

Conference on Disarmament

English

Final record of the one thousand five hundred and forty-fifth plenary meeting

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President: Mr. Yury Ambrazevich(Belarus)



The President (*spoke in Russian*): I call to order the 1545th plenary meeting of the Conference on Disarmament.

Before we proceed, I would like to welcome our new colleague, who quite recently assumed his responsibilities as the representative of his Government to the Conference on Disarmament. I have the honour to introduce to you His Excellency Mr. Marc Pecsteen de Buytsverve, Ambassador Extraordinary and Plenipotentiary, Permanent Representative of the Kingdom of Belgium to the Conference. I would like to take this opportunity, on behalf of my own Government and the Conference, to assure you, Sir, of our full support and cooperation in fulfilling your new responsibilities.

Ambassador, if you would like to say a few words to your colleagues, to the Conference, you have the floor, Sir.

Mr. Pecsteen de Buytsverve (Belgium) (*spoke in French*): Thank you, Mr. President, for your kind words of welcome.

Dear colleagues, I am pleased to be here in Geneva and to be able to work with you in this forum. I look forward to meeting all of you in the coming weeks. And, of course, I look forward to presiding over the work of the Conference on Disarmament from January and to cooperating with the other five presidencies next year. I have heard that the six-presidency format has been strengthened this year and has worked very well, and we will naturally be keen to follow this example. Beginning in the autumn, then, we will hold bilateral consultations with the delegations in preparation for this presidency.

Mr. President, I thank you again and congratulate you on your presidency. I would like you to know that we of course support you during the last days of your presidency and wish you every success in your efforts to secure the adoption of the final report of the Conference. You can count on the support of Belgium.

The President (*spoke in French*): Thank you, Ambassador.
(*spoke in Russian*)

Distinguished colleagues, allow me to proceed with our meeting and, as announced earlier, our meeting today will focus on items 5, 6 and 7 on the agenda of the Conference on Disarmament. The Belarusian presidency has invited the following panellists, respected and well-known experts in their fields both here in Geneva and worldwide, to present views from the academic community on specific aspects covered under these agenda items to our meeting today: Ms. Renata Dwan, Director of the United Nations Institute for Disarmament Research (UNIDIR), Mr. Serguei Batsanov, Director of the Geneva Office of the Pugwash Conferences on Science and World Affairs, and Mr. Jean-Marc Rickli, Head of Global Risk and Resilience of the Geneva Centre for Security Policy.

We will begin the meeting with statements by the panellists. There will then be an opportunity for us to ask them questions and make comments. I encourage you to take advantage of this opportunity to engage in interactive dialogue with the esteemed experts at the podium. After the direct interaction with our panellists, all delegations concerned will have an opportunity to make national statements. I propose that we conclude our thematic debate with possible final statements by our invited experts, if they so wish. Of course, such arrangements in no way limit any national delegation's right to request the floor in accordance with the rules of procedure of our Conference.

Allow me to open our thematic discussion and give the floor to our first speaker, Ms. Renata Dwan, Director of UNIDIR. Ms. Dwan, you have the floor.

Ms. Dwan (United Nations Institute for Disarmament Research): Thank you, ladies and gentlemen, Ambassador Ambrazevich. It is a pleasure to be here and it is always a pleasure to be able to speak to the Conference on Disarmament in real time, so thank you for giving us this opportunity.

The question that you have really put on the agenda is an enormous one, because to some extent technology has always been the heartbeat of weapons development and the regulation of weapons, but the pace and scale of emerging technologies feel qualitatively different today. Much of that is coming from outside State bodies and State actors, the private

sector in particular. And it is also coming at a time where access to new technology is open to a much broader group of States and indeed non-State actors in a shorter span of time. Technology, then, presents challenges for us, perhaps in respect of scale or pace, that we have not seen before.

The range of technologies we are addressing is also bewildering. We are looking at information, digital technology, life sciences and biotech, space and advanced missile technologies, electromagnetic and material technologies, some of which my colleagues on the panel will speak about today.

Sometimes there is a tendency to get caught up in the individual technologies and the sheer awe and interest and complexity of individual technologies, so I thought it might be helpful for your discussion to focus a bit on some of the characteristics and features of emerging technologies and the implications that they may present for how we understand weapons and how we regulate and manage their applications – the heart of your work here in the Conference on Disarmament.

I am going to make three points. The first is that despite their huge variety and differences, emerging technologies share three distinct characteristics. I am also going to point out that these characteristics have implications for lethality and for what we understand to be a weapon, much less a weapon of mass destruction, the point on the agenda. That in turn shapes how we regulate new and emerging technologies and the tools that we can bring to bear. And this has implications for the structure, the agenda and the ways of working of the Conference. In so doing, I will draw on the work of the United Nations Institute for Disarmament Research (UNIDIR) across a range of topics reflecting the multidisciplinary of this issue: cybersecurity, artificial intelligence, the life sciences, nuclear weapons and space security.

Now, moving just briefly to the characteristics and features, I just want to highlight three today. The first is the dual-use nature of the technology, and not exclusively military, but the range of civilian uses for some of the technologies that we are looking at. Examples, of course, are satellites and the role they play in supporting military logistics but also the role they play across all aspects of civilian life: food security, animal welfare, management of humanitarian responses and development activities. In the context of artificial intelligence, we see everything from household use to decision support for military operations and, as the Group of Governmental Experts on Emerging Technologies in the Area of Lethal Autonomous Weapons Systems discusses, lethal autonomous weapons systems.

There is also immunology in the life sciences, as we see the knowledge of host and pathogen interactions really making revolutionary changes in how we treat and cure people from autoimmune disorders but also the potential for their exploitation for harmful purposes and engineering for bioweapons use. The complexity and breadth of the issue are really remarkable.

I also wanted to highlight the dual aspect of blurring our categories of weapons. Much in the area of missile technology or in missile delivery systems is dual capable – that is, both conventional and nuclear warheads can be carried, thus blurring what were often very distinct categories discussed in very distinct forums and in very distinct conversations. Now, all of these weapons, along with the dual use and the range and the multiplicity of actors, including non-State actors, involved in the development and use of these technologies, have to be kept in mind.

A second characteristic is intangibility. Weapons regulation is traditionally focused on physical characteristics and the detailed descriptions, regulations, classifications and control of physical components, but, of course, newer technologies are not necessarily physical in nature. Artificial intelligence is fundamentally about algorithms and how you regulate them and ensure that they are used predictably and legally. Electromagnetic forces and cyber- and digital technologies may be similarly hard to characterize. They hold challenges for the traditional way that we have considered, classified and regulated weapons.

A third feature or characteristic of some of the new technologies that I would like to focus on is what I am calling interconnectedness or interdisciplinarity. A focus of much of the new and emerging technologies is not the risk that they pose in and of themselves – it is

with the interaction with multiple other technologies and domains that some of the destructive risks are increased. This is particularly the case when cyber- and missile technologies in and of themselves or conventional technologies or conventional weapons intersect with nuclear domains. Conventional weapons can now perform actions that were once reserved for nuclear weapons, targeting nuclear command, control and communications systems. This in turn can prompt a nuclear response. The 2018 nuclear doctrine of the United States and the 2020 nuclear doctrine of the Russian Federation recognize and have adapted to this potential.

Similarly, interceptor missiles or energy-directed weapons could target space and missile capabilities, again blurring the distinctions between space- and ground-based capabilities, doctrines and practices. Interconnectedness, then, has implications for escalation and, arguably, for the risks of the latter. Interconnectedness risks the degree of havoc that can be wrought by, for example, a cyber- or laser attack on a digital-dependent society. These characteristics have implications for what we understand to be weapons of mass destruction, and this is my second point.

The resolution that is under discussion today and on your agenda considers the implications of new and emerging technologies for the development and manufacture of new types of weapons of mass destruction, and indeed force is traditionally correlated with and considered in the context of physical destruction, injury or death.

Advanced technological capabilities can make weapons much more precise, powerful and lethal and increase the potential for mass devastation and destruction, as you have discussed – this is particularly the case in new technologies affecting strategic calculations, especially nuclear, and raising the risk of detonation of a nuclear weapon, as shown in the considerable research undertaken by UNIDIR.

But COVID-19 has also prompted us to reflect on the risk of the spread of infectious disease in our interconnected world. New biotechnologies on gene editing have raised the potential to modify the genomes of pathogens. Work has been done to develop highly pathogenic strains of avian influenza, so their deliberate or accidental spread could be devastating and indeed considered a mass destructive event. But I also encourage us to think about far more ubiquitous features of new and emerging technologies – that is, the ability to wreak destruction and devastation below the level of actual force. Cyberattacks on banking systems, the deliberate release of pathogens that shut down public transport or pollute water systems, the use of electromagnetic technologies to jam public transport road fares. We see a huge range of potential uses of such technologies that are intended more to disrupt than to kill or maim. And more recent developments in neurosciences – for example, bioweapons with neurological effects – raise the possibility of being able to incapacitate an adversary not by killing or maiming but by causing cognitive or behavioural modifications.

These are weapons that work below what we might call lethal force and challenge our definitions of the weapons of war and the legal frameworks to regulate conflict. And as we have seen in the cybersphere, it can often be difficult to attribute responsibility and thus pursue accountability.

What, then, does this mean for us and how might we consider addressing these threats? The first is to ensure that across all technologies there is a much more concerted and committed effort to analyse and understand the positive and negative implications of advances. Some work in specific fields in this line is very much under way – in particular, science and technology reviews within the framework of the Biological Weapons Convention and of course the work that many of you are undertaking in the Group of Governmental Experts – but it is very specific to types of technology, and a broader and more sustained conversation may be required.

Second, we perhaps need a dialogue on the broader implications of technological developments on transparency, predictability and stability, particularly on how different technologies impact existing weapons of mass destruction systems and policies. That dialogue needs to consider the narrowing gap between weapons of mass destruction and specifically nuclear weapons and conventional weapons and whether the conversations that we have had in silos are sustainable in the longer term. It needs to involve military-to-military dialogue and dialogue between technical experts, as well as dialogue on arms control. While in the context of the Nuclear Non-Proliferation Treaty Review Conference, the significance

of new technologies has been recognized, there is still no sustained strategic discussion under way about their implications for existing nuclear systems and policies.

The third possible step is to review some of our arms control tools and how we might think about containing proliferation of certain technologies. Debate is under way, especially in the context of missile technologies, specifically hypersonic missile technologies, as to whether these actions could be taken by States developing these technologies, not all of which are nuclear-armed, to restrain and limit proliferation. And there is a considerable international debate about gaps in missile technology regimes. Another question that emerging technologies raises for us is whether we need to focus national export controls on specific applications rather than on the enabling technology per se. That is particularly the case in the context of cyber- and digital and artificial intelligence technologies.

The fourth step that new technologies require of us is to continue to review the legal implications of emerging technology. This has of course been the dominant theme in the context of lethal autonomous weapons systems – the need to continue the focus on legal reviews to ensure non-transferability of the principle of accountability and that the principles of proportionality, distinction and necessity are respected. But these are national exercises, and of course there is an option to exchange views and have a more comprehensive international discussion that can help us expand our understanding of what constitutes a weapons system and update our definitions and our testing practices.

Fifth and finally, new technologies are demanding much more focus on behaviours and restraint in the application of technologies. We already see this happening in the context of member States' discussions in the Open-ended Working Group and the Group of Governmental Experts on Developments in the Field of Information and Telecommunications, which are looking at responsible State behaviour in cyberspace. It is also being proposed in the area of space security and it builds on long traditions of transparency and confidence-building measures to limit ambiguity and posturing. But new technologies require us to go beyond State-based dialogues and arrangements and engage a broader set of actors to consider the stable and safe development and application of new technologies. This could include codes of conduct and ethical reviews for scientists at national and international levels – this is already under way and considerably developed in the life sciences – the development of specific industry standards and practices for responsible development, especially in intangible technology such as artificial intelligence, which, in turn, necessitates engagement with industry, and, third, a much greater commitment to education and capacity-building, including bringing ethical considerations into science, technological and engineering pursuits and disciplines.

None of these suggestions are new to arms control and none of these tools, so to speak, are unfamiliar to many intergovernmental forums. Arms control and disarmament have long involved confidence-building measures, dialogue, voluntary measures, codes of conduct and principles, in addition to international instruments, treaties and conventions. Traditionally, however, this body has focused on specific weapons of mass destruction and specific arms control tools and instruments. New and emerging technologies require thinking about how we can sustain a much more ongoing and evolving discussion that allows us to look at the impact of interconnected technologies across the ranges of weapons in ways that, in turn, allow us to look at a wider range of arms control instruments to help us achieve our goals to harness the positive benefit of these technologies and address the risks.

Thank you, Mr. President.

The President (*spoke in Russian*): Thank you, Ms. Dwan, for your presentation. Distinguished colleagues, guests, experts, do you have any questions for Ms. Dwan? As I see that there are none at this time, allow me to proceed with the presentations and to give the floor to Mr. Serguei Batsanov. You have the floor, Sir.

Mr. Batsanov (Pugwash Conferences on Science and World Affairs) (*spoke in Russian*): Thank you, Ambassador, for the invitation and for the opportunity to engage with my now already long-time former colleagues. It is always a pleasure to have the chance to be here after an enforced break, and all the more so in the light of this damned COVID-19. After all, life must begin anew.

(spoke in English)

Actually, I prepared my notes in English, so I will proceed accordingly.

Without going too much into history, we still should kind of keep in mind the key parameters that were proposed years ago now. Not necessarily to follow them blindly and in an inflexible way but because they help in a way to understand what is happening around us today.

The subject, then, is new weapons of mass destruction and new systems of such weapons. The first thing that stems from this is that there was originally a distinction between weapons and systems. I thought about this when Renata Dwan was mentioning the more specific issues and how today, especially, we cannot ignore not just the impact of warheads, which can be different, which can deserve prohibition, limitation and so on, but also the much wider interrelationships of other factors and systems. After all, while weapons known to us have, by and large, remained the same since 1948, soon after the advent of the nuclear bomb, or atomic bomb, as they used to say, when weapons of mass destruction were defined, now systems may change the nature of the impact of those weapons. That, then, was the first distinction. Of course, the definition which was given then was explosive atomic weapons, radiological weapons, chemical weapons, biological weapons. I am not quoting, but that was the substance.

And so are we supposed to think about something different or whether the systems involved allow us to address something that may be chemical or may be biological? I will speak a bit about that later.

In 1975, when the Soviet Union proposed prohibiting new types of weapons of mass destruction and new systems of such weapons, the idea was that it should be preventive arms control. That is another thing which, it seems to me, continues to be of importance, although of course ideas about how to engage in preventive arms control then were probably different from what they are and should be today, as many things have changed. The initial explanations given at that time by my compatriots were that the future weapons of mass destruction that we should be concerned about would probably be based on physical, chemical and biological principles other than those currently employed by the existing known weapons of mass destruction. Later, though, the Soviet Union suggested four categories of technology to pay special attention to – namely, radiological weapons, charged particle weapons, infrasound weapons and electromagnetic weapons, all acting on live processes in one way or another.

Now, what has happened since then? Two examples or developments: one was the Environmental Modification Convention. In its origin and in the negotiations, it was not connected to this initiative concerning weapons of mass destruction and new systems of such weapons, but what it turned out to be is, in a way, preventive arms control diplomacy about the risks of military and hostile use of new technologies, because by that time it was recognized that new technologies made it possible to weaponize weather and the climate, to produce such events, or such catastrophes, if you wish, as enormous tsunamis that would flood if not whole countries, then at least a good part of their coastlines. The military and hostile use of such technologies was thus prohibited by that Convention.

On a more personal note, I would add that I feel kind of sorry that this Convention – and it is difficult to identify really whose fault it is, maybe a collective fault – is a kind of sleeping treaty. Maybe it would be worth making an effort to wake it up, at least in a procedural sense, and then we would see.

Another development was, of course, an effort, which had been proposed earlier by certain States, Malta in particular, but was nonetheless born out of the Soviet initiative – that is, the effort to prohibit radiological weapons that, in a practical sense, stemmed from the discussions between the United States and the Soviet Union about how to deal with new weapons and new systems. As you know, the saga of radiological weapons continued here in the Conference on Disarmament for many, many years. I am afraid I was the last chairman of the ad hoc committee in 1992, if I remember correctly, and then it basically died down.

Today, life goes on and technology is evolving. I would like to express my appreciation to Ms. Dwan for the excellent presentation of various technologies and the

consequences of their development. Not all technologies or all exotic weapons, of course, can be compared to traditional weapons of mass destruction in terms of their impact, but another question is – and thank you, Ms. Dwan, for implicitly raising it – what are weapons of mass destruction in the present situation? Are they the number of cities destroyed? Of course, nuclear weapons are perfect for that. Are they, on the other hand, the number of deaths? We have the example of COVID-19, or the novel coronavirus, which is not a biological weapon, but I think that the whole history and struggles and very difficult problems may be very relevant to how we collectively should address the risks of new bioweapons.

The lethality of the novel coronavirus, if you look at statistics, imperfect as they may be, published by the World Health Organization and several other institutions, is not so frightening. Of course, lethality goes up very quickly if your medical system and infrastructure are overwhelmed by newly sick people. Maybe in order to produce very harsh economic effects such as those of COVID-19, you do not need to have very high and frightening lethality.

What, then, is mass destruction? Personally, I find “destruction” not quite the right word. “Weapons of mass destruction” is translated, for example, into Russian and back into English as “weapons of mass impact”, which I think is more correct than “destruction”, especially if you are talking about such things as chemical and biological weapons.

With regard to individual technologies, I would like to single out two which may be of particular importance. One is immunology, and here, of course, the question is what to do about possible novel agents, microbes, viruses, chemicals and so on. The thing is that for them we at least have mechanisms, if maybe not perfect ones. We have the Organisation for the Prohibition of Chemical Weapons and its Scientific Advisory Board, for example. We have the Biological Weapons Convention mechanism, with regular discussions of the impact of new technologies. By the way, the Biological Weapons Convention does require strengthening, including in the light of the COVID-19 pandemic, which, though not a weapon, has big lessons for the Convention.

Immunology, because we are surrounded by all sorts of microbes. There are millions or billions of microbes living inside us. They are all controlled by our immune system. If you find a way without microbes and viruses and rickettsiae and amoebas and so on to knock out or weaken immune systems, all those friendly or subdued microbes automatically become biological weapons and start to kill you, but that does not mean that if you are a State or a non-State actor you would develop, produce, stockpile and use any of those microbes, any of those agents – you would not do that. So the question is whether or not that falls under the Biological Weapons Convention.

And the second point is cybertechnology, because, when it is used as weapon, cybertechnology can cause massive destruction, massive disorganization and eventually massive economic hardship which would lead to social hardship and mutinies and what have you. Cybertechnology and cybercrime are much wider areas than, say, more or less weaponized cybertechnology, because you can hack banks, steal money, extort money or create mass hysteria. Whether that should be all lumped together or whether we should look, say, at those means of cyberwarfare that result in extensive damage, destruction, elimination of your enemy’s armament and economy and so on is also something to think about.

And then we have, of course, systems. I do not think I would add much to what Ms. Dwan said, but she mentioned new types of missiles, including hypersonic missiles, which may or may not be nuclear-tipped but which can indeed provoke a nuclear war even if they are conventional. Systems, then, give new qualities to known weapons and produce new risks. Much is being said, including in military circles, about the importance of artificial intelligence. Of course, it helps collect and analyse information. I am not talking about, say, more individual manifestations like killer robots – by the way, killing is not how future warfare will necessarily be conducted, so, in my view, there is something deceptive about the term “killer” robots; there may be other hostile robots, less than lethal, to look at. And with the arrival of hypersonic missiles, you have to rush towards artificial intelligence in terms of deciding what is happening or about to happen to you. And the more you rush there, the more you hand over to artificial intelligence a decision not just to kill or not to kill a particular individual but also to start or not to start a nuclear war.

Therefore, it seems to me – and basically what I was going to say is, if not exactly what Ms. Dwan said, then something close to it – we need to try to reorganize and address the subject on two fronts. One, singling out and addressing specific technologies and trying to define them, seeing whether they are covered by existing regimes and maybe making recommendations to those regimes. But the important thing is – and this is where I think you have inevitable albeit not decisive weakness – technology scanning by existing regimes like the Chemical Weapons Convention. These regimes look at whether a technology falls within their specific area. I think you have to take a more holistic approach. Something, then, would have to go to the Organisation for the Prohibition of Chemical Weapons – fine, but where something else might go you would not be able to decide. And second also, screening should be rather widely done. And then, of course, address more specific situations or risks in, say, a more focused and pragmatic way.

Then the question is: can that be decided today or before the end of this session of the Conference on Disarmament, before the adoption of the next General Assembly resolution? Probably not. For that reason, my much more down-to-earth recommendation would be until we are collectively able to agree upon and launch a more modern approach to looking at all these unpleasant and dangerous things, we should keep the traditional item of new types of weapons of mass destruction and new systems of such weapons afloat here in the Conference on Disarmament, devoting some time to it here and in the General Assembly.

Thank you very much.

The President (*spoke in Russian*): Thank you, Mr. Batsanov, for your statement, for your recommendations, for your views. Distinguished colleagues and panellists, do you have any questions for Mr. Batsanov at this time?

Mr. Dalcero (Brazil): Thank you, Mr. President. Thank you for organizing this meeting. I would like to thank both panellists for their presentations.

Briefly, Mr. President, I would like to thank Mr. Batsanov for reminding us of the Convention on the Prohibition of Military or Any Other Hostile Use of Environmental Modification Techniques. I imagine that is the Convention that you mentioned at the beginning of this presentation. This Convention is from December 1976, and there is a very interesting issue with article II of this Convention, where it is clearly stated that it is a legally binding instrument regulating outer space. Although we sometimes discuss here in this body whether legally binding instruments on outer space are appropriate or not, we already had such instruments in the 1970s, as in the Convention that was mentioned here by Mr. Batsanov.

The President (*spoke in Russian*): I thank the representative of Brazil. Are there any other comments or questions? Allow me then, in my national capacity, to put a brief question to Mr. Batsanov, or rather to support his line of reasoning about the lethality of weapons of mass destruction, or, to be even more specific, and I truly like this approach, the naming of weapons of mass destruction or weapons of mass impact. In this context, my question for the expert is this: do you see any potential in the Conference on Disarmament for discussion of the issue of renaming, of a broader approach? We are all well aware that the means of waging modern warfare are not necessarily intended to kill or destroy human potential itself. It is enough to destroy the economy or infrastructure. Accordingly, the aims of weapons in the conventional sense are changing. Is there any scope for discussion of this issue in the Conference on Disarmament, and how can this be done if, say, the Conference actually manages to adopt a programme of work in the near future?

Mr. Batsanov (Pugwash Conferences on Science and World Affairs): Thank you. First, a very brief reaction to the representative of Brazil. Yes, indeed, and if you talk about those days or even a bit earlier, we had the Outer Space Treaty of 1967. By the way, I am aware of attempts by representatives of civil society to convene a kind of conference on the Treaty as it was approaching its fiftieth anniversary – not a review conference, which the treaty does not provide for. It was especially the former Ambassador of Canada here who was rather actively promoting that idea. I tried to support it, but the idea got bogged deeply down and did not move. There was, regrettably, no enthusiasm.

In principle, yes, the Conference on Disarmament can address this not wholly satisfactory definition of weapons of mass destruction when its huge potential can finally be

directed towards something other than discussions on the programme of work, but I would be quite reluctant to focus really on the definition. I would rather look at the evolution in some way, and there are ways, of course, such as with different study groups, and all can be organized with little money, because although people say we cannot increase the Conference budget, in reality it is such a tiny budget compared to such things as research and development, testing and evaluation for military and weapons purposes.

There should be room to address the evolution of weapons of mass destruction and the concept of warfare with weapons of mass destruction as a part of that more synthetic process I dared to mention during my presentation. But I would not think it was worth it just to change the term from “mass destruction” to “mass impact”. If in a much deeper and wider process, somebody proposes that we should change the definition or the way we describe nuclear, chemical, biological, radiological weapons, and if it comes naturally, so be it, but not as a goal in itself.

The President (*spoke in Russian*): Thank you, Mr. Batsanov, for your answers and comments. I now wish to continue our interactive dialogue with the panellists and invite Mr. Jean-Marc Rickli to take the floor.

Mr. Rickli (Geneva Centre for Security Policy) (*spoke in French*): Mr. President, thank you for this invitation, which is my third to this forum. I spoke here for the first time in 2017, the second in 2018 and now in 2020. At the outset, I would like to stress that the remarks that I am about to make, which reflect my own analysis, are my own, not those of my institution.

(*spoke in English*)

The purpose of today’s talk, then, is to take up where we left two years ago. The first time I addressed this assembly, my presentation was about artificial intelligence and lethal autonomous weapons systems, and the next time it was about artificial intelligence. What I would like to do today is to look at where we have gone since then, to help make discussion about this emerging technology a bit more tangible. One characteristic that we can see in terms of development of this technology is that the pace at which it is developing is, as Ms. Dwan noted, very rapid. For some, its growth is even exponential.

To illustrate this development, I will just briefly talk about what artificial intelligence is again to remind people in the audience and then look at concrete examples of what we have seen very recently about how fast this technology is developing and how it can impact discussions on weapons of mass destruction, especially through swarming. And then the next step, which is the combination of newer technologies and artificial intelligence.

We talk about artificial intelligence as a capability for computers to perform tasks that would normally require human intelligence. If you ask biologists and neuroscientists about human intelligence, there is absolutely no agreement about the definition of human intelligence, and therefore I will not fall into this trap. What I would rather do is to look at the process of automation and the growing autonomy that machines are displaying. And why are we talking about that these days? Because, basically, for artificial intelligence to work, you need two things. You need the engine and the fuel. The engine is computing power, and the fuel is data. On this graph, what you see is what is called Moore’s law, which tells you that computing power doubles every 18 months. This graph is a logarithmic graph that displays all the central processing units that have been produced since the 1970s, and you can see a very strong linear relation. But what we have seen since the last decade is that with the advance of machine learning, this doubling period actually has fallen to three and a half months which means that since I last addressed this audience three years ago, computing power has evolved by a factor of three in terms of computing, but in terms of algorithmic compute it has evolved by a factor of more than a hundred. So you have now algorithms that are able to perform tasks a hundred times more efficiently than two years ago.

This has consequences, and one of the areas where artificial intelligence has been applied quite a lot is gaming, because you have a lot of data. You might remember the breakthrough when a human player was defeated at the game of Go. Go has the greatest state-space complexity of any board game, 10^{170} . The power of 170 probably does not tell you much but if we assume that there are roughly 10^{80} atoms in the universe, that gives you the

magnitude of this number. With developments in video gaming, games like StarCraft II, which is a game where players have to fight against 99 other players, set up an army, conquer territory and ally with others, the state-space complexity is $10^{1,685}$. And if you look at the right side, the year human beings were defeated at this contest, you can see that the state-space complexity increases and the span between the year people were defeated narrows. As a matter of fact, StarCraft II defeated human beings last January 2019. The implications are very concrete, because so far we are still talking about weak intelligence, which means that something is able to perform a specific task.

Consider the Rubik's Cube, which is not easy to solve. You have 48 quadrillion possibilities, 10^{18} , but it has been proved very recently that no matter which situation you are in, you can solve a Rubik's cube in no more than 20 moves. And the human record at the Rubik's Cube was about 4.5 seconds. An algorithm was trained to solve that problem. As you can see, it managed to perform this task in about a quarter of a second.

What, then, does that mean for a human being? It means that if your job depends on solving a Rubik's Cube, you are out of a job. And so moving beyond the Rubik's Cube, we increasingly see algorithms being developed to assist or to compete with human beings. The picture on the left shows you a former top instructor who was defeated by an algorithm in combat involving two squadrons fighting at a distance. That was in 2016. Just months ago, the Defense Advanced Research Projects Agency conducted an experiment in which a pilot, an F-16 instructor, was pitted against an algorithm in a dogfight – in very close quarters – and this pilot was defeated five times. When he was defeated, the instructor said it was as if the algorithm already knew what he was about to do. In military parlance, it is known as the OODA loop – observation, orientation, decision, action. This is basically the target; this is what defines the targeting cycle of the military. The idea is to get into the decision-making cycle of your adversary to influence the way he performs.

In 2014, a technology called generative adversarial networks (GAN), which are two algorithms that are pitted against each other in a zero-sum scenario, was developed. Here, one algorithm has, for instance, to create a picture, and the other will say whether it is a real picture or a fake. And because it is a zero-sum scenario with one winner and one loser, developments are moving very quickly. Here you can see synthetic pictures that have been created by this technique, and you can see that in a matter of four years, there is no way to actually find out that the picture on the right is actually completely fake, synthetic and does not represent reality.

This technique is a technique used for what we call deepfakes. A deepfake is an additional medium, where a video, for instance, is merged with a picture of a person and basically what you see is a completely forged picture or video of the person or the scene. The first deepfake video was published on Reddit in December 2017. Unfortunately, it is a scene from a pornographic movie. What you see here is that the picture of the face of the woman is not the real actress but that of the Israeli actress Gal Gadot, who plays Superwoman. Her face was merged with this actress. At the time, in December 2017, specialists in artificial intelligence were asked how long it would take to market this technique and they said one to two years. It turns out that a month and a half later a new video similar to this one emerged, and an application was created so that anyone can do it. In less than two years, we have seen a proliferation of that kind of content online, more than 14,000 videos, most of them pornographic. The victims of these deepfakes were women, and they have been watched more than 130 million times already in less than two years.

This is important because it used to be that people looked at videos or recordings and these were artefacts of reality. As a matter of fact, now what we are seeing is that those artefacts no longer represent reality – they can create a complete alternative reality – and because of social media, what you do is lock people in information bubbles. The problem is also that lies have a strategic advantage, spreading far faster and reaching a wider audience than truth and thus sowing the seeds of massive manipulation and disinformation.

Drones that are being used in swarms, especially in the civilian sector, are also emerging. For instance, in 2018, Intel, the American chip manufacturer, flew 2,018 drones at the same time for its fiftieth anniversary. It is impossible for a human being to control 2,018 drones, so you rely on computers. Now, swarming is the fifth way of applying force after

interdiction and punishment, as well as risk and decapitation, and it is very disruptive. Why? Because the idea of swarming is to bring together different elements and to make them evolve in a coherent whole. So here, the ultimate goal is to create collective intelligence, so that the swarm will be autonomous and act on its own like a flock of birds.

In the military, that translates into saturating the enemy's defences and basically causing a crash. For those in the military, that involves all the principles of mass firepower, speed and concentration of forces. And we have already started to see some manifestations of this. In 2017, for instance, Islamic State in Iraq and the Levant used commercial drones that it weaponized with small hand grenades, and for the first time a non-State actor managed to attain tactical air supremacy against the Iraqi armed forces. There are other examples: the Russian base in Khmeimim in Syria was targeted by a swarm of drones last year, and the Saudi oil company Aramco was targeted by a swarm of drones and cruise missiles that led to a 5 per cent drop in global oil output earlier this year. It is not just in the air but also at sea, where remotely piloted boats could be equipped and act as troops.

You might have seen the video that was developed by those who want to ban killer robots, a fictional movie where a swarm of microdrones and a lady carrying two or three grams of explosives that could target specific people and basically blow out their brains. That is obviously fiction. In 2017, I showed you this slide, but there was only one drone, the one in the middle. A year later, you had the one on the bottom left and the one on the top right. And now developments in weaponized drones range from drones able to carry cruise missiles and drones that, trained to work in swarms, can carry different payloads and drones flying AK-47s to drones that, such as the one on the bottom right, a Turkish drone called KARGU-2, have, according to the developers, autonomous swarming and facial recognition capabilities.

Research is being done by major Powers into swarming, which takes different forms, including swarms against swarms and swarms against human beings. And it is not just physical domains that are affected. Developments in the digital domain are taking place very quickly, because there are fewer obstacles. In 2016, the Defense Advanced Research Projects Agency organized a contest where seven computers had to attack each other in order to defeat the others and to defend themselves completely autonomously. IBM did some research by equipping malware with a machine-learning algorithm, so that, once unleashed on the web, it could learn from itself. This research, then, is being conducted.

What is the impact for the discussion on weapons of mass destruction? If we combine drones, for instance, and swarming algorithms, the scalability is enormous. It is now possible to use another emerging or disruptive technology, 3D printing, to manufacture drones or equip them with explosives very easily. So imagine suddenly that you end up having 10,000 of these drones flying in a coherent way – the effect will be massive. We call this a superswarm, but in order to do that we will need to increase the autonomy, because, as I mentioned earlier, such coordination is impossible for a human being. Here, then, is an issue of human control.

This technology has an offensive advantage, because it is impossible to find a system that can defend against all the major threats posed by swarms. It thus might favour an international arms race, lower the threshold of use and in the end lead to pre-emption's becoming the norm if the offensive advantage becomes a strategic advantage at the systemic level. As I mentioned earlier, the digital domain is even more scalable. Once you have developed malware, it is scalable. But obviously there are some limitations, and, currently, what we have seen is that the best results of machine versus human are when we have cooperation between the machine and the human being.

In the military, research is being conducted for a pilot to be able, thanks to artificial intelligence, to coordinate a swarm of drones. This is the "loyal wingman" concept. Most great Powers are investing in this technology, but the holy grail is not to have to rely on an interface based on machine learning but to connect the brain directly to the machine. And newer technology, especially what is called brain-computer interfaces, implants that are able to read, scan and monitor your brain activity and, in some cases, interact with your brain, is a topic on which considerable research is being conducted.

As was mentioned earlier, there are always positive and negative applications. A positive application of this technology is, for instance, to reverse the effects of trauma, but the negative implication is that you interfere directly with the brain. Experiments have been conducted. This is a picture in 2015 of a quadriplegic woman who had an invasive sensor inserted on her brain. After half an hour of training, she was able to fly, just with her thoughts, an F-35, which is the latest fighter aircraft in the United States. Two years later, a similar experiment was conducted with a man with the same condition and he was able to fly three planes at the same time. The idea here is to develop tools that will connect with your brain. Obviously, we are not yet there, because there are a lot of technological issues to solve, but if we ever get there, we will open a Pandora's box such as humanity has never seen.

If we are able to develop an invasive brain-computer interface that is able to interfere with your brain, there will be no way for you, if you get information from this interface, to know that the input has come from the interface. If I make a particular move, then, it will be the same as if I had decided to make it. This is quite a scary prospect, because there is the issue of the security and the safety of these devices, which could be hacked, and, beyond that, the ability to reprogram the human brain. And as mentioned earlier, what is new compared to previous technologies that fall within the category "weapons of mass destruction" is that the main driver of this technology comes not from States but from the private sector – Facebook, Microsoft, all the big technology companies in the United States are investing heavily in this technology, the reason being that they make money by monetizing your data. But in order to do that, they have to rely on this thing, and this thing is an interface that you can always switch off, making your data inaccessible. If they have a direct connection to your brain, however, they will have a constant stream of data that could be monetized. And research is being conducted. You might have seen Elon Musk's presentation a week ago on Neuralink. Most of what he presented has been there for ages, albeit more as a marketing tool than as a reflection of where we are now.

So why is it important for this discussion about weapons of mass destruction? Because some people are already arguing, as was mentioned previously, for using artificial intelligence in nuclear command-and-control systems and thereby automatizing responses. Obviously, that makes room for escalation and controlled escalation. Some, then, are now also arguing that we should consider swarms post-national weapons of mass destruction because of the scalability of this technology.

I will finish here by drawing your attention to the fact that it is not just artificial intelligence or brain-computer interfaces that are here and on the horizon. It is a mixture of five technologies: biology with synthetic biology; artificial intelligence; quantum computing, which will have a tremendous impact on developments in artificial intelligence once a proper level of experimentation has been reached; neurosciences; and nanotechnology. Increasingly, as technologies are converging, they are basically feeding each other. Concretely, for the way we fight wars, that means that technology is becoming more and more autonomous, and that creates a situation where warfare in which surrogates are used could become more common. The surrogates could be human, as we can already see, for instance, in Libya, or technological. Once artificial intelligence is sufficiently autonomous, it is possible to think about weapons that will be launched in a specific environment and have a life of their own. What we are seeing, then, is that there is a diffusion of power from State to non-State actors as well as to individuals.

To finish, I would really like you to look at this graph. When we face exponential growth, we face a major challenge, because the way we think is linear. The problem is that if you compare linear development with exponential development, the more time passes, the more irrelevant you become and therefore the more any action you take will come too late. In short, discussions about weapons of mass destruction should focus not just on those but also, as the previous speaker said, on weapons of mass effect and mass disruption, because, as was rightly mentioned, in the future you might not have to kill or destroy your adversary if you have direct access to his or her brain or other cognitive abilities, which you can just act upon.

I thank you for your attention.

The President (*spoke in Russian*): Thank you, Mr. Rickli, for your presentation. Distinguished colleagues, I would like to provide an opportunity for questions and comments to all our esteemed experts, and I give the floor to the representative of France.

Mr. Hwang (France) (*spoke in French*): Thank you, Mr. President, and I thank the panellists for their fascinating and very engaging presentations. To begin with, I would like to take this opportunity to welcome to our community our new colleague from Belgium. He has arrived at just the right moment for a rather absorbing and, frankly, bewildering discussion. I would like to say that our pleasure in welcoming Belgium is made all the greater by the tremendous magnitude of the task that the country will take on in early January next year – namely, to ensure that the Conference on Disarmament gets off to a good start in close coordination with the six previous presidencies. Welcome, then, to the Ambassador of Belgium. Know that my delegation is fully at your country's disposal and will support it.

Ours is an uncertain and unstable strategic environment. We are facing new challenges posed by rapid technological development, the full implications of which are not yet known to us.

We have a very carefully prepared statement, but, as the discussion this morning was highly engaging, I would like to take a moment to react to Mr. Rickli's presentation, which was captivating. I think it must be said that, behind any technological development, behind any technology, there is a hidden political and economic agenda. It seems to me that technologies, whether new or old, are neither good nor bad. What matters is how they are used, for what political, economic or even strategic purpose, the latter being our focus here. This is what is important and what must be taken into consideration.

As I listened to the different speakers, the words of Albert Camus, the French philosopher, came to mind: "A man does not let himself do that kind of thing." I do not have an English translation of this quotation, or a translation into the other languages, but it could be interpreted as meaning not only that each individual does not let him- or herself do certain things but also that entire societies, civilizations, must not let themselves do certain things to avoid sliding into chaos. It was this thought that came to me as I was listening to you, Mr. Rickli, talk about the new technologies. Let me now turn to the statement prepared by my delegation.

Technological progress is fundamentally transforming States and their armed forces in every domain, whether land, sea or air, but also in outer space and cyberspace, which are becoming potential domains of conflict in their own right. It is also enabling non-State actors to acquire capabilities previously available only to States. The technological developments unfolding before us give cause for both hope and concern. Indeed, both in their civilian application and in the military world, they offer opportunities that often create new forms of vulnerability.

I would like to address three topics, each constituting an emerging challenge in relation to which the international community has a role to play. These topics were addressed by the speakers, for which I thank them.

Let me begin with cyberspace, which is an important issue for my country. Cyberspace is now a site of conflict and growing threats. These threats stem primarily from the malicious or negligent behaviour of State or non-State actors, not from the technologies themselves. The increasing number of cyberattacks in recent years is a reminder of the extent to which cybersecurity is a major challenge for our Governments, which must respond through cooperation and legal means. As you know, this is the position that we set out in the Paris Call for Trust and Security in Cyberspace and in the Dinard Declaration on the Cyber Norm Initiative. With these two appeals, France showed its determination to promote a cyberspace that is open, secure, stable, accessible and peaceful. In this regard, we note that existing international law, including the entire Charter of the United Nations, applies to cyberspace. In our view, it is particularly important to emphasize our commitment to international law and to the full applicability of international humanitarian law to the conduct of cyberwarfare operations in the context of armed conflict.

As you know, Mr. President, we are committed to multilateral work on this issue. Moreover, France has actively participated in the various working groups established to deal

with this topic under the auspices of the United Nations, including, as recently as last week, the Group of Governmental Experts. These processes have allowed us to make significant progress. Together, we have defined standards and principles that are now considered universal, thanks to the adoption, by consensus, of the Group's 2015 report. The General Assembly, for its part, adopted a resolution to establish the first Open-ended Working Group, which has allowed States to unite around the urgent need to respond to new threats and the importance of implementing the standards adopted in 2015 and of capacity-building. My country welcomes these developments and believes that the time has come to work in an inclusive manner on long-term, constructive and coordinated steps that will facilitate ongoing efforts to implement standards and the development of capacity-building initiatives.

I now come to the question of lethal autonomous weapons systems. I believe that it was Mr. Batsanov who spoke about killer robots and the issue of lethality. For France, it is obvious that lethality is the criterion that matters when it comes to lethal autonomous weapons systems, since the question is whether such weapons, should they exist in the future, will be discriminate or indiscriminate in their lethality. To remove the criterion of lethality from the discussion strikes us as inappropriate and, at the least, indicative of an overly broad approach, and I believe that this discussion will soon take place in the context of the Convention on Certain Conventional Weapons. You are aware of the extent of my country's commitment on this issue. We believe that significant progress has been made in the Group of Governmental Experts on Emerging Technologies in the Area of Lethal Autonomous Weapons Systems, that the adoption of the 11 guiding principles in 2019 was a fundamental step forward and that this step constitutes the basis for a future operational and legal framework.

The goal now is to enable experts to resume normal work in the Group of Governmental Experts, so that these challenges can be addressed. In this regard, we believe that it would be helpful if the discussions to be resumed by the experts revolved around two central elements: the application of international humanitarian law to weapons systems based on these emerging technologies, on the one hand, and the maintenance of interaction by the human and the machine at every stage and confidence that the machine is under full human control, on the other. For this reason, as it happens, France does not wish to develop a fully autonomous system.

My third and final point concerns radioactive materials. I warmly thank Mr. Batsanov for bringing up this important aspect of our work. You are aware that, in France, the trial for the *Charlie Hebdo* and Hypercacher attacks of 2015 opened last week. Combating terrorism remains an absolute priority for my country, and we believe that, in an increasingly unpredictable security environment, it is essential to ensure the security of radioactive materials. For that reason, France, together with Germany, will continue making these efforts, including by submitting a resolution to the General Assembly on preventing the acquisition by terrorists of radioactive sources. The international community must continue to present a united front in this regard, and all relevant actors must mobilize in order to strengthen the security and safety of radioactive sources.

I will conclude by thanking you, Mr. President, because it is very important to have such thematic discussions in this forum. My delegation continues to support the organization of thematic discussions, particularly when presentations of this kind are given by high-quality speakers.

The President (*spoke in Russian*): Thank you, Ambassador, for your statement. Distinguished colleagues, delegations have expressed an unexpectedly strong interest in the thematic debate. I welcome the show of interest, but I ask the distinguished colleagues who will be taking the floor to limit their statements to no more than seven minutes, bearing in mind that there are still nine others on the list of speakers, so that the panellists can respond to our national statements. I now give the floor to the representative of Italy.

Mr. Incarnato (Italy): Mr. President, we are grateful to be able to resume discussion on substantive items on the agenda of the Conference on Disarmament, even if, unfortunately, this year we have not been in a position to structure a comprehensive discussion on all our priorities, as was envisaged before the spread of the pandemic by the Australian presidency, together with its fellow members of the group of the six Presidents of this session.

We have listened with great interest to the contributions of the panellists today. And let me express our special gratitude to the Director of the United Nations Institute for Disarmament Research (UNIDIR), Ms. Renata Dwan. We have appreciated her wise leadership at the head of the Institute, helping us to explore ideas and to develop new thinking on ways to address opportunities as well as challenges to international security and disarmament. The Institute's Security and Technology Programme is conducting brilliant work and we wish to encourage the experts to continue these endeavours.

Italy is well aware that the current security environment puts us in front of new and emerging issues, alongside traditional ones, as captured by the core items on the Conference agenda. We welcome continued discussions on items 5, 6 and 7 as a way to further explore how the Conference on Disarmament could contribute to addressing the impact of today's sweeping and rapid technological change on disarmament, as well as, more broadly, international peace and security.

In the past weeks, we have all been called on to reflect on the impact of the pandemic on disarmament and international security and, more broadly, on the importance of multilateralism. It might still be too early to strike a final balance, but it seems evident already how important the contribution of the scientific community is for our work. On so many issues – probably on the whole range of disarmament bodies – we should reflect and work to find better mechanisms to benefit from the value of science and rely more on scientific evidence.

This is particularly important when we refer to biological and chemical weapons. In this regard, we have supported the inclusion of a structured science and technology review process in the intersessional programme of work of the Biological Weapons Convention, considering positively the proposals that envisage strengthening the relevant capacities in the Convention. Equally important is the work conducted by the Organisation for the Prohibition of Chemical Weapons, which always needs to rapidly adapt to developments in the field of science and technology. In both these frameworks, I would like to recall the great commitment which has been demonstrated not only by my country but also by the European Union.

Looking at emerging opportunities and challenges, I would like to conclude by briefly touching upon three topics to which Italy attaches great importance.

First, the impact of new technologies on the prevention of an arms race in outer space. Today, space-based applications offer unique resources to all of us, including in the domains of economic growth and innovation. Starting from the principles and the international rules that already exist, a comprehensive and effective regulatory environment should be elaborated and put in place. We should work together to establish and promote globally shared principles of responsible behaviour. All States – above all those, like Italy, that are becoming more active in this field – bear responsibility for putting in place a proper framework for technological development in outer space, which should never become an area of conflict.

Second, cybersecurity. Cyberspace and the Internet are one of the greatest human achievements of all time: they have already reshaped our lives by offering unprecedented opportunities. Italy remains committed to promoting a strategic framework for conflict prevention, cooperation and stability in cyberspace. In the current months, we have witnessed an even larger proliferation of malicious cyberactivities. Incidents are on the rise and a reason for serious concern. Such activities could have a destabilizing effect on international peace and security. International cooperation and multilateralism continue to be the tool to achieve our common goals, and we should try to build on the work of the two forums that are currently addressing these issues – namely, the Open-ended Working Group on Developments in the Field of Information and Telecommunications and the Group of Governmental Experts. We believe we should devote more attention to effective implementation of existing rules rather than engaging in lengthy negotiations that would create uncertainty on applicable legal framework.

Third, the emerging technologies in the area of lethal autonomous weapons systems. Italy continues to support, and actively participate in, discussions on the possible development of such systems. We believe that the Convention on Certain Conventional

Weapons, under which these discussions have taken place with positive results, remains the most appropriate forum for the issue. The agreement on 11 guiding principles provides a very good basis, and we are firmly convinced that the Group of Governmental Experts on Lethal Autonomous Weapons Systems should have the time and the possibility to build on these results in the run-up to the review conference of the parties to the Convention.

Mr. President, technological innovation, including advances in artificial intelligence, is likely to have an impact not only on our work but also on our lives in general. That prospect underscores the importance of processes and structures that ensure compliance with international law. The Conference on Disarmament has an important role to play in this regard, if we are able to look at our common interests rather than further politicize our discussions. Italy stands ready to make its contribution, working with all States members of the Conference to build a substantive discussion on the issues you have proposed today, as well as on the other items on the agenda.

I thank you, Mr. President

The President (*spoke in Russian*): I thank the representative of Italy. I give the floor to the representative of the Republic of Korea.

Mr. Lim Sang-beom (Republic of Korea): Thank you, Mr. President. At the outset, I would like to extend my delegation's warm welcome to the Ambassador of Belgium, who is joining the Conference on Disarmament. My delegation would also like to express its sincere appreciation to you for convening a thematic discussion on the Conference's agenda items 5, 6 and 7 today. Your efforts and devotion, even in these unprecedented circumstances, have made today's plenary meeting – and the year's first and last thematic discussion – possible. In addition, I would like to join the previous speakers in thanking the panellists for their comprehensive and very insightful presentations.

It is undeniable that our discussions in the Conference have focused mostly on the so-called four core issues, on which we have not seen significant progress for many years. Nonetheless, the importance of the remaining agenda items cannot be underestimated. This is particularly the case for agenda item 5, "New types of weapons of mass destruction and systems of such weapons; radiological weapons".

Mr. President, taking into account developments in science and technology and their role and impact in the context of international security and disarmament, my delegation believes that agenda item 5 requires enhanced attention in the Conference on Disarmament. We of course have separate forums for addressing certain challenges posed by emerging technologies to international stability and global security. The Group of Governmental Experts on Lethal Autonomous Weapons Systems has achieved significant progress in a relatively short period of time by adopting 11 guiding principles under the framework of the Convention on Certain Conventional Weapons.

Discussions on information and communications technology and cybersecurity issues are slowly but steadily moving forward through relevant United Nations processes, while the international community needs to accommodate certain constraints caused by the COVID-19 pandemic this year.

Upon recognizing the impact of outer space activities on international peace and security, the United Kingdom recently launched a new initiative that my delegation fully supports.

As shown by the 2018 document CD/2141, on the results of the deliberations in subsidiary body 5, member States take widely differing approaches to these issues, to the possibilities for discussing them within the Conference and to the Conference's possible role in this regard. However, given the interconnectedness described by the panellists this morning, my delegation believes that the Conference needs to complement but not duplicate other forums by continuing discussions on the agenda until conditions for more in-depth discussions and possibly for commencing negotiations emerge. This indispensable effort is the least that can be done in order to revitalize the Conference as a relevant multilateral disarmament forum in this changing global environment.

My delegation is flexible on how we can and should advance the discussion on moving the Conference forward. We may agree to establish subsidiary bodies, as we successfully did in 2018. Conducting thematic discussions like today's can also be a simple but efficient way to work. The important thing is that we should sustain the habit of discussion and keep up the spirit of cooperation until we reach an understanding on the areas of commonality.

In doing so, the expertise of think tanks, including the United Nations Institute for Disarmament Research and input from experts and civil society, should be welcomed and utilized. To break through the impasse and bring the Conference back to its proper place, we definitely need a practical, flexible and realistic approach. In this vein, my delegation believes that the 2019 suggestion of the Dutch delegation, presented in its working paper "Back to basics", contained in document CD/2165, is worth revisiting. My delegation once again hopes that the year 2021 will be a fresh start for the Conference.

I thank you, Mr. President.

The President (*spoke in Russian*): Thank you. I now give the floor to the representative of the People's Republic of China.

Mr. Li Song (China) (*spoke in Chinese*): Thank you, Mr. President.

I would first of all like to take this opportunity to welcome the Ambassador of Belgium to the great family of the Conference on Disarmament. I look forward to engaging with him in constructive cooperation.

Mr. President, cutting-edge science and emerging technologies are the key that opens the door to the future of humankind. They are profoundly changing the way people live, bringing great changes to the economic and social development of all countries and presenting great prospects for benefiting humankind. At the same time, advanced technologies such as those related to cyberspace, outer space, artificial intelligence and bioscience have recently featured dual-use applications more prominently. In pursuit of military supremacy, certain countries have applied these technologies in the military field on a large scale and have even weaponized them. This poses new challenges to international security and will have a profound impact on the international arms control and disarmament processes. Firstly, it affects global strategic balance and stability. Secondly, it increases the risk of new conflicts. Thirdly, it can seriously undermine development and be detrimental to the very survival of humankind. Fourthly, it creates legal and ethical issues. Cyberspace and outer space should be the public domain of all humankind. To pursue hegemony and exclusive strategic advantage in such a domain leads to an acceleration of weaponization in the fields in question, poses a serious threat to the security and development of humankind and can even result in immeasurable losses.

The international community must prepare in times of peace for possible challenges; it must anticipate and prevent risks. China believes that we can set about this task in the following ways.

Firstly, we can conduct preventive diplomacy for arms control. The international community should promptly establish an authoritative mechanism for the review of scientific developments capable of providing comprehensive technical assessments of the perspectives for and risks of the military application of new technologies. On the basis of these assessments, international rules should be discussed and negotiated with a view to properly regulating such military applications.

Secondly, we can better regulate research activities. Codes of conduct should be developed for scientists in a timely manner so as to provide the necessary guidance for high-risk research activities and the conduct of the persons engaged in them. China has submitted a proposal for the development of a model code of conduct for biologists in the framework of the Biological and Toxins Weapons Convention, which is a positive step in this direction.

Thirdly, we can build an effective mechanism for non-proliferation and international cooperation. The international community should step up cooperation in establishing a non-discriminatory export control regime with universal participation in order to effectively prevent extremists and terrorists from acquiring and using high-risk, dual-use items and technology. At the same time, we must take a clear stand to oppose such bullying practices

as “technological decoupling” and “a tech cold war” in order to ensure that science and technology will to the greatest extent possible contribute to the well-being of all humankind and that developing countries will have equal access to the fruits of technological progress.

Today, Chinese State Councillor and Minister for Foreign Affairs Wang Yi delivered a keynote speech in Beijing at the International Seminar on Global Digital Governance, formally putting forth the Global Initiative on Data Security. The main elements of the initiative are the following: to maintain an open, secure and stable global supply chain; to oppose using information and communication technologies to impair other States’ critical infrastructure or steal important data; to take actions to prevent and to put an end to activities that violate personal privacy and to oppose the abuse of information and communication technologies to conduct mass surveillance against other States; to have the State require that companies respect the laws of host countries and refrain from coercing its own companies to store data generated and obtained overseas in its own territory; to avoid directly requiring companies or individuals to provide data located in other States without their permission; and to ensure that companies do not install back doors in information and communication technology products and services.

The purpose of the above initiative is to maintain the security of global data and the supply chain, promote the development of the digital economy and provide a blueprint for formulating relevant global rules. The initiative is also a solemn commitment made by China to maintain global data security. This initiative is of great importance and significance, reaching far beyond arms control, and provides a fresh impetus to and an inspiration for our discussion today. I hope that our country’s initiative will receive a favourable response and broad support from the member States of the Conference.

As the sole multilateral disarmament negotiating forum, the Conference must keep up with the times. It must attach importance to and carry out work on the impact on international security of new technologies. By inspiring the international community to respond to new challenges, the Conference may also find a new way out of its current deadlock. We stand ready to work with other countries to jointly prevent and respond to the security risks of emerging technologies and to ensure that technological development benefits humankind, devoting our efforts to building a world of beauty, a world that is open, inclusive and clean, a world of lasting peace, universal security and shared prosperity.

Thank you, Mr. President.

The President (*spoke in Russian*): I thank you for your statement. I give the floor to the delegation of the Russian Federation. Distinguished colleagues, I appeal to you once again to make your statements as brief as possible. Thank you.

Mr. Belousov (Russian Federation) Thank you, Mr. President. I would like to join in welcoming the new Ambassador of Belgium and give our assurances that the Russian delegation stands ready to cooperate fully and closely with the delegation of Belgium, indeed directly with you, Ambassador, in the work of the Conference on Disarmament and other disarmament forums. I would also like to thank today’s panellists for demonstrating such in-depth knowledge of the issues they covered and for providing very interesting insights.

Mr. President, distinguished colleagues, we fully support the opinion of our Belarusian friends on the relevance of addressing the issue of new types of weapons of mass destruction at the Conference on Disarmament. It is only in our multilateral forum, which is a unique forum for professional and unbiased discussion of international security issues, that it is possible to have a comprehensive exchange of views on this topic, share our concerns in this regard and, if necessary, initiate a negotiation process with a view to monitoring or banning new types of weapons of mass destruction.

The topic of new types of such weapons remains important and deserves close attention from the international community. The rapid and sometimes uncontrollable development of advanced technologies, which not only makes it possible to design new, more efficient weapons systems but also makes such development more easily accessible, including to non-State actors, has lent particular urgency to this topic. Given the complexity of the current international security architecture, the emergence of new types of weapons of

mass destruction threatens to create an even greater imbalance and may trigger a new arms race in this area with extremely unpredictable consequences.

This underscores the need to closely monitor scientific and technological developments that could be used to create new types of weapons that are comparable or superior in their destructive capabilities to already known types of weapons of mass destruction. The international community must be able to respond in a timely manner to threats that raise concerns and take the necessary effective measures to prevent the emergence of new types of weapons of mass destruction. On that basis, the Russian Federation supports the annual resolution of the General Assembly of the United Nations on the role of science and technology in the context of international security and disarmament.

We believe that our Conference can make a significant contribution to preventing these threats. This requires above all getting down to an in-depth expert analysis of the issue. That might entail creating the right framework for the establishment of criteria for determining the types of such new weapons.

The best way, as we see it, would be to establish a special subsidiary body, as was done in 2018. Interesting discussions were held then, which helped the States parties not only to outline their approaches, but also to have a useful exchange of views. It would be desirable, in our view, to consider resuming this practice during the 2021 session of the Conference.

It goes without saying that discussions on these topics should fully comply with the agenda and mandate of the Conference.

In this regard, we would like to emphasize that some of the topics already covered under this heading, such as the use of artificial intelligence technologies in military affairs, lethal autonomous weapons systems and cybersecurity issues, are already being discussed in an extensive and very productive manner, including here in Geneva. There are specialized frameworks for such discussion, such as the Group of Governmental Experts on Emerging Technologies in the Area of Lethal Autonomous Weapons Systems under the Convention on Certain Conventional Weapons, the Group of Governmental Experts and the Open-ended Working Group on international information security, among others. Thus, we do not see any compelling reason to consider these rather narrow areas at the Conference.

Such duplication, as experience shows, does not contribute to finding a proper solution but rather, on the contrary, makes it more difficult and poses additional challenges to discussions already under way on other tracks. Therefore, we propose to focus on the topic of new types of weapons of mass destruction without addressing other relevant but not directly related issues.

We are ready to support and be actively involved in an outcome of the 2021 session that would further in-depth and comprehensive consideration of this important topic. Thank you for your attention.

The President (*spoke in Russian*): I thank the representative of the Russian Federation for his statement. I give the floor to the representative of Japan.

Mr. Ogasawara (Japan): Thank you very much, Mr. President. At the outset, I would like to thank you for today's opportunity to exchange and expand our views on the new and emerging technologies. Japan greatly appreciates the initiatives which promote substantive discussion in this forum. I would also like to extend my heartfelt welcome to the new Permanent Representative of Belgium, with whom I look forward to close cooperation, especially during the Belgian presidency of the Conference on Disarmament Presidency in 2021. I would also like to thank all of the panellists for their informative and inspiring presentations, which add depth and perspective to our discussion.

Japan values our work in subsidiary body 5 during the 2018 session of the Conference. This forum enabled us to exchange views regarding emerging issues, such as the potential for scientific and technological developments to produce new weapons, cybersecurity and the use of artificial intelligence for weapons. We also valued the presentations made by experts in the course of the subsidiary body's activities.

Regarding digital developments and artificial intelligence, we are pleased that our joint efforts have resulted in the discussions that are currently unfolding in the relevant

framework of the United Nations and the Convention on Certain Conventional Weapons. Japan is actively participating in these discussions.

Today, science and technology, as well as their application for military purposes, are evolving at breakneck speed, as Mr. Rickli of the Geneva Centre for Security Policy eloquently described in his presentation. It is difficult to overstate the impact of technological innovations not only on our economic and social lives but also on security issues. For the Conference, in order to better prepare for future specific discussions, it is of great value to understand accurately scientific and technological progress, the current state of their application and the risks associated therewith in order to promote common understanding on these crucial matters. In that sense, Japan greatly appreciates today's opportunity to hear from you, the experts, and to exchange views on these subjects.

In the field of arms control, disarmament and non-proliferation, there is a wide range of technological areas that could one day be a subject of our future discussions. Japan considers that the following three points are relevant and merit special consideration, no matter which area we discuss.

The first point is the applicability of existing international law and international norms.

From the perspective of Japan, which always emphasizes the rule of law in the international community, it is imperative to comply with international law and international humanitarian law, especially when it comes to use of force, including new weapons of mass destruction. At the same time, improved transparency, strengthened confidence-building measures and better communication between the countries concerned are of great value. In this regard, I would like to reaffirm the importance of enhancing domestic implementation of international humanitarian law through, among other things, the weapons review prescribed in article 36 of the Protocol I Additional to the Geneva Conventions of 1949.

The second point is the dual-use nature of technology.

As many examples illustrate, and as Ms. Dwan of the United Nations Institute for Disarmament Research eloquently stressed, in the field of outer space, cyberspace and artificial intelligence, many emerging technologies have both civilian and potential military applications. While emerging technologies may have significant military and security implications, the benefits of these emerging technologies to the economy and society are immeasurable. Therefore, it is advisable not to impose unreasonable restrictions on the development of useful technology in the name of arms control. Here, the key is how to strike an optimal balance between these two different requirements.

Third, the multiplicity of stakeholders. As is evident in the domains of artificial intelligence and digital technology, the private sector is playing a greater role in technological innovations that may have major security implications. Therefore, in order to conduct a meaningful discussion, the participation of multiple layers of stakeholders is even more desirable. In the same vein, input from the experts from both government and the private sector is most welcome.

Finally, Mr. President, based on these points, let me underline the importance of promoting future-oriented discussion on emerging technologies and their impact. Japan is confident that the Conference is a suitable venue for such discussions.

Japan hopes that substantial discussions will proceed in the Conference by narrowing down the themes based on a common understanding among member States, while avoiding duplication with other tracks.

I thank you, Mr. President.

The President (*spoke in Russian*): I thank the representative of Japan. Distinguished colleagues, we have six other delegations inscribed on the list of speakers: Cuba, Belarus, Austria, Indonesia, the Islamic Republic of Iran and Pakistan. I would like to conclude today's discussion with some feedback from our esteemed panellists and therefore request you to limit your statements to six or seven minutes if possible. I now give the floor to the representative of Cuba.

Mr. Delgado Sánchez (Cuba) (*spoke in Spanish*): Thank you, Mr. President. Since this is the first time that my delegation has taken the floor in a plenary meeting under your presidency, we would like to congratulate you, as Ambassador of Belarus, on becoming President of the Conference on Disarmament. Your work has been successful, and we are certain that it will continue to be. You have, as always, the full support of my delegation. We also welcome the distinguished Ambassador of Belgium. Let us congratulate our panellists, too, for their excellent, comprehensive and thought-provoking presentations. Being in this room is time well spent. Under your leadership, the Conference has shown flexibility and demonstrated the feasibility of holding in-person meetings and resuming our work on the substantive agenda items.

My delegation fully agrees with Ms. Dwan's assessment that the introduction of new technologies increases the likelihood of a detonation, which we hope, for the sake of humanity and of the planet, is not nuclear. Our impression is that our panellists agree that the current legal framework is inadequate. In our view, the challenge for the Conference is not to halt or hinder the development of science and technology, since, as Mr. Rickli has illustrated, its progress is unstoppable. Our challenge is not to oppose artificial intelligence or other technologies but to establish in a timely manner a legal framework that limits and contains the basest sentiments of humankind: to dominate and subjugate our fellow men and women through war and the use of force, in clear violation of international law.

The challenge that humanity failed to meet was not that of stopping the development of nuclear science in time. It was that we did not prohibit or condemn nuclear weapons in time. Right now, the Conference is failing to meet the challenges posed by an arms race in outer space, lethal autonomous weapons systems and complete nuclear disarmament. In this regard, new technologies are being used to continue modernizing nuclear arsenals, not to make them safer but to make them more efficient – in other words, more deadly. Moreover, drones have not reduced collateral damage; instead, they have increased the inhumanity with which wars are waged. The cultural worship of new technologies, and of power, has turned life-or-death decisions about human beings into a kind of video game for warlords and drone operators.

I agree with Mr. Batsanov that we should probably consider a broader and more modern legal approach. Specifically, I would like to ask the panellists whether they think that the Conference's regulatory approach should be specific, and focus on a particular technology, or whether we should adopt a more general approach that allows us to reconceptualize the definition and scope of weapons of mass destruction, the notion of just war, or the limits that should be imposed on the military application of certain technologies – whether they originate in the public or private domain. This last issue – namely, that of private actors in legal relationships pertaining to non-proliferation and disarmament, as highlighted by Mr. Rickli – is an essential part of the broad and modern approach described by Mr. Batsanov.

In conclusion, my delegation wishes to reiterate the importance of the Conference as the sole multilateral forum for the negotiation of legally binding instruments on disarmament. As this debate shows, it is urgent for us to resume our work, not only to forestall through regulation the threats posed by the emergence of new technologies in the arms race but also to fully discharge our mandate. Thank you.

The President (*spoke in Russian*): I thank the representative of Cuba for his topical statement.

Allow me to take the floor in my national capacity. I would like to make the following statement on behalf of the Republic of Belarus.

Ladies and gentlemen, with the rapid development of scientific and technological progress and new technologies, these issues are becoming cross-sectoral, touching on all aspects of disarmament and, as we have heard in our presentations today, directly involving not only weapons of mass destruction but also all issues of disarmament, transparency, understanding of what is happening and our desire and duty to limit the development of such technologies and scientific and technological progress while understanding their dual nature. The Belarusian delegation is therefore of the view that the time has come to end the practice of dividing the items on the agenda of the Conference on Disarmament into core and other

items. We believe that the new challenges and threats should be considered on an equal footing with nuclear disarmament, non-proliferation, negative security assurances and the prevention of an arms race in outer space.

Preventive measures and rapid response are, in our view, the best way to address risks and threats to international peace and security, including those arising from scientific and technological progress and the use of the results of such progress for military purposes.

To perfect international procedures to make it possible to keep a close watch on the possible development of new kinds of weapons of mass destruction and come up with recommendations to address the kinds of weapons of mass destruction that might be developed, every three years Belarus introduces a draft resolution to the General Assembly under the title "Prohibition of the development and manufacture of new types of weapons of mass destruction and new systems of such weapons: report of the Conference on Disarmament".

During the seventy-fifth session of the General Assembly, the next draft resolution will be presented by the delegation of Belarus for consideration by the First Committee. I request the secretariat to distribute this draft resolution as an official document of the Conference on Disarmament. The document is preventive in nature and aims to prevent the emergence of new types of weapons of mass destruction. The resolution calls for the adoption of a response mechanism through which the General Assembly requests the Conference to monitor the situation and draw up recommendations on specific negotiations on new types of weapons of mass destruction. The draft resolution is consistent with previous versions and has not been amended, apart from some minor editorial changes. We trust that the growing threats and the need to respond to them, together with the fact that the resolution is a product of compromise, will make it possible for it to be adopted by consensus at the seventy-fifth session of the General Assembly.

Under current conditions, it is impossible to ignore the growing threat of the malicious use of new achievements in science and technology by State and non-State actors, particularly in the fields of synthetic biology, autonomous weapons systems, artificial intelligence and cyberthreats. In this regard, our proposals for possible action by the Conference in this area, which we have brought forward before, remain relevant today.

We believe it would be right for the Conference to request the Secretary-General of the United Nations to draw up a comprehensive report or review concerning the risks and challenges that new technologies pose to international peace and non-proliferation. It seems to us that practical benefits could come from our initiating the study or systemization of the national best practices of various States in addressing risks and challenges related to new technologies for international security and non-proliferation, with the prospect of formulating rules or principles of conduct to prevent the misuse of new advances in science and technology. I thank you for your attention.

I now give the floor to the delegation of Austria.

Ms. Hammer (Austria): Thank you, Mr. President. Thanks to the panellists for these really inspiring presentations, which seemed very convincing to me, and the true call for the international community to act with urgency.

In the Conference on Disarmament, our conversations usually focus on military and security concepts of the last century, and it is good to look beyond these traditional concepts, especially given that the presentations clearly outlined that the initial purpose of some of these technologies might be altered, and the specific weapon category might turn into something new, given the new technology. Thank you, then, for this wake-up call. I think it goes beyond the Conference, because given the Conference's track record on agreement in recent years, it is important that we seize all opportunities to discuss these issues.

I have two questions for the panellists. While the threat and the challenges of these new and sometimes old technologies – I think some of the presentations dated back twenty years – are evident, there seems to be a reluctance to discuss these issues in multilateral disarmament or security settings. Other settings are a bit more advanced, but disarmament and security configurations have a particular challenge here.

It also seems to me that it is not only multilateral but also bilateral. At the end of the day, every military advantage will be overtaken or adapted by an adversary. It would thus seem to be in the strategic interest of all countries to engage in these discussions, yet there seems to be reluctance. I would be interested, then, in the competing imperatives of this strategic interest and current developments in the multilateral context. The Group of Governmental Experts on Lethal Autonomous Weapons Systems, to name just one relevant international forum, is increasingly occupied with procedural questions. It is again missing a chance to discuss important issues.

I would also be interested to hear from the panellists, given what the Director of the United Nations Institute for Disarmament Research outlined, about how we can do better – probably we need new stakeholders in the room – and how we get these stakeholders in the room. Some of the colleagues have mentioned the private sector, but it may also be civil society, which seems not to be part of this State dialogue that we currently have on these issues. Those are my two questions. Thank you very much.

The President (*spoke in Russian*): Thank you, Austria. For my part, I would like to say that you have raised questions just now that the Belarusian delegation, among others, had as well. Thank you very much. Colleagues from Indonesia, you have the floor.

Mr. Rosandry (Indonesia): Thank you, Mr. President. First of all, allow me on behalf of the Indonesian delegation to express our thanks to all the panellists for their excellent presentations, which have added value to our discussion on this issue today. Allow me also to join others in welcoming the Ambassador of Belgium to the Conference on Disarmament family.

Mr. President, scientific and technological developments have had a significant impact on both civilian and military applications. While recognizing that moving science and technology forward for civilian applications needs to be maintained and encouraged, we also believe that there should be better oversight and regulation of scientific research, particularly research that has an impact on international security.

On information and communications technology and cybersecurity issues, we would like to underline the importance of rules, norms and principles of responsible State behaviour in cyberspace to increase stability and security in cyberspace. We believe that international law, including the Charter of the United Nations and international humanitarian law, applies in cyberspace.

Furthermore, the principles of sovereignty, sovereign equality, non-intervention and peaceful settlement of disputes, including to protect and respect human rights, are important to guide State behaviour in cyberspace.

In this regard, we welcome the ongoing discussions on cybersecurity in the Open-ended Working Group and Group of Governmental Experts and reaffirm the importance of the commitment to implement voluntary, non-binding norms recommended in the 2015 report of the Group of Governmental Experts on Developments in the Field of Information and Telecommunications in the Context of International Security.

The weaponization of artificial intelligence, including the development of autonomous weapons systems, has reduced the role of humans in decision-making on the use of lethal force in warfare. This means that the threshold for the use of lethal force is only lowered. Taking into account the risks posed by this type of weapon, Indonesia believes that the use of all forms of autonomous weapons systems must be in compliance with international humanitarian law and its principles.

To conclude, Mr. President, Indonesia believes that discussions on these new types of weapons of mass destruction are needed in order to build common understanding among States and eventually to take an approach and measures to address these issues. In this regard, I would like to commend Belarus's leadership in furthering this issue and assure you of our support. Thank you.

The President (*spoke in Russian*): I thank the representative of Indonesia. I give the floor to the delegation of the Islamic Republic of Iran.

Mr. Azadi (Islamic Republic of Iran): Thank you, Mr. President. My delegation would like to once again congratulate Belarus and you on your assumption of the presidency of the Conference on Disarmament and assure you of its full support and cooperation. I would like to welcome the Ambassador of Belgium to the Conference on Disarmament. Let me also express my appreciation to the panellists for their interesting and informative presentations.

Mr. President, the necessity of a universal legally binding treaty prohibiting the development, production, stockpiling and use of new types of weapons of mass destruction, including radiological weapons, has been discussed many times in the Conference. This issue has also been considered by the General Assembly. These facts are indicative of the need to review periodically the application of new technologies and their consequences on the development by some countries of new weapons of mass destruction. These weapons have the same severe, indiscriminate effects on human beings as those of prohibited weapons of mass destruction. We believe that the principle on which the illegality and prohibition of those weapons is based – namely, mass killing, unnecessary suffering, indiscriminate effects and serious damage to humans, animals and the environment – is also valid for the definition and prohibition of new types of weapons of mass destruction. There is therefore an urgent need to adopt preventive measures and alleviate this international security concern. The international community should consider the elaboration of such a legally binding instrument before the production of these new weapons becomes rampant. The Conference is the most appropriate forum for negotiation of the elaboration of elements of a legally binding instrument in this regard.

The skyrocketing rise of global military expenditures is alarming. According to the Stockholm International Peace Research Institute, total military expenditures rose to almost \$2 trillion in 2019, 3.6 per cent more than in 2018, the largest annual jump in such spending since 2010. The United States stands alone among the five biggest military spenders of 2019.

It is not surprising to see that one of these five countries is Saudi Arabia, which is also the top importer of weapons. The direct consequences of the rise of military expenditures are imposed on ordinary people everywhere, depriving them of a better standard of living, welfare and a better education for upcoming generations.

In our view, General Assembly resolution 46/36, adopted in December 1991 as the basis of the whole initiative and the main frame of reference for transparency in armaments, has not been fully and faithfully implemented. We strongly believe that transparency in conventional arms without transparency in weapons of mass destruction is unbalanced, inadequate and lacks comprehensiveness, particularly in the sensitive region of West Asia. We are extremely concerned about the danger of nuclear weapons in this region.

While the Zionist regime, a non-party to the Nuclear Non-Proliferation Treaty and the only possessor of nuclear weapons in the region, persists with its blatant defiance of international law by refusing to commit to relevant international legal regimes and by further developing its nuclear arsenal, Saudi Arabia's nuclear programme is adding another level of complexity to the already volatile region. Saudi Arabia's absence of transparency and cooperation with inspectors from the International Atomic Energy Agency has generated real concern about the objective and dimension of the Saudi nuclear programme. We call upon the Saudi authorities to honour their obligations under the Treaty and the safeguards agreement and cooperate with the Agency's inspection regime.

We recently observed the International Day against Nuclear Tests, which is another pertinent occasion to realize the horror of nuclear weapons and the need for their total elimination. The General Assembly, which unanimously adopted a resolution establishing this day, calls in particular for increasing awareness of the effects of nuclear weapon test explosions or any other nuclear explosions and the need for their cessation as one of the means of achieving the goal of a nuclear-weapon-free world.

The catastrophic humanitarian environmental consequences of nuclear tests continue to tarnish the image of humanity and human civilizations. The agony and suffering of the innocent people who happen to be residing in the vicinity of nuclear tests, as well as those of their offspring, should never be discounted. The States that have conducted nuclear tests should be held accountable for the pain and the plight of these people and the generations to come.

It is regrettable, Mr. President, that the United States intends to resume nuclear explosive weapons tests, as stated in its 2018 Nuclear Posture Review, which asserted that the United States will not seek ratification of the Comprehensive Nuclear-Test-Ban Treaty and that it will resume nuclear explosive testing when necessary. The Nuclear Posture Review also stressed that, along with its nuclear weapon development and production and infrastructure, the United States will maintain the capability to resume underground nuclear explosive testing if it is called upon to do so. This is in clear defiance of the objective and principles of the Comprehensive Nuclear-Test-Ban Treaty and a violation of the country's obligation under article VI of the Nuclear Non-Proliferation Treaty.

Mr. President, the voluntary moratorium on nuclear testing cannot replace an international legally binding instrument that will ban nuclear testing in all its aspects and ensure disarmament as well as the total, irreversible and verifiable elimination of these weapons. Under article VI of the Nuclear Non-Proliferation Treaty, as unanimously confirmed by the International Court of Justice, there exists an obligation to pursue in good faith and bring to a conclusion negotiations leading to nuclear disarmament in all its aspects under strict and effective international control. This is an explicit legal obligation with no ambiguity and conditionality.

I thank you, Mr. President.

The President (*spoke in Russian*): Thank you, delegation of the Islamic Republic of Iran. I give the floor to the delegation of Pakistan.

Mr. Hashmi (Pakistan): Thank you, Mr. President, for convening this plenary meeting. I congratulate you on assuming the presidency and extend a warm welcome to the new Ambassador of Belgium. I wish also to thank the panellists for their excellent presentations and valuable contributions.

Mr. President, technology has always been a function of innovation – together, the two have driven and propelled humanity forward in all spheres, including armaments. Yet what distinguishes the twenty-first century from perhaps all previous eras, as was noted by the panel, is the pace of the development and emergence of new technologies, including from an arms control perspective. This heightened pace of technological innovation has changed and continues to change the way international law can and should govern the development, deployment and use of these weapons.

Even as the development and use of new weapons technologies remains inevitable, it is essential to develop commensurate norms, laws and rules to regulate them in all their dimensions. The way some of these new and emerging technologies are being used has a direct bearing on and implications for international peace and security at all levels. It is not surprising, therefore, that this cluster of issues under items 5, 6 and 7 of the agenda of the Conference on Disarmament has assumed high significance in recent years and indeed is emerging as the Conference's fifth core issue.

We continue to witness an innovation overflow for various categories of new technologies, outpacing the requisite regulation and controls. Even as we grapple with questions surrounding new domains of warfare such as cyberspace and the electromagnetic spectrum, added layers of complexity arise due to the integration of technology to traditional domains, whether on land, in the air, at sea or in space.

As a further enabler, technology has integrated all domains to one degree or another, making war fighting a cross-domain construct. Our arms control and disarmament solutions can no longer remain oblivious to such developments or remain stuck in old binaries. They no longer provide all the answers. Such threats are even more urgent and real because these new weapons reduce or eliminate the danger of human casualties for user States and therefore increase the propensity for their use and enhance the prospects of symmetric and asymmetric responses. The net result is a lowering of the threshold for resort to armed conflict.

Within this larger edifice of new and emerging technologies, I would like to draw attention briefly to three particular issues that merit discussion by the Conference: cyberweapons, lethal autonomous weapons systems and the issue of chemical and biological terrorism. Cyberspace, as we all know, has emerged as one of the key new domains of warfare. The ability to act anonymously without traditional geographic limitations, at very low cost

and at a very low risk to human life, coupled with the ability to mass produce cyberweapons cheaply, makes them extremely attractive and yet dangerous.

The spread of sophisticated and malicious tools and techniques by States or non-State actors further increases the risk of mistaken attribution and unintended escalation. As States have varying degrees of cybercapacity, and as disruptive activities using cyberweapons grow riskier more complex, increasing the vulnerability of the global network, it is obvious that no State is able to address these threats alone. A multilateral response, including international cooperation assistance, is therefore essential to reduce risk and secure cyberspace. Given the unique attributes of information and communication technologies, additional norms should be developed over time.

A significant number of States have rightly described lethal autonomous weapons systems as the next revolution in military affairs, fundamentally changing the nature of war. The absence of human intervention will make wars more inhumane. Regardless of the level of sophistication and programming, machines cannot and will not replace humans in making the vital decisions about the means and methods of inflicting injuries or causing death. There is universal agreement that such weapons must comply with international law, but we have yet to determine whether autonomous machines are capable of being programmed to ensure such compliance and, if so, what the means and measures necessary for such programming are.

Similarly, human control and responsibility in the use of weapons with autonomous functions have been deemed essential, yet the scope of such control and responsibility that would satisfy all concerns related to the humanitarian, security and ethical dimensions of lethal autonomous weapons systems is still to be ascertained. Such weapons systems do not have legal, ethical and humanitarian dimensions alone but also carry serious implications for regional and global peace and security. Their introduction will significantly lower the threshold of going to war; consequently, resorting to force will become a more frequent phenomenon. As a unique and novel class of weapons that has given rise to multifaceted concerns, this category of weapons needs to be addressed multilaterally. National regulatory responses are useful but not sufficient. International regulations are needed, including to adequately address the serious security dimensions. In addition to being considered within the framework of the Convention on Certain Conventional Weapons, the international security-related dimensions of lethal autonomous weapons systems should be comprehensively addressed by the Conference on Disarmament.

Finally, we value the contributions made by both the Biological and Toxin Weapons Convention and the Chemical Weapons Convention to global security and their potential for promoting international cooperation and peaceful uses within their respective areas. However, significant gaps exist that are being further accentuated with the emergence of new technologies. For the Biological and Toxin Weapons Convention, the questions generated by the lack of a dedicated verification mechanism are only going to be compounded with continued advances in technology, including those related to synthetic biology and nano-biomaterials and interactions.

It is well known that chemical and biological materials are more readily available and therefore that there are great risks of their being acquired, developed and used by non-State actors. While nuclear terrorism is already covered under existing international instruments, a convention dealing with terrorist acts involving chemical and biological materials will be a positive development in the international security and counterterrorism landscape.

We support the commencement of substantive work in the Conference on Disarmament on elaborating an international convention on the suppression of acts of chemical and biological terrorism, whether in the form of discussions or negotiations. As a proposal that does not negatively affect the vital security interest of any member State, it would avoid the issues arising from the competing priorities among the Conference's so-called four core issues.

Mr. President, the Conference has all the requisite tools under these agenda items to address a number of these urgent contemporary international security issues. It cannot remain oblivious to these developments and must deliberate and prepare the ground to tackle them in such a manner as to provide enhanced security for all States. I thank you.

The President (*spoke in Russian*): Thank you, Ambassador. The delegation of Israel has the floor on a point of order.

Ms. Maayan (Israel): Thank you, Mr. President. As I wished to express in my point of order, we demand that the Islamic Republic of Iran, a country that violates international agreements and undermines the stability of the Middle East, refer to us by our official name: once again, the State of Israel. Thank you very much, Mr. President.

The President (*spoke in Russian*): Thank you, Israel. I now give the floor to the Iranian delegation.

Mr. Azadi (Islamic Republic of Iran): Thank you very much, Mr. President. Iran has proposed and registered its plans regarding this volatile issue in the Middle East. Let me just recall that initiative and that planned road map. It calls for a plebiscite – a complete referendum with the participation of the people who have been displaced and gone abroad as a result of the occupations and the Zionist regime’s policy of mass killing – after the people of Palestine return to the State, to the territory of Palestine. That plebiscite should be held to decide on the future and the kind of government and the State they want for their future. If they decide on their futures, then we will definitely recognize their choice. I thank you, Mr. President.

The President (*spoke in Russian*): Thank you, Sir. Israel has again requested the floor. Distinguished colleagues, I plan on limiting the opportunity for speakers to respond to no more than one reply so that we may conclude today’s thematic meeting, which is devoted to specific agenda items.

Ms. Maayan (Israel): Thank you, Mr. President, and I apologize for taking the floor again. I will request the representative of the Republic of Iran to call us by our official name, the State of Israel, and I regret any attempt to politicize the very important and interesting debates that we are having here today. Thank you, Mr. President.

The President (*spoke in Russian*): I thank the delegation of Israel. Distinguished colleagues, thank you for your interesting statements and for the interesting discussion. I hope that our esteemed panellists will be able to conclude today’s plenary meeting with summaries. We have approximately 12 minutes if any among them wishes to take the floor. I see Ms. Dwan is ready to begin. Please, three or four minutes for each expert. I hope it will be enough to try to answer at least briefly the questions that were raised. You have the floor.

Ms. Dwan (United Nations Institute for Disarmament Research): Thank you very much, Mr. President. And I wanted to thank all the delegates for the interesting points and to note the convergence of views and impressions.

First, I think, the importance of avoiding hype. The French delegate referred to Camus, but perhaps I turn to Chekhov at a time like this, who said in a famous statement, “Don’t tell me the moon is shining; show me the glint of light on the broken glass.” I think, then, that we need to avoid hype about technology and focus more on the implications and the applications.

A second point that emerged: we are talking at the moment about preventive potential technology, so there is an important opportunity to prevent technologies, but, historically, technologies have usually been regulated once they are established and in place. We are trying to buck the historical trend.

Third, because of the characteristics that were mentioned and that many of you described, definitions may prove more challenging. And limitations around definitions may prove more challenging. An interesting path forward, as some of you suggested, might be a sum of characteristics and use scenarios – in other words, where, when and how technologies are applied.

Fourth, on the structural challenges that many of you pointed to regarding modern diplomacy, multilateral diplomacy and arms control, non-proliferation, disarmament in specific, one point I would note is the importance of flexibility of standing agendas to be able to review technologies on a fairly ongoing and sustained basis. My colleague Mr. Batsanov, whose comments I enjoyed, noted the example of immunology and the related threats. I would argue that the Biological and Toxin Weapons Convention is comprehensive in scope

and could cover the hostile use of immunology. But what it does is highlight the need for a systematic discussion of security and technology developments on an ongoing basis. And that is a challenge for many of our structures.

Russia made a point about avoiding duplication of debates and discussions with which I very much agree. But perhaps an interesting point is also the need to avoid reinforcing silos, as I mentioned in my remarks, between conventional and nuclear technologies and weapons. One area for the Conference on Disarmament to consider is perhaps therefore a focus on converging technologies and technologies that apply across a range of issues and areas.

Cuba asked whether we should look at particular technologies, and my response would be that perhaps it might be better to look at the application of a series of technologies, including how they pertain to issues already on the agenda of the Conference on Disarmament. And then the question about international humanitarian law, I would only note that the Conference on Disarmament is not a universal body and that can present challenges for the definition and the development of international law.

Austria, finally, noted the challenges of discussions in multilateral and bilateral forums and referred to strategic interests, but I think it is interesting that new technologies require us to bring national discussions much closer to multinational discussions, so discussions about technology, about ethics, about export controls nationally need to be much more closely aligned to regional or international discussions. And that can provide opportunities for industry, research and civil society actors. I would also look at ethical actors, philosophers and actors who help us think through the ethics of issues to be part of those rooms and discussion groups, task forces and working groups – these are all opportunities to facilitate the inclusion of those actors. I thank you very much, Mr. President.

The President (*spoke in Russian*): Thank you very much, Ms. Dwan, for your presentation, for your contribution to today's discussion and for the summing up. We look forward to working with you in the future. On behalf of the Belarusian delegation and the entire Conference on Disarmament, I thank you for your contribution. Mr. Batsanov, do you wish to provide any feedback? You have the floor, Sir.

Mr. Batsanov (Pugwash Conferences on Science and World Affairs) (*spoke in Russian*): Thank you. I have just a few things to add and will try not to repeat what has already been said.

(*spoke in English*)

Very briefly, the difficulties with the current situation and our inability to move ahead on new weapons, new systems and other such things. There are many reasons. The world has changed since the previous era of arms control, which started in the 1960s. Technologies change and, unfortunately, new technologies may, at some point, create certain illusions. That is why it is important for everyone to understand that if a country or group of countries has an advantage, including in some very modern and important technologies, it cannot last forever, and it is better to jointly discuss and negotiate how you handle those technologies. Now, closing the door to that is going to be dangerous. It is not going to be beneficial. That is one thing.

Another thing about the involvement of other players and stakeholders, the issue mentioned by Austria in particular. Now, among players and stakeholders I would also like to mention the military, because, very often, the military departments order the development of new technology – and what I am talking about is not COVID-19, as the problem started much earlier. We are observing a very serious disconnect in military-to-military discussion, with the exception of discussion between perfectly like-minded military forces. I think military forces should talk to each other even when they are not perfectly like-minded.

Finally, about what to do. I think we should avoid revolutions in how we address the subject. We should not make ourselves prisoners of various clichés. Yes, we should try to avoid duplication, but sometimes duplication is inevitable. As I said, if a given subject falls within the remit of the Organisation for the Prohibition of Chemical Weapons (OPCW), let it go to OPCW; if it falls under the Biological and Toxin Weapons Convention, let it go there. The advantage of the Conference on Disarmament is that, without trying to duplicate the

work of other agencies and bodies, it can produce a general assessment of the situation and establish various links. Thank you.

The President (*spoke in Russian*): Thank you very much, Mr. Batsanov, for your contribution and for summing up today's thematic debate. Last but not least, Mr. Rickli, you have the floor. You have three minutes at your disposal before we close our meeting today.

Mr. Rickli (Geneva Centre for Security Policy) (*spoke in French*): To respond to France, my point was not that these technologies are bad. It is clear that they already have beneficial applications. What sets them apart from the technologies of the past, however, is that they can very easily be used, including by ill-intentioned users, for purposes other than those for which they were intended. I will come back to this aspect when I make my last point.

(*spoke in English*)

To Cuba and Austria, I think there should be room for a process of looking at applications and not defining specific technologies, but technology that could have a specific application. Obviously, the criteria for assessing this will be how you define weapons of mass destruction. If you stick to the concept of destruction, you might miss applications that are highly disruptive.

The issue of strategic interests and reluctance of States to engage, I think, is correct. We are close to the situation that we were in in the 1950s and 1960s, in the sense that States realize that some of these technologies are silver bullets for the future of warfare. There is thus a tendency to engage in research, to innovate in this field in order to secure a strategic advantage. The problem is that we do not yet fully understand the impact that will have on the traditional escalation ladder – and misperception. For instance, unlike nuclear deterrence, deterrence in the cybersphere is very difficult, because you have an incentive not to communicate about your capabilities and this non-communication can create a misperception, overstating the position of your adversary and therefore leading to reckless behaviour.

On the second issue, on which actors should be included, yes, the United Nations is an inter-State organization, but if you look at research in this field, you will see that those investing the most are private companies. Since 2009, Amazon, for instance, has increased its investment in research and development by an average of 44 per cent a year. Research and development at Amazon is about 13 per cent of its revenue, which is the highest research and development budget of any company. Ten per cent of the \$2 trillion market valuation of a company like Apple is \$200 billion. When Apple crossed the \$1 trillion valuation threshold two years ago, I looked at the World Bank list and saw that \$1 trillion is more than the combined budgets of the first 186 of 200 States on the list. Now, the valuation has doubled. This company, then, has powers that no State has, not only financial power but also the power to attract brains and to generate data that States do not have. Therefore, if you do not include these actors in any governance system that deals with this issue, your system is bound to fail.

The second issue with non-State actors concerns malicious actors. If you look at what we have seen for the last five years, non-State actors are much better at innovating with technology than traditional militaries, because militaries know that they will be accountable for their actions and they therefore want highly accurate weapons. That is not the case with non-State actors. Islamic State in Iraq and the Levant, for example, was the first organization that understood how to weaponize social media and one of the first to weaponize drones and use them in swarms.

As the prices of these technologies fall, diffusion will be more rapid, but with that kind of technology what we are missing is the role of single individuals or organizations and the impact on strategic stability. This is something that we have not talked much about yet, because the technology was not there. But with what we see on the horizon, we should think carefully about that.

And so, to wrap up, what I think is very important is also to invest in prospective studies. As I showed you on the graph of exponential development, you need to think far ahead of what you currently see on the horizon and you have to think in very innovative ways.

The President (*spoke in Russian*): Thank you, Mr. Rickli, for your contribution to today's discussion. On behalf of all participants in today's meeting, I would like to thank the panellists for their contributions.

Distinguished colleagues, it was gratifying to see the interest you showed. I hope it was generated not only by the lack of other substantive discussions in the margins of the Conference on Disarmament but also by the actual state of affairs with respect to the issues covered under items 5, 6 and 7 of the Conference agenda. I thank all of you for your attention and will continue to work with you within the framework of consultations on the report of the Conference on Disarmament at a later stage in the appropriate settings. Thank you very much. Goodbye.

(*spoke in English*)

Just to thank our interpreters for their extra time. I would also like to thank the Division of Conference Management and the substantive secretariat for providing us with this wonderful opportunity to meet in person and in hybrid format today. Thank you very much once again. The meeting is adjourned.

The meeting rose at 1.10 p.m.