, and we have only a few observations of such missiles being launched, which means that we have to generate sufficient data from other means or set up sufficient rules to compensate for the lack of data. To be clear, we have to:

- Identify that something out of ordinary is taking place;
- Classify it as a threat or a potential threat;
- Present this to somebody who can make a competent decision on whether or not this is in fact a threat, an exercise or something else;
- Present this decision a way that a decision-maker can in fact make an appropriate choice of what should be the response.

This is a good example, because we see it in many situations; it could be countermeasures for cyber-attacks or for physical attacks on infrastructure. The challenge is not necessarily determining that something extraordinary or different is taking place, but it may be to say in relatively straightforward way that it is a threatening

situation. The challenge is simply to condense this into appropriate decisions, and present them to a decision-maker in a way that the he/she is capable of making an informed decision.

The biggest challenge that I have seen so far lies in the fact that we do not want the *human in the loop* to be simply a machine himself or herself – i.e., who is simply saying: “*The computer presented me with an alternative: Should I shoot this missile down? Yes/No*”. We want the decision-maker to be presented with credible alternatives, where he/she can in fact say: “*Okay there’s a threat, is this a threat I should respond to? If yes, what is the appropriate response?*”. Now, this is highly complicated, and it is one of the things that I have had a lot of pleasure to work on in different situations.

A specific example I can give you is when we developed algorithms that gave optimal results to certain situations, where the end users came politely back and said they may be optimal, but they are not intuitive for users, so they will not trust to release this plan for execution. In that situation we really faced this highly interactive environment where we want the AI to do some of the things, but we do not want the human just to sit and verify. We want humans to use human capacities to act outside of what has been seen before, because I think this is the biggest field where AI has a challenge. AI is basically able to react to things that it has been trained to, or it has worked on before. A human is able to extrapolate from previous experience and make decisions. This is really the key challenge we have in this connection: to make sure that we just do not turn it into a delay on a decision process, but we actually get humans’ expertise into the decision making in a way that AI, together with the decision-maker, ends up with a better solution than either would have arrived at alone.

Now, I would like to talk about what we are doing from the side of the university. I want to highlight an educational program we are running with more than 30 partners in Europe called ASSETS, that is a Sectorial Skills Alliance for skills development and AI educations for the defence industry in Europe. We and the European Union have recognised that it is not your regular AI toolbox that needs to come into play when we are dealing with these types of activities or scenarios. We have recognised that we have to do something different, and as an academic I am of course very happy about that, because this is how I ensure that what I do has relevance.

I would like to say that I am not one of those pessimists, who think that we will come to these scenarios of AI running rampant and making horrible decisions. I hope we are smart enough to exactly figure out how to achieve a synergy between the capabilities of AI and the abilities of humans, rather than to take the worst of both. This is a joint challenge that we have, but I am also confident, from my interactions with people in the industry, that this is actually the way that we are going to walk. From that perspective I am an optimist, but at the point we are now in time we really have to consider if we have developed our toolbox, and maybe if we have developed users and their understanding of the related technology.



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AUTONOMOUS WEAPONS: THE PITFALLS OF NEW SILVER BULLETS

We generally see, or we are generally told, that artificial intelligence has a dual use. Commercial technology can be easily exploited, and for that reason is prone to disruption. It means that there are significant concerns that it can go rampant, so I want to provide a more reassuring view.

First of all, what is AI? We can understand AI as the product of three different dynamics growth in computing power: 1) new software capabilities; 2) deep neural network and machine learning; 3) the explosion of data that we have been observing over the past decade or so. Andrew Ng's, professor at Stanford University but also part of Google AI capabilities, claims that "*data is the new oil*" are trying to suggest that this growth will unleash an enormous revolution. But exactly like oil, to exploit AI we need the drilling capabilities, like sensors, we need refineries, which are data scientists, as well as data pipelines, like we move oil through pipelines.

Now, what is important is that each of these three components, which we could call the "*AI triad*", poses significant challenges. Think about processors: very few companies around the world are able to produce advanced semiconductors, for instance. Same about algorithms: Laszlo Bock, head of HR at Google, was saying that one top engineer is equal to 300 good engineers. If you want to write a good algorithm, you definitely need to have the *crème de la crème*, if you are in a high-tech competition. Same about data. Data are everywhere, but to clean data exactly like refining oil is a significant challenge now. But there is more, because even when you have these triads set together, exactly like oil 100 years ago you need highways, cars, and fuel engines to exploit the AI revolution, and this requires time, investments, and personnel.

For instance, there is an important debate in Europe about 5G communications. We are developing the AI part, but without 5G communications it will be very hard to exploit what AI can do. Setting up the entire communication infrastructure with 5G will be extremely challenging, difficult and expensive, it will take

time. Same about quantum computing, because we see that the Moore's law is coming to an end, so the growth in processors power is slightly stopping due to physical limits. The future is probably quantum, but quantum poses challenges to be addressed – e.g., it will need more reliance on communication. What I want to suggest is that exploiting AI will be difficult not only from a physical perspective, but there is also an important human and social dimension.

I appreciated Peter's final point about prevent AI from doing a lot of damage. Now, if we look at the 19th century, we saw that human beings were able to do a lot of terrible things without being driven by technology. As we are human beings, the human and social side of technology is really a key point. This applies for both the bad and the good implications, and thus we need new type of social organisations. For instance, when electricity was introduced to production plans, companies needed to rethink themselves to adopt different organizational setup. The same can be applied to artificial intelligence, which entails for instance changing recruitment patterns, retaining procedures as well as training and education. I work at the NATO Defense College, we are partner with the NATO Defense College Foundation and several other realities, and we do strategic-level education. Think about leadership: as said before, until now leaders are used to take decisions based on their own experience. In the future, if you want to exploit artificial intelligence, leaders will have to think in a more probabilistic mindset, and this is a cognitive challenge that not everybody will be able to deal with. This requires strategic-level education, to permit people to switch mentally the gears and face the new challenges.

So, if you look at the engines of any military branch, you see airplanes, or you see warships, and so forth. It is unlikely that any military service will have an algorithm as an engine in the near future, and this could be good and bad at the same time. It is good, because it means that all military services may benefit from AI. But it is also bad, because it may mean, if we think from a military's perspective, that no single military service has a strong interest in technology.

In my view, what would be needed at a national level, as well as the NATO level, is probably an AI champion, like an organization, an office, or a unit, that really pushes through AI issues and tries to basically support and provide help to different branches and different organizations. Think about running exercises in which you try – every time you do a war game or a simulation or as an exercise – to gather data to see how much you can exploit new technologies. Or think about how procurement is changing, because with AI there is a switch.

In conclusion, the line between research and product is getting blurred and you have to rethink the way you procure weapon systems. An office that basically approaches the military branches, trying to help in this transition, may be needed.



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HOW INDISPENSABLE IS AI FOR DETERRENCE AND DEFENCE

Two are the keywords that we could use to summarise the need for artificial intelligence contributions in the military field: speed, and size. Hypersonic speed is needed today for decision-making because of emerging threats and, on the other hand, the size of the ever-increasing data space (or the cyber-space, if you like) that, to be analysed, requires an aid to obtain actionable information. So, the issue comes to: how do we make sense of so much computer-generated data? How do we turn those big data into information? The answer seems straightforward: through other computers.

Since their inception, computers have helped in automating and expediting human calculation. Indeed, Alan Turing is considered the father of both modern computers and artificial intelligence (AI). Unfortunately, the latter has experienced alternative moments of enthusiasm and disappointment until, in recent years, we gained enough computational capabilities to exploit its advantages. Actually, today's speed of processors and size of memories are enabling AI algorithms, that previously could work only in theory, and right when they are needed. In fact, the military world is also overwhelmed with data coming from disparate sensors that commanders, every day, try to make sense of. However, there are just not enough analysts for the job. The problem is compounded by the speed that modern battle-space requires in decision-making. Once, hypersonic speed (that is equal or more than 5 times the speed of sound) belonged to the realm of flight test or intercontinental ballistic missile. Now, armed forces around the world are trying to figure out if, in the next decade, they will be able to field not only hypersonic weapons, but also hypersonic platforms. So, basically there is a need to react at computer-like speed to threats whose behaviour is more difficult than ever to predict, especially with traditional tools.

* DISCLAIMER: The views expressed therein are those of the author; they do not necessarily reflect the views of the Italian Air Force or the Italian Ministry of Defence and any of its agencies.

Automation, closely related to AI, is therefore the key advantage that computer systems can provide in expediting calculations or alleviating a military commander overwhelmed by data. In fact, the human brain tends to simplify problems just to make them accessible. It is what a military pilot is especially good at: to simplify for faster decision-making, required by the speed of the aircraft. Unfortunately, simplification allows to tackle a complex problem at the expenses of considering all the variables, which computers, in turn, are very good at. Even though computers are not (yet) comfortable with understanding the context, as long as we consider this limitation, we can feed them with any bunch of data and they will try to make sense of them by searching for patterns. Unfortunately, in doing so, it is not so easy to predict the outcome nor to explain it. In addition, since data literally shape this kind of algorithms, quality should be a major concern, as data biases can affect performances in surprising fashion. Basically, that excludes these systems from roles where accountability and predictability are essential. However, there are promising studies on the so-called explainable AI.

With those caveats in mind, we are seeing a new renaissance for AI industry. Research agencies, together with defence companies, are trying to extend AI algorithms from commercial applications, in which they got their momentum in the latest years, to the military realm. Even though it is not a straightforward process as it may, at a first glance, appear, it is very promising, especially in application (among others) for:

- Intelligence Surveillance Reconnaissance – ISR (e.g., in the field of object detection, tracking, and identification, or sensor data fusion, or sensor and effectors parameters tuning to surrounding environment);
- Logistics (e.g., for predictive aircraft maintenance);
- Cyber (both for attack and defence roles) and Electronic Warfare (or Cyber Electro Magnetic Activities – CEMA);
- Information operations (an example comes from deepfakes, where AI enables both creation and detection of a video with an almost perfectly counterfeited audio stream);
- Command and Control – C2 (where AI applications are used for decision support).

Linked to AI, although they are not the same thing, is automation, and with it (lethal) autonomous vehicle. We are seeing new concepts emerging in this field like: task-based agents, loyal wingman [pairing a crewed fighter jet with a team of capable but also uncrewed low-cost, attritable aircraft. Each of the uncrewed aircraft can fly forward of its crewed partner and is equipped with a mission-specific payload such as sensors, weapons or electronic warfare capabilities. Note of the Editor], swarming, autonomous target recognition and, possibly, engagement. It is a new battlefield with men “on-the-loop” (no longer just “in-the-loop” and not (yet?) “out-of-the-loop”), with heterogeneous degrees of autonomous sensors and

effectors. It is what sometimes is called “decision-centric warfare”, which has AI and autonomy at its heart.

Clearly, apart from the technical and technological challenges in translating civilian successes, there are also processual and cultural changes needed to include AI in military operations, but these hurdles may not be all the same around the globe. If Europe and the US are sometimes struggling to import civilian technologies into military world (with the largest part of investments being civilian), China and Russia have less defined boundaries between these two worlds and the integration may require less efforts. At the same time, legal and ethical concerns may be perceived differently and, in fact, they have a different impact across the globe. Nonetheless, if any of the players will be able to obtain at least part of the expected gains, we may indeed assist to a new kind of arms race, with implications on deterrence and its related balance. Studies on the topic are still relatively few and not definitive, since for example not all the players may allow the same degree of autonomy in use of force.

Previously mentioned uses of AI may have, in fact, strategic effects either when incorporated in C2 systems for decision support, or to deny/minimise the chance of second retaliation strike if used, for example, to process ISR data for mobile launchers location and attack. Actually, we already discussed that AI is not good at understanding context and, if incorporated in C2 or Decision Support Systems, the chances of correct interpretation of “signalling” may decrease. Which, in turn, could increase the likelihood and speed of (whether intentional or accidental) escalation and the use of force.

On the other hand, though technically feasible, it is very unlikely that warning and detecting AI-aided capabilities will assure a degree of reliability that would let a first-strike go unpunished. However, a misperceived AI capability that would impede retaliation by a state could trigger, on its own, destabilising measures.

Conversely, concepts like swarming (and the associated difficulty in countering it) may enhance second-strike forces retaliation capabilities, and thereby increase the power of traditional nuclear deterrence means. In addition, “deepfakes” may be used even by traditionally-considered small actors to influence their opponents. Their strategic impact may be far greater than the funds required to buy software needed to counterfeit a video of a high rank officer to be released at a sensible time, thus potentially altering the power ratio between weak and strong actors as defined by traditional criteria.

By mentioning just few possible examples, we have seen that AI should be considered a force multiplier that promises to enhance tools and weapons we deploy on battlefields nowadays, and possibly to disrupt the way we use them. Although AI it's not a weapon on its own, we have seen that it can create both tactical and strategic effects. At the same time, on a large scale, it is probably unlikely that in the next few years it will alter the checks and balances on which nuclear deterrence is based, that are furthermore slow in new tech adoption. In any case, traditional

means of de-escalation – like no-first-strike policy, lowering forces alert status and transparency – will serve well also in a world where AI increases military capabilities.

Finally, there is little argument that AI will improve military capabilities in the next years. And even if it is too early to judge its long-term effects on stability, we shall embrace and pursue the development of this technology to continue to improve our situational awareness and effectiveness in the battlefield, as well as to be in a position to set the old rules of strategic balance also in this new, upcoming world.



STÉPHAN BRUNESSAUX

*Senior Expert, Artificial Intelligence and Data
Analytics, Airbus Defence and Space, Elancourt (FR)*

THE RACE FOR AI: WINNING PATHS AND DEAD ENDS IN DEFENCE AND SPACE

I was one of the 52 experts appointed by DG Connect, by the European Commission, to talk about, or brainstorm about, AI, and more specifically about trustworthy AI. Artificial Intelligence is a technology. It is not bad or good, it is the use we do that would be considered good or bad, and the European Commission decided that we need to develop and use AI techniques so that it is trustworthy.

You may be aware of the documents that have been produced by the High-Level Expert Group on AI. So, there is the Ethical Guidelines; there is another document, Policies and Recommendations, and finally ALTAI. ALTAI is the Assessment List for Trustworthy AI. It has been developed to self-assess an AI system or an AI component that has been developed, and to check whether or not it will satisfy all the recommendations, so that it can be considered as a trustworthy AI system.

So, this group came to an end at the end of June, and within Airbus we have decided to continue the work that has been done inside this group. We have decided to experiment with ALTAI.

ALTAI is a 34-page document. It is organised along seven key requirements, the seven key requirements that are in the Ethics Guidelines. Thus, there are:

- Human Agency and Oversight;
- Technical Robustness and Safety;
- Privacy and Data Governance;
- Transparency;
- Diversity, Non-discrimination and Fairness;
- Societal and Environmental Well-being;
- Accountability.

The idea was to experiment with the self-assessment technique, approach, on FCAS, the Future Combat Air System that Airbus has been part of. Basically,

what we did was to ask ourselves whether or not ALTAI, which has not been specifically developed for the use of AI in military or defence applications, so we wanted to ask ourselves whether it could fit in a system like FCAS, or if it could be useful when we develop an AI component to be used in FCAS.

I am not going to develop all the use cases that could be in FCAS, but I just want to illustrate what the ALTAI methodology is about. Just to take as an example this requirement, one of the requirements, traceability, in ALTAI, there is a number of questions that you have to ask yourself to check whether or not your system would be traceable. So, you are invited to ask yourself what are the measures that you put in place to continuously assess the quality of the input data that goes into the AI system. Because it is one thing to have an AI system, but if your AI system only works with perfect data, then in operational conditions it will not work. And if your system, your AI system, fails, you need to understand why it failed – I'm not saying failing in operational situation, but during testing. You need to be able to assess the quality of the input data. And in order to do that, you need to collect and look at the data – and this is another question from the ALTAI methodology – what measures do you have in your AI system to trace back which input data was used by the AI system. Not only you need to assess the quality of the input data, but you also need to understand which input data were used by the AI system to make a certain decision. Then, you need also to ask yourself, and especially to log which AI model was used by the machine learning system, or if you were using a rule-based system, if you were using an AI symbolic system, which rule led to the decision or recommendation of the system.

We can also think about the operator, deciding to turn off some of the AI systems. We need to understand all of that in order to be able to understand what happened, and we need also to be able to assess the quality of the outputs of the AI system. In order to do that, we need to record everything. And the AI system may give the correct decision, but it still needs to be communicated effectively to the operator. And if for some reason the operator is in a stress situation, he/she may not see correctly the decision, you may have noise that will prevent him/her from understanding the situation. This is the importance of traceability.

There are also in ALTAI a whole list of questions I do not have the time to go through all of them.

Of course, explainability is an important issue. And the question we have to ask ourselves is: who will be taken for responsible when the system fails? It is important to have the *man in the loop*, but as a senior research scientist at Google mentioned, Madeleine Clare Elish: "*We don't want to put the man in the in the loop just to blame the human in the end*". And that will be my conclusion.

Concluding Remarks



Global Health Summit 2021, 21 May 2021, Rome (source: governo.it)



Global Health Summit

21 May 2021
Rome



United against Covid-19

Global Health Summit





PIERO FASSINO
*President, Foreign Affairs Committee,
Chamber of Deputies, Rome*

A MORE UNITED, LESS VULNERABLE NATO FOR THE NEW CENTURY

Dear friends, I would first of all like to thank you for inviting me to deliver the concluding remarks to an event so rich in contributions of a high scientific and intellectual level. Days such as yesterday and today demonstrate that the NATO system is not just a formidable technical and operational framework, it is also a system of thought, where ideas are elaborated and visions are shaped. A veritable think tank for international policy and security. The game is changing, but the commitment and the intellectual and moral forces, which have always inspired the Alliance, remain the same: defending the principles of individual liberty. Of course, we must be able to change and adapt to a constantly changing world, but we must always remain true to ourselves and our ideals. This is the secret of our 71 years together, the longest strategic alliance in history.

The concept of “*the West*” – a system of shared values, principles, and ideals – was born in 1949 with NATO. These are the same ideals that were enshrined in the post-war European constitutions, from the Italian one in 1948, to the German one in 1949, and finally the Spanish constitution of 1978. These days we are called upon to verify whether this concept of “*the West*” is still meaningful in the changing context of 21st century international relations. Of course, we are here because we want to answer this question in the affirmative. Because we think that while this alliance might be vulnerable, it remains very much alive, far from being on life support. And because we think it is still necessary to defend liberty and the rule of law around the world. This – and not a limitless desire for power – is what our armed forces are for.

As President-elect Joe Biden so aptly put it in his first speech, we lead “*not by the example of our power, but by the power of our example*”. This cannot be truer than for NATO, which must continue to be a bulwark of freedom and democratic security. But we also know that the contemporary concept of security cannot be the same as it was in 1949, or even in 1989. It has become broader, multi-faceted and multi-layered. It has become globalized, so to speak, as we have appreciated

during the remarks delivered these last few days, and now wholly encompasses environmental, health, and cyber-security.

As this event winds down, we are even more convinced and motivated in asking NATO to be at the global forefront of each of these three strategic pillars for a 21st century security – in asking it to be an exemplary alliance, heeding President-elect Biden’s call. There are thus still a many great tasks ahead of us, which we can only complete by re-discovering a sense of shared identity and a common mission. The two shores of the Atlantic must once again share strategic goals, and delineate together a world of security and prosperity while acknowledging and respecting our mutual differences.

We must acknowledge that over the last four years the concept of “*the West*” has been gradually weakened. Brexit, followed by the United States’ markedly isolationist positions on issues such as climate change, with its withdrawal from the Paris Agreement, and finally its go-it-alone approach to the pandemic, painted a picture of a West that has become disjointed and frayed, that has lost cohesion and credibility. This is exactly what our strategic rivals hoped. The less cohesive we are, the more vulnerable we become. This is why it has become important and urgent for the West of liberal (opposed to illiberal) democracies to arrive at a shared vision and plan of action on the three strategic pillars we discussed these last few days: environmental security, health security, and cyber-security. Legitimate as they may be, we cannot allow the attempts of new international actors to take the centre stage and to violate fundamental human rights, nor can we allow them to sow divisions in the West. This would not be simply game-changing. It would be an altogether dangerous new game.

HEALTH SECURITY

The year that is about to end will go down in history as the year of COVID-19. Exactly 100 years have passed since a pandemic had such a deep and drastic impact on human history. Now that we are on the cusp of having a vaccine, and thus a medical solution, we must examine the role that policy – and more specifically health policy – has played in the fight against the pandemic. The conclusion is hard to swallow.

I have hinted at it earlier, and I will reiterate it now: the coronavirus did not bring Western countries together. Instead, it drove them apart. Social distancing between people was followed by a sort of political distancing between countries, in the decisions they made and the measures they adopted to fight COVID-19. The EU itself continues to struggle for a unified approach. The vaccine itself, developed by two companies, one American and one German, is a metaphor of how this crisis can be overcome. It was an alliance between companies, let’s say Atlantic companies, that brought back hope and trust to our societies, so sorely tried by the pandemic. This is a powerful teaching moment that we must cherish.

But there is another metaphor I would like to highlight. In public opinion, the media, and in our personal perceptions, the health and economic consequences of COVID-19 were immediately likened to a war. We spoke of an “*invisible enemy*”, and even the restrictions we continue to be subject to are framed in military terms, the word “*curfew*” being one such example. While there is no “*sanitary dictatorship*”, as claimed by irresponsible populist propaganda to discredit the efforts of legitimate governments, it is true that constitutional rights and liberties were significantly curtailed as is the case under extraordinary circumstances, such as wars. We must be able to turn this tragedy into a vindication of the free, democratic world, and this is something NATO can and must help with. We must be able to tell the world that while the virus came from the East, the vaccine comes from the West. While the problem came from the East, the solution came from the West. Because once again it is the West – if it remains united and cohesive – that can make the world more secure and more prosperous.

CLIMATE SECURITY

There is another challenge to global security that has seen us divided and uncooperative in recent years: I am talking about environmental security and the initiatives to fight climate change. We must resume our role as leaders in this process, and now it is a good time to point out that two of NATO’s founding members, Italy and the United Kingdom, will be the co-presidents of COP26 in 2021. Resuming our leadership role in this process means making progress in reducing emissions and promoting clear, renewable energies, and must be underpinned by the understanding that a green economy does not emancipate us from the geopolitics of resources. When we talk about hydroelectric energy and dams, we are also talking about water scarcity and the possible conflicts this might lead to. When we talk about electrical batteries, we are talking about lithium and other precious metals, and we must keep in mind that while conflicts over such resources have not yet exploded, they remain a very realistic scenario for the near future.

In addition, let us consider an increasingly competitive new source of renewable energy, offshore wind farms in the open seas, well beyond the 12-mile territorial water limit. There is currently no legal framework regulating the right to exploit the surface of the sea in waters 30 or 40 miles away from the coast. In enclosed seas such as the Mediterranean, it is easy to imagine how this could lead to competing claims and conflicts.

If these innovations in the fight against climate change do not ensure cooperation, but instead hint at future conflicts, we cannot but notice how climate change is already having a significant impact, such as desertification in Africa and related human migrations. And I certainly do not need to point out to you the strong links between human migrations and the destabilization of entire geographic areas. The battle against climate change in the 21st century will be won in Africa. If Afri-

can development will be sustainable, then we can hope to stop global warming; otherwise, there will be a heavy price to pay for all of us. In light of its mineral and agricultural resources, Africa will be the key continent in feeding the planet. Phenomena such as land grabbing by external powers in Africa also threaten the environmental and geopolitical balance.

It is time for NATO to turn its eyes southwards to Africa and develop a strategy to preserve its environmental and food security within a framework of geopolitical stability. Global security is to be achieved not only by containing the East and the Far East, but first and foremost through inclusive, proactive policies that look south to the African continent. For NATO, an African strategy would be a political strategy, one that could help prevent terrorism, promote development and environmental protection, and fight climate change. I am personally in favour of establishing a Centre of Excellence on Climate and Security within NATO, or expanding the remit of the existing Centre of Excellence on Energy Security to include climate and environmental security.

CYBERSECURITY

The final issue, cyber-security and artificial intelligence, and how they can constitute a threat against democratic life in our countries. In recent years, the media have often highlighted the dark and secret side of the world of telecommunications and social networks. Spaces that were created to give maximum visibility can be vulnerable to hidden machinations, to alter the perception of users and thus steer their political and electoral choices in a certain direction. The issue of foreign interference is a pressing topic, to which the Foreign Affairs Committee of the Chamber of Deputies, which I am honoured to chair, is devoting an ongoing investigation. Indeed, it is increasingly evident that control over telecommunication networks, the management of Big Data, and investments in quantum computing are ways to predict and thus pre-determine political decisions or popular reactions.

Democracies are not the only countries that have this technological ability, they are far from it. When facing powers whose constitutions do not emphasize individual liberty and the rule of law, the West must once again prove itself united and cohesive. We must think of cyber-deterrence as a new and additional action to pursue global stability and security. We are only at the very beginning. As you can see, many tasks await us – unprecedented tasks and an unknown road ahead. But this must not scare us. We must remain on the right side of history, on the side of democracy and freedom.

BIOGRAPHIES

FOREWORD

Alessandro Minuto-Rizzo

President, NATO Defense College Foundation, Rome

After having served at the Italian Embassy in Washington D.C. and as Commercial Counsellor at the Embassy of Italy in Prague, Amb. Minuto-Rizzo worked as Head of the External Relations Office of the EEC from 1981 to 1986. In the next years, his career focussed on Europe and Space Policy. In 1997 he was appointed Diplomatic Counsellor of the Minister of Defence Nino Andreatta, then of his successors Carlo Scognamiglio and Sergio Mattarella. In 2000, Minuto-Rizzo held the position of Italian Ambassador to the Western European Union and to the Political and Security Committee of the EU, of which he was among the founding members. He was Deputy Secretary-General of the Atlantic Alliance between 2001 and 2007. His mandate was mostly carried out in the strategic-political industrial area, in the relations with sensitive countries such as those in the Gulf and the Southern Mediterranean. He is the author of the books: “The road to Kabul” (Il Mulino-Arel, 2009); “A political journey without maps, diversity and future in the Greater Middle East” (Rubettino, 2013), and “NATO and the Middle East: The Making of a Partnership” (New Academia Publishing, 2018).

WELCOME REMARKS

Olivier Rittimann

Commandant, NATO Defense College, Rome

Since July 2020, Lieutenant General Rittimann is the Commandant of the NATO Defense College in Rome. After graduating from the Military Academy of Saint Cyr and the Army Engineer School, he chose to serve with the Foreign Legion

and he took part to operations in Chad, Mayotte, Pakistan, Saudi Arabia and Iraq. After an operational tour at the NATO-led Stabilization Force in Bosnia and Herzegovina (SFOR) in 1997, he was assigned in 1998 to the Allied Forces North Headquarters in Brunssum. In 2001, he took command of the 1st Foreign Legion Engineer Regiment and, in 2003, was assigned to the French Embassy in Islamabad as Defence Attaché. Then, he was posted to the Joint Staff in Paris, as Chief of the NATO branch. Promoted Brigadier General in 2010, he was deployed to the International Security and Assistance Force (ISAF) from January 2011 to January 2012 as Chief of Operations and assigned as French Deputy Military Representative (MILREP) to NATO Headquarters. Following, he became the French National Military Representative to NATO's Allied Command Operations in Mons (Belgium) and in 2016 got promoted to Major General. One year later, was appointed Lieutenant-General.

OPENING REMARKS

Ian Lesser

Vice President; Executive Director, Transatlantic Center, The German Marshall Fund of the United States, Brussels

Ian Lesser is Vice President at The German Marshall Fund of the United States (GMF) and a member of GMF's executive team, managing programmes across the organisation. He also serves as Executive Director of the Transatlantic Center, the Brussels office of the GMF, and leads the GMF's work on the Mediterranean, Turkey, and the wider Atlantic. Prior to joining GMF, Dr Lesser was a public policy scholar at the Woodrow Wilson International Center, as well as Vice President and Director of studies at the Pacific Council on International Policy. He spent also over a decade as a Senior Analyst and Research Manager for RAND Corporation. From 1994 to 1995, he was a member of the Secretary's Policy Planning Staff at the U.S. Department of State, responsible for Turkey, Southern Europe, North Africa, and the multilateral track of the Middle East peace process. He is a member of the Council on Foreign Relations, the International Institute for Strategic Studies, and the Pacific Council on International Policy. He serves on the advisory boards of the Delphi Economic Forum, the Atlantic Dialogues, the NATO Defense College Foundation and the Turkish Policy Quarterly.

BACKGROUND POLICY PAPER

Alessandro Politi

Director, NATO Defense College Foundation, Rome

Alessandro Politi is the director of the NATO Defense College Foundation, the only NATO-affiliated NGO think tank. A political and strategic analyst with 30

years of experience, he was political advisor of two KFOR Commanders. He was senior researcher for the Italian MoD (CeMiSS-Centre for Military and Strategic Studies) responsible for the strategic monitoring of Latin America. He also created and has led the Global Outlook project within CeMiSS, published in Italian and English (third edition, 2015). He has contributed to the Italian Defence White Paper. He has directed the CEMRES research on CBMs in the framework of the 5+5 Defence Initiative, presenting the conclusions to the Ministers in Granada. He teaches geopolitics and intelligence at the SIOI. He teaches conflict management, Crisis, peace-making and analysis at different governmental centres. He has been acting director of the School of Intelligence Analysis at a private establishment in Rome. He has been advisor in Italy and abroad to four Defence ministers (among which the actual President of the Italian Republic, Hon. Mattarella), one National Armaments Director, one Intelligence Co-ordinator, one Chairman of the Oversight Intelligence Committee, one Head of the Italian delegation to the NATO Parliamentary Assembly. Born in Germany, lives in Rome. He has published as author or co-author 39 books on strategic and security matters. His most recent publications are on the Belt and Road Initiative. His most recent book is the NDCF Shaping Security Horizons – Strategic Trends 2012-2019 volume, a global predictive analysis tailored to the needs of decision shapers.

CONVERSATION

CLIMATE CHANGE AND SCARCE RESOURCES: RISING CONFLICTS

Stefano Silvestri

Vice President, NATO Defense Collage Foundation, Rome

Dr Silvestri is the Vice President of the NATO Defense College Foundation. From 2001 to 2013, he has been the President of the International Affairs Institute (IAI). He has been a lead writer for *Il Sole 24 Ore* since 1985. Between January 1995 and May 1996, he served as Italian Under Secretary of State for Defence, having been an advisor to the Under Secretary of Foreign Affairs, for European matters, in 1975, and a consultant to the Prime Minister's Office under various Governments. As a professional journalist, he has been a special correspondent and columnist for the *Globo* (1982), member of the Policy Committee of the *Europeo* (1979), and has contributed articles on foreign and defence policy to numerous national daily papers. He was Professor for Mediterranean Security Issues at the Bologna Centre of the Johns Hopkins University (1972-1976), and has worked at the International Institute for Strategic Studies in London (1971-1972). He is currently a member of administrative council of the Italian Industries Federation for Aerospace, Defence and Security (AIAD) and of the Trilateral Commission.

Mahmoud Karem

Professor, British University; former Ambassador to NATO and the EU, and Commissioner, Human Rights Council, Cairo

Ambassador Karem currently teaches at the British University in Egypt. He also holds the title of Special Advisor to the President of the University for International Relations and leads the Egypt and Middle East Centre (CEMES) in Cairo. He served as Ambassador of the Arab Republic of Egypt to the Kingdom of Belgium, and the Grand Duchy of Luxembourg; Head of Mission of Egypt to the European Communities; and Permanent Representative of Egypt to NATO, from 2005 till 2010. He was also a member of the Advisory Board of the Secretary General of the United Nations for Disarmament Matters. From 2010 to 2012 he was nominated for three consecutive times to the post of Secretary General of the Egyptian National Council for Human Rights (NCHR). In July 2017, the Foreign Minister of Japan announced the establishment of a group of eminent persons for substantive advancement in nuclear disarmament: Ambassador Karem was chosen from the Middle East.

Kidane Kiros

Senior Fellow, Policy Center for the New South, Rabat

Dr Kiros is currently Professor-Researcher at Mohammed VI Polytechnic University's Faculty of Humanities, Economics and Social Sciences and Senior Fellow at the Policy Centre for the New South in Rabat. From 2014 till 2019, Dr Kiros served as the Director of the Institute for Peace and Security Studies (IPSS) of Addis Ababa University (AAU) which has been rated among the top 50 think-tanks in sub-Saharan Africa in 2015, 2016, 2017 and 2018. Before joining IPSS, Dr Kiros taught in various AAU's faculties and served as acting Director of the Institute of Federal Studies as well as Senior Administrator and Finance Head for Continuing and Distance Education at the AAU. Furthermore, he worked with humanitarian organisations, including the Ethiopian Red Cross Society and the International Federation of Red Cross/Crescent as a member of the Eastern Africa Regional Working Group on Food Security (WGFS). Dr Kiros holds a PhD degree in Development Studies.

Vincenzo Camporini

Former Italian Defence Chief of Staff

General Camporini is a Scientific Advisor for the International Affairs Institute (IAI) in Rome. Enlisted in the Air Force Academy in 1965, he rose through the ranks to eventually take up the highest office of Chief of Staff of the Italian Air Force (2006-08) and Chief of Defence Staff (2008-11). General Camporini has dealt with the most topical issues of international politics as a scholar and academic, focusing on the political-military dimension of the European Union and the development of its ability to use the military instrument in the framework of

its external relations. Among other things, he was President of the Centre for High Defence Studies in Rome (2004-06) and Vice President of the IAI (2011-19). General Camporini graduated in Aeronautical Sciences at the University of Naples Federico II and in International and Diplomatic Sciences at the University of Trieste.

CONVERSATION

THE SECURITY-HEALTH NEXUS AND THE TRANSATLANTIC RELATIONSHIP

Frediano Finucci

Journalist, La7 Television

Frediano Finucci is a senior TV journalist, chief editor of the Economics-Foreign Affairs desk at La7 broadcaster where he also hosts the TV Programme “Omni-bus”. Previously, for the same TV channel, he was the Chief Editor of the Economic section, the manager for the nightly news outlet and the Chief Editor of the Foreign Affairs section. From 2003 to 2006, Mr Finucci was correspondent in Brussels and Special News and Economic correspondent in Italy and abroad (United States and Asia). In 2009 was also appointed Chief Editor of the “Otto e Mezzo”, the popular prime time news-program anchored by Lilli Gruber. Since 1992 he has worked for different media as a judicial reporter on the “Mani Pulite” (clean hands) enquiry. Mr Finucci holds a degree in History of International Relations from the “Cesare Alfieri” School of Political Sciences in Florence.

Daniele Riggio

Press Office; and former NATO Political Advisor in Afghanistan, NATO HQ, Brussels

Daniele Riggio is Press Officer in the Press and Media Section of the Public Diplomacy Division, at NATO Headquarters. Between 2003 and 2004, he was in Afghanistan as Political Advisor to the Commander of the NATO-led International Security Assistance Force (ISAF) and in 2008, he was appointed Senior Political Advisor to the NATO Senior Civilian Representative in Afghanistan. In 2005 he assisted the NATO Civilian Representative in Pakistan. Prior to that Mr Riggio was Civil Affairs Officer for the United Nations Special Mission to Afghanistan and took part in various OSCE-led missions. He holds a Juris Doctor degree from the Law School of Bologna University and a Master Degree on International Relations from the Fletcher School of Law and Diplomacy of Tufts University (Medford, MA, USA).

Jamie Shea

Former Spokesperson of NATO, Overijse (BE)

Since 2018 Jamie Shea serves as Secretary-General of the Global Advisory Council on Climate Change (GMACCC). Among his other affiliations he is professor

of strategy and security within the Strategy and Security Institute at the University of Exeter. Additionally, Dr Shea is a senior fellow responsible for Security and Defense programs at Friends of Europe and a Senior Advisor with the European Policy Centre, both based in Brussels. From 1980 to 2018, Dr Shea was a member of the International Staff of NATO in Brussels. His last position was Deputy Assistant Secretary General for Emerging Security Challenges where he was responsible for taking NATO's work forward in areas such as non-proliferation of weapons of mass destruction, cyber defense, counterterrorism, and energy security. He oversaw strategic analysis and forecasting as well as the NATO Science for Peace and Security program, which develops and funds capacity-building, and technology projects with NATO's partner countries across the globe. He received worldwide attention during the 1999 Kosovo War, when he served as the Spokesperson for NATO. He holds his B.A. (Hons.) in Modern History and French from the University of Sussex (1977) and his D.Phil. in Modern History from Lincoln College, Oxford (1981).

Andrew Spannaus

Journalist and Political Commentator, Milan

Andrew Spannaus is an American journalist and political commentator based in Italy, known in particular for his analysis on the populist revolt in the United States and Europe. His commentary on U.S. and international politics appears on Rainews24, Swiss Italian Radio, Aspenia, and various other media outlets. He is the founder of the Transatlantico.info newsletter, which provides news and analysis of geopolitics and economics to institutions and businesses. Andrew Spannaus is a Lecturer at the ASERI Graduate School of the Catholic University in Milan, where he teaches a seminar on U.S. economic history. He served as the Chairman of the Milan Foreign Press Association from 2017 to 2020.

SPECIAL INTERVENTION

Francesco M. Talò

Permanent Representative of Italy to the North Atlantic Council, NATO HQ, Brussels

Ambassador Francesco M. Talò is an Italian diplomat, and Italy's Permanent Representative at the North Atlantic Council. He has previously been Coordinator for Cybersecurity at the Italian Ministry of Foreign Affairs; Ambassador of Italy to the State of Israel; Special Envoy of the Minister of Foreign Affairs for Afghanistan and Pakistan and Consul General in New York. From 2017 till 2018, he coordinated the OSCE Conference against anti-Semitism. Ambassador Talò graduated in Law from La Sapienza University of Rome.

DEBATE:

PROS VS. CONS – ARTIFICIAL INTELLIGENCE AND GLOBAL SECURITY:
THE CUTTING EDGE

Peter Nielsen

Associate Professor, Aalborg University, Aalborg (DK)

Peter Nielsen is Associate Professor at the Department of Materials and Production. He is a leading expert on AI for autonomous decision making for large scale cyber-physical systems. He has published more than 130 scientific publications. He is Head of Operations Research group at the Department of Materials and Production and Coordinator for AAU Defence, which is Aalborg University's unit for Defence related research. He is a founding member of the European Defence Skills Partnership and work package lead on the 4 M€ project ASSETS+ (Alliance for Strategic Skills addressing Emerging Technologies in Defence) which focuses on AI and C4ISR skill development for the European Defence Industry.

Andrea Gilli

Senior Researcher in Military Affairs, NATO Defense College, Rome

Andrea Gilli is a Senior Researcher at the NATO Defense College where he works on issues related to technological change and military innovation. In the past, Dr Gilli has been visiting and Post-Doctoral Fellow at Johns Hopkins University and Columbia University as well as at the Stanford University and Harvard University. Dr Gilli has conducted research for the U.S. Department of Defense; the Italian Air Force; the Italian Government, the Italian Ministry of Foreign Affairs; the Preparatory Commission for the Strainer Nuclear Test-Ban Treaty Organization; the Royal United Services Institute, the European Union Institute for Security Studies, and Metropolitan University Prague, among others. His researches have been published in the most important academic journals on security issues, such as International Security, Security Studies and Journals of Strategic Studies. Furthermore, he has been featured in the Washington Post, Foreign Policy and the Economist receiving multiple awards: the 2015 European Defence Agency and Egmont Institute's bi-annual prize for the best dissertation on European defence, security and strategy, and the 2020 best research article award on U.S. foreign policy and grand strategy as part of the America in the World Consortium. Dr Gilli holds a BA in Politics and Economics from the University of Turin, a MSc in International Relations from the London School of Economics and Political Science and a PhD in Social and Political Science from the European University Institute.

Roberto Manca

4th Division of the Air Force Staff, Rome

Roberto Manca is an Italian Air Force officer, working at the Air Force Staff in Rome. He graduated from the University of Naples in Computer Science Engi-

neering. Before being posted to the Air Force Staff, he served in the Italian Air Force Flight Test Wing, where he covered many roles in aircraft systems development and flight test on over one hundred projects. His main areas of interests have been avionics software, human-machine interfaces, modelling and simulation, sensors, equipment and datalink integration, certification and airworthiness on over 30 aircraft. He also holds a Master in International Military Strategic Studies, a Master in Business Administration and a Master of Science in Scientific Computation.

Stéphane Brunessaux

Senior Expert in Artificial Intelligence and Data Analytics, Airbus Defence and Space, Elancourt, France (Virtual)

Stéphane Brunessaux is Senior Expert in Artificial Intelligence and Data Analytics at Airbus Defence and Space in Elancourt (France). For the last 30 years, he has actively contributed to the development of innovative solutions, for the benefit of the Connected Intelligence division, with solutions based on advanced information processing techniques. He has been involved on advanced technology demonstrators for the French Minister of Defense and NATO Industrial Advisory Group on Big Data and Artificial Intelligence. He also coordinated and/or participated to several EU research projects on speaker identification, image and video analysis, internet voting, webpage filtering. Dr Brunessaux has been regularly appointed as an expert for the French National Research Agency and for SAFE and Cap Digital competitiveness clusters, as a member of the High-Level Expert Group on Artificial Intelligence set up by DG Connect, and as a member of the Cybersecurity AI expert group set-up by the European Union Cybersecurity Agency. He is an active member of the French association for Artificial Intelligence and the organizer of different conferences on Artificial Intelligence (APIA 2020, FIHA 2020, etc.).

CONCLUDING REMARKS

Piero Fassino

President, Foreign Affairs Committee, Chamber of Deputies, Rome

Piero Fassino is the President of the Foreign Affairs Committee of the Italian Chamber of Deputies. He has been elected for the first time in 1994, re-elected in all the following legislatures until 2011 – when he became mayor of Turin (2011-2016) – and elected again to Parliament in 2018. Currently he is also a member of the Parliamentary Assembly of the Council of Europe and Vice-President of the Political Commission, President of the Italy-France friendship section of the Inter Parliamentary Union. Under-Secretary of State for the Ministry of Foreign Affairs (1996-1998 in the Prime Minister Prodi government) and, in the same period, Under-Secretary for European Union Policies to the Prime Minister; Minister of

Foreign Trade (1998-2000 in the Prime Minister D'Alema government); Minister of Justice (2000-2001 in the Prime Minister Amato government). From 1991 to 1996 he held the role of International Secretary of the Democratic Party of the Left, leading it in the joining to the Socialist International and in the foundation of the European Socialist Party. From 2016 to March 2020, he was President of the Socialist Group and spokesman for the Mediterranean at the Congress of Local Authorities of the Council of Europe.



NATO Foundation
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GAME CHANGERS 2020

A NEW FUTURE DAWNS ON INTERNATIONAL SECURITY

Advanced Research Workshop

ORGANISED BY

The NATO Defense College Foundation

*In co-operation with the NATO Science for Peace and Security Programme,
Fondazione Compagnia di San Paolo, the Policy Center for the New South and
the NATO Defense College*

ROME, THE 10TH AND THE 11TH OF DECEMBER 2020

Venue: Live streamed from the Rome Cavalieri, A Waldorf Astoria Hotel

Via Alberto Cadlolo, 101, Rome

- 15,00-15,10 Participants Registration
Welcome Remarks
- Alessandro Minuto-Rizzo, President, NATO Defense College Foundation, Rome
 - Olivier Rittimann, Commandant, NATO Defense College, Rome
- 15,10-15,20 **Opening Remarks**
- Ian Lesser, Vice President; Executive Director, Transatlantic Center, The German Marshall Fund of the United States, Brussels

Conversation

CLIMATE CHANGE AND SCARCE RESOURCES: RISING CONFLICTS

Climate change and resources scarcity are two scenarios that become increasingly relevant. The effects of climate change, like rising sea waters, desertification and increasing heat in wide geographic areas, and frequency of extreme thunderstorms, may have significant influence on essential logistics and combat operations. Water is the next paramount issue, traditionally linked to the control of flows on major rivers and now creating possible flashpoint around new dams. Finally, the control of arable land and associated basic crops recreates another important object of international and subnational contention, as it was for centuries when agriculture was man-intensive.

- 15,20-16,40 Moderator: Roberto Menotti, Editor in Chief, Aspenia online; Deputy Editor of Aspenia and Senior Advisor for International Activities, Aspen Institute Italia, Rome
- Stefano Silvestri, Vice President, NATO Defense College Foundation, Rome
 - Mahmoud Karem, Professor, British University; former Ambassador to NATO and the EU, and Commissioner, Human Rights Council, Cairo
 - Kidane Kiros, Senior Fellow, Policy Center for the New South, Rabat
 - Vincenzo Camporini, Former Italian Defense Chief of Staff

Q&A

THURSDAY, 10TH OF DECEMBER 2020

Conversation

THE SECURITY-HEALTH NEXUS AND THE TRANSATLANTIC RELATIONSHIP

The NATO Strategic Concept includes health risks as factors that will further shape the security environment and potentially affect NATO planning and operations.

What are the main political and operational lessons from the pandemic crisis? How can contingents deployed operations alleviate complex health emergencies in fragile countries? How is the pandemic affecting the USA-Europe relationship and how to enhance this multifaceted and historical cooperation after the crisis?

18,00 -19,30 Moderator: Stephen J. Mariano, Dean, NATO Defense College, Rome

- Frediano Finucci, Journalist, La7 Television
- Daniele Riggio, Press Officer; and former NATO Political Advisor in Afghanistan, NATO HQ, Brussels
- Jamie Shea, Former Spokesperson of NATO, Overijse (BE)
- Andrew Spannaus, Journalist and Political Commentator

19,30-19,40 **Special Intervention**

- Francesco M. Talò, Permanent Representative of Italy to the North Atlantic Council, NATO HQ, Brussels

18,25-18,35 **Concluding Remarks**

- Piero Fassino, President, Foreign Affairs Committee, Chamber of Deputies, Rome

THURSDAY, 10TH OF DECEMBER 2020

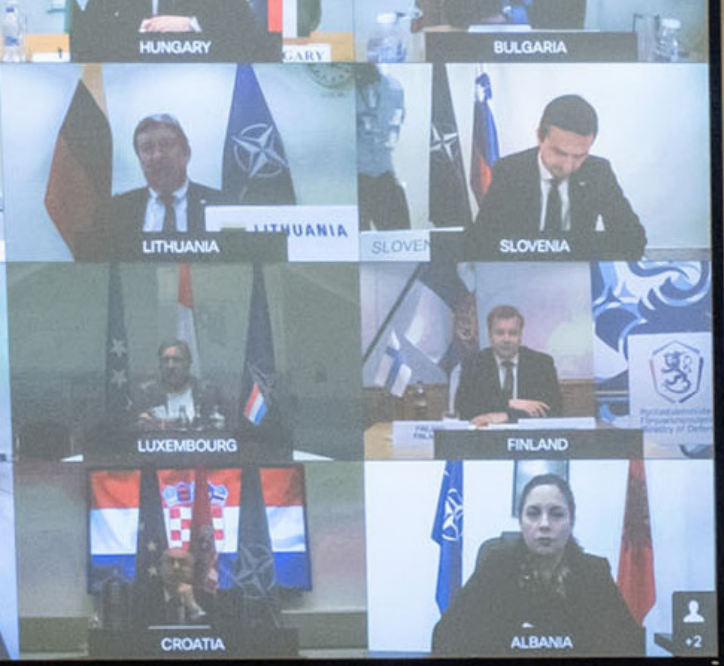
Debate: Pros vs. Cons

ARTIFICIAL INTELLIGENCE AND GLOBAL SECURITY: THE CUTTING EDGE

AI promises to change deeply not only the way decision makers and organisations will operate in future political and security environments, but even the way international politics and conflicts will be conceived. The effect of Artificial Intelligence can be particularly disruptive in three strategic areas: the way deterrence is exercised and upheld, how autonomous weapon systems will combat in support of conventional forces or alone, and by which means it can enhance the complexity and tempo of offensive and defensive cyber operations.

15,00 -16,30 Moderator: Laura Carpini, Head of Cyber Department,
Directorate General of Political and Security Affairs, Italian
Ministry of Foreign Affairs and International Cooperation

- Peter Nielsen, Associate Professor, Aalborg University, Aalborg (DK)
- Andrea Gilli, Senior Researcher in Military Affairs, NATO Defense College, Rome
- Roberto Manca, 4th Department of the Air Force Staff, Rome
- Stéphan Brunessaux, Senior Expert, Artificial Intelligence and Data Analytics, Airbus Defence and Space, Elancourt (FR)



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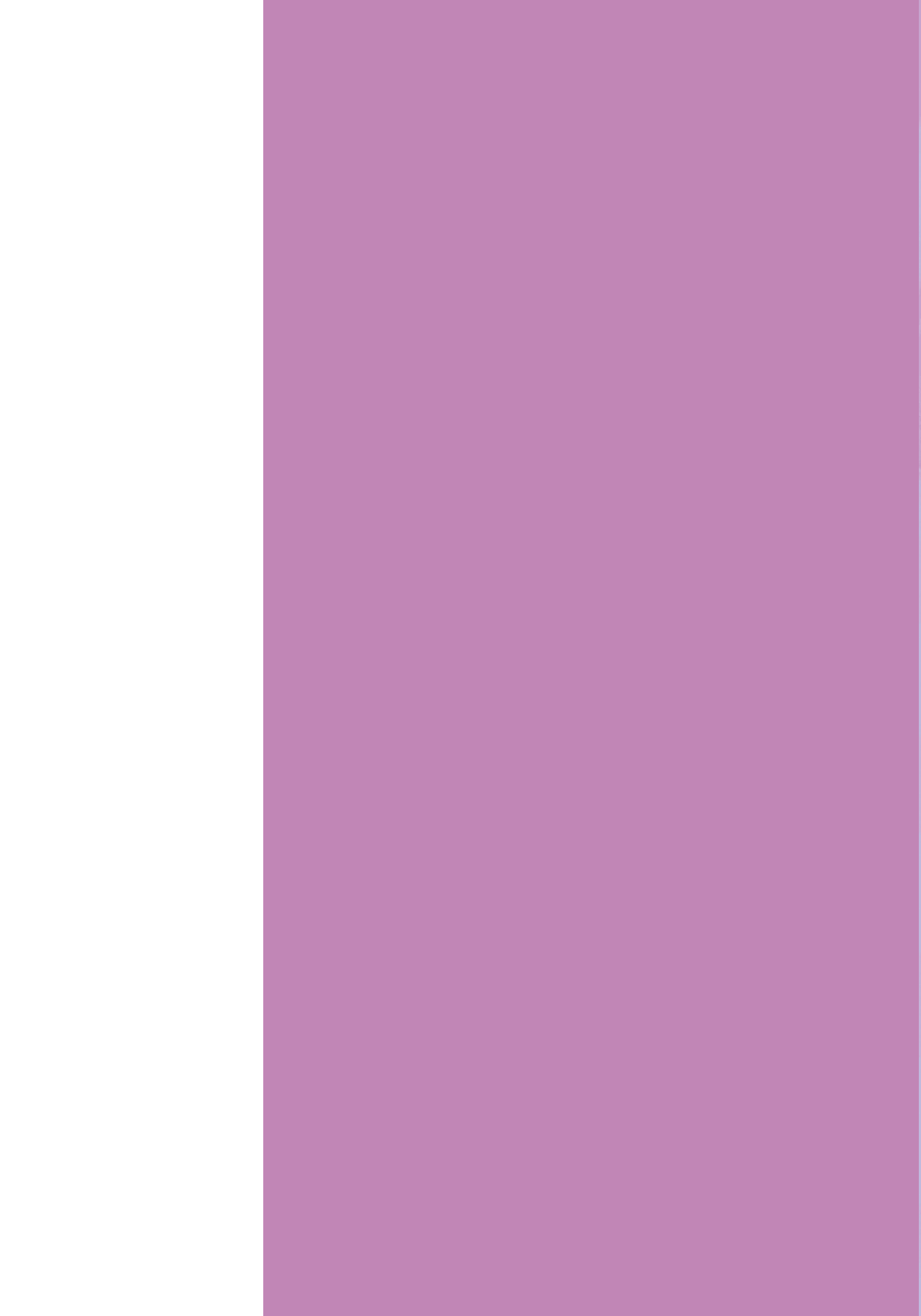


Meeting of the North Atlantic Council (NAC) in Defence Ministers' session via tele-conference (source: nato.int)



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The panorama of international security is changing in a profound way, and three subjects stand out for their concrete relevance: Climate Change with competition for scarce resources, Health in its transnational implications, and Artificial Intelligence (AI) as part of the global race for innovation. The conference was designed to put these subjects in the context of global security and crisis management with sharp clarity, sketching some of their reciprocal correlations in an ever more interconnected world.

Global warming has concrete consequences in everyday life and hence on global security and military preparedness. NATO has to do its bit in a very concrete way to reduce its ecologic footprint, as a more austere military force is a more survivable one in the coming climatic changes.

The nexus between security and health has been shown tragically by the COVID-19 pandemic, and it needs functioning transnational networks across different public and private bodies. The Alliance can contribute on the one hand by upgrading its medical and emergency coordination bodies, on the other through a rethink of biowarfare and increased multilateral controls of very high security laboratories.

Artificial Intelligence, like nuclear weapons, has its own triad consisting of: 1) new software capabilities; 2) deep neural network and machine learning; 3) the explosion of data. And just like nuclear weapons, a responsible ownership of Artificial Intelligence is guaranteed only by reciprocal and multilateral checks.

The three mentioned challenges are not surprising “black swans” but more often than not very visible “grey rhinos”, that surely need stronger cooperation among democracies, but also wise and guarded collaboration with authoritarian actors.

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