NATO Parliamentary Assembly

SUMMARY

of the meeting of the Science and Technology Committee

Senate Plenary Hall
Sejm & Senate of the Republic of Poland
Warsaw, Poland

Sunday 27 May 2018

ATTENDANCE LIST

Chairperson	Maria MARTENS (Netherlands)
Vice-Chairpersons	Domenico SCILIPOTI ISGRO (Italy)
	Ziya PIR (Turkey)
	Bruno VITORINO (Portugal)
General Rapporteur	Susan DAVIS (United States)
Special Rapporteur	Leona ALLESLEV (Canada)
President of the NATO PA	Paolo ALLI (Italy)
Secretary General of the NATO PA	David HOBBS

Member delegations

Albania	Perperarim SPAHIU
Belgium	Alain DESTEXHE
	Luk VAN BIESEN
	Veli YÜKSEL
Bulgaria	Nikolay TSONKOV
Canada	Leona ALLESLEV
	Rachel BLANEY
	Gwen BONIFACE
	Cheryl GALLANT
	Vernon WHITE
Croatia	Furio RADIN
Czech Republic	Josef BELICA
Denmark	Jeppe JAKOBSEN
	Marie KRARUP
Estonia	Hannes HANSO
France	Christian CAMBON
	Philippe MICHEL-KLEISBAUER
Germany	Karl-Heinz BRUNNER
	Ulrik MAURER
Hungary	Sandor FONT
Iceland	Njall Trausti FRIDBERTSSON
Italy	Roberto MORASSUT
	Luciano URAS
Latvia	Ivans KLEMENTJEVS
Lithuania	Rasa JUKNEVICIENE
	Ausrine ARMONAITE
	Mindaugas PUIDOKAS
Slovakia	Karol FARKASOVSKY
	Eduard HEGER
Spain	Ramon MORENO
	Begona NASARRE
Netherlands	Han ten BROEKE
	Herman SCHAPER
	Janny VLIETSTRA
Turkey	Kamil Okyay SINDIR
United Kingdom	Baroness ADAMS of CRAIGIELEA
	Kevan JONES

	Baroness RAMSAY OF CARTVALE
	Lord JOPLING
	Bob STEWART
United States	Gerald CONNOLLY
	Jennifer GONZALES-COLON
	James SENSENBRENNER

Associate Delegations

Armenia	Suren MANUKYAN
Azerbaijan	Kamran BAYRAMOV
Finland	Eero HEINALUOMA
Sweden	Björn von SYDOW
	Göran PETTERSSON
Switzerland	Chantal GALLADÉ
Ukraine	Iryna FRIZ
	Andrii LEVUS
	Oksana YURYNETS

European Parliament	Anna Elzbieta FOTYGA
	Eva KAILI
	Georgios KYRTSOS

Regional Partner and Mediterranean Associate Member Delegation

Algeria	Abderrahmen DRISS

Parliamentary Observers

Japan	Hiroshi IWASHITA
Palestinian National Council	Abdelrahim BARHAM
Republic of Korea	Soo Hyuck LEE
	Jongdae KIM

Speakers

Andrzej WILK
Senior Fellow, Centre for Eastern Studies (OSW)
Robert MURRAY
Head, Intelligence, Surveillance and Reconnaissance, Defence Investment Division, NATO
Jennifer HENDERSON
Keeper of the Registers of Scotland
Sean KANUCK
Director for Cyber, Space & Future Conflict, The International Institute for Strategic Studies (IISS)
Dr Marco OVERHAUS
Associate, Research Division: The Americas, German Institute for International and Security Affairs (SWP)

Dr Antoine BONDAZ
  Research fellow, *Fondation pour la recherche stratégique Paris*, and
  Senior lecturer, Institute of Political Studies

International Secretariat

Henrik BLIDDAL, Director
Ginevra SPONZILLI, Coordinator
Olivia BANETH, Research Assistant
Sante FIORELLINI, Research Assistant

I. Opening remarks by Maria MARTENS (Netherlands), Chairperson

1. **Maria Martens** (NL) thanked her colleagues and told them that the agenda was the most timely she had seen in her time in the STC. She expressed her deep gratitude towards the Polish delegation for all their efforts in preparing the 2018 Spring Session. She also recognised that 2018 marks the 100th anniversary of the state of Poland regaining its independence. She reminded parliamentarians of the rules of procedure for the Committee meeting and encouraged members to post about the Spring Session on social media.

II. Adoption of the draft Agenda [075 STC 18 E]

2. **The draft Agenda [075 STC 18 E] was adopted.**

III. Adoption of the Summary of the Meeting of the Science and Technology Committee held in Bucharest, Romania on Sunday 8 October 2017 [237 STC 17 E]

3. **The Summary [237 STC 17 E] was adopted.**

IV. Consideration of the *Comments of the Secretary General of NATO, Chairman of the North Atlantic Council on the Policy Recommendations adopted in 2017 by the NATO Parliamentary Assembly* [037 SESP 18 E]

4. The Chairperson recognised the Comments of the Secretary General of NATO, Chairman of the North Atlantic Council on the Policy Recommendations adopted in 2017 by the NATO Parliamentary Assembly [037 SESP 18 E].

5. There were no comments from the Committee members.

V. Presentation by Andrzej Wilk, Senior Fellow, Centre for Eastern Studies (OSW), Poland, on *Russian Military Developments and Challenges for the Eastern Flank*, followed by a discussion

6. **Andrzej Wilk** focused his presentation on the technology aspects of Russia's military modernisation. However, he also touched upon some other fundamental non-technology transformations of the country's armed forces.

7. The speaker told members that a significant change had been the establishment of a command structure that oversaw overall military strategy. Indeed, after Mr Putin had come to power, the armed forces had begun to move away from their Soviet-era army structure which focused on territorially-based military districts. Each such district used to have its own administrative unit and had therefore benefitted from a certain degree of independence. Reforms under Mr Putin had seen a re-structuring of these districts, a downsizing of the military and a centralisation of command, thus making it easier to establish standardised training regimes and an overall military strategy.

8. The speaker explained that central control of military training was important to the regime, as it used frequent military exercises and training to project the image of readiness. The speaker said that regular training also meant Russia could deploy quickly to a variety of environments. In addition to quick deployment, it also ensured that the army was ready should they need to carry out complex operations.

9.   Mr Wilk said that investment into modernising the armed forces had been made possible by high oil prices in the first years of President Putin's reign. However, oil prices had dropped in recent years, and Russia's rhetoric indicated that their finances were worsening. Russian authorities said that their defence budget for 2018 was USD 46 billion, compared to USD 65 billion in 2016. According to Mr Wilk such a reduction in military expenditures was unrealistic, as an army would not be able to function under such cuts and because other military developments seemed to contradict this. As Russia's military budget was opaque, the speaker concluded it was impossible to properly assess its real expenditures.

10.   Mr Wilk then focused on the offensive potential of the Russian armed forces. He said that Russia had enhanced its offensive capabilities through the installation of support infrastructure. The government had also increased the number of regiments, Russia's basic military unit, on Russia's Western front. The speaker highlighted the modernisation and upgrading of equipment, such as recent upgrades to the Soviet-era T-72 tank. The speaker also said that airborne forces and the naval infantry had also received tanks, transforming them into heavier formations, in part imitating NATO formations. The navy, however, had remained light. The speaker said it was important to note that Russia has also developed new Electronic Warfare Systems (EWS) with the capability to jam NATO command systems.

11.   Mr Wilk insisted that in the future, NATO needed to properly take into account developments in Russia's armed forces to be able to develop the appropriate defences. Mr Wilk highlighted NATO's air defence and naval capacities as two areas that had to be examined. He said that Russia's attempt to restrict free maritime movement in the Black Sea and the Baltic Sea would be especially problematic in times of crisis.

12.   The speaker pointed out that Russia's new missiles needed to be considered in depth. He said that the deployment of Iskander missiles in Kaliningrad was especially concerning. These missiles could be moved anywhere and have a large range, making a launch almost impossible to predict or prevent. The speaker concluded that the Russian armed forces had achieved parity with NATO forces in certain areas and might even have military advantages in some fields.

13.   Following the presentation, Committee members asked a number of questions, including:

- how Russia's military activities in Eastern Ukraine and Syria reflected the modernisation of its armed forces;
- the status of personnel training;
- how NATO could properly interpret Russia's intentions, in particular in light of ongoing military modernisation in NATO countries;
- whether Russia's defence industrial base was technologically autonomous in modernising its armed forces;
- whether China supported Russia's foreign policy through extensive trade with Moscow;
- the effectiveness of Russian EWS capabilities jamming NATO systems;
- Russia's military build-up in the Arctic region; and
- the accuracy of independent estimates of Russia's defence expenditures.

14.   Mr Wilk discussed these questions in depth. He argued that Russia's involvement in Eastern Ukraine and Syria had to be examined separately because these were two different types of conflicts. Specifically, in Ukraine, Russia used old equipment, while in Syria it was testing new technology. Mr Wilk argued that NATO member states modernised and maintained their military capabilities as part of the defensive Alliance. In contrast, Russia was engaging in extensive modernisation would not be necessary if its aims were simply to maintain its military capabilities. The speaker further argued that the fact that Ukraine had broken ties with Russia had temporarily complicated its acquisition of technology but that it had recuperated quickly and could now produce the necessary technology domestically. As to trade with China, the speaker posited that the two countries had common economic interests and that strong military cooperation existed between them. However, China's

military modernisation was much behind Russia's. Answering the question related to Russia's capacities to jam systems on a large scale, the speaker said that Russia could probably take out NATO's EWS if there were no anti-jamming measures in place. Stepping up NATO's anti-jamming should thus be an important consideration. With regards to the Arctic, the speaker argued that Canada was the only NATO member with serious capacities in the region, while the Russians had been operating there for much longer, for example with their standard military exercises in Arctic conditions. Finally, the speaker reiterated that any analysis was complicated by the general lack of transparency in Russia's defence expenditures.

VI. **Consideration of the draft General Report** *Russian Cyber Meddling in Elections and Referenda in the Alliance* **[076 STC 18 E] by Susan DAVIS (United States), General Rapporteur, followed by discussion**

15. **Susan Davis** (US) thanked the Polish government for its generosity and the participants for their attention. She opened the presentation of her draft general report by saying that there had always been a drive from opponents to misrepresent the other, but that disinformation today was different and more problematic.

16. The Rapporteur stated that conflict today went beyond the kinetic, with malicious actors conducting attacks through computer networks or broadcasting biased or false information to influence or manipulate voters. Ms Davis' report focused on one actor in particular: Russia.

17. Ms Davis reminded delegates of Russia's actions in the US and French elections as well as in German and Spanish politics. She highlighted that the messages the Kremlin's agents propagated were not always pro-Russian but sought to exploit existing divisions in society and that such messages were amplified by how rapidly content spreads on the internet.

18. The Rapporteur then presented her recommendations to combat such cyber and information warfare. The first was to give election officials the resources they needed to spot and fight attacks by malicious actors. The second was to understand that Russia's cyberwarfare targeted private and public sectors indiscriminately. NATO needed to prepare against future attacks by promoting a multidisciplinary approach involving industry and civil society. The third recommendation was to reevaluate social media's role in limiting the spread of false information and explore efforts to keep companies liable if their platforms were misused. Finally, the Rapporteur pondered imposing steep costs on Russia for its actions.

19. Following the presentation, Committee members asked the Rapporteur whether it would not be wiser to focus first on NATO members themselves and examine whether all of them lived up to the principles of democratic standards and the rule of law. Others wanted to know what NATO, in practical terms, could do to counteract Russian propaganda which delegitimised democratic governments. One member recounted the case of the French elections; others suggested closely examining recent elections in Georgia and Italy. While France took a strong position with President Putin in this regard, it was complicated because it was hard to prove beyond doubt that Russia was behind such attacks. This made it more difficult to bring up such matters with Russia. Some Committee members asked how it was to be decided that some news was disinformation. Others asked how it could be ascertained that Russian meddling impacted elections since a multitude of other factors had to be considered.

20. Ms Davis argued that there had been erosion in civic education in many countries. She said there needed to be a reflection on how to balance free speech and the ability to analyse and criticise what free speech may contain. As to what NATO could do to counteract Russian propaganda, she told members that this came down to how information was shared: ideally both failures and successes would be shared between Allies. She said Facebook's testimony in the United States was one way of learning from failure. Ms Davis said that identifying disinformation was a process that had to be done

on a country per country basis. She said that fact-checking was of course made difficult by the fact that everything could be subjective. However, it was necessary to at least have analysis services available to people to help them decide whether information was trustworthy or not. Finally, the Rapporteur said that while she acknowledged that people vote a certain way for many reasons, there were clear attempts from Russia to reinforce and exploit divisions in society.

VII.   Consideration of the Draft Special Report *Defence Innovation: Capitalising on NATO's Science and Technology Base* **[078 STC 18 E] by Leona ALLESLEV (Canada), special Rapporteur**

21.   **Leona Alleslev** (CA) presented an overview of her draft special report. She insisted that while NATO had started investing more in defence science and technology, it was not yet enough. A much greater sense of urgency had to prevail. Countries such as China and Russia had invested substantially in defence science and technology and NATO had to do the same to maintain its edge and match these capabilities.

22.   To maintain technological relevance, Ms Alleslev insisted that defence innovators in the Alliance had to invest to maintain their leadership. At the same time, the gap between Allies had to remain small enough to be bridged by interoperability.

23.   The Rapporteur said that the Wales Defence Investment Pledge for NATO countries to spend at least 2% of GDP on defence expenditures and 20% of these on major equipment, including defence research and development, was of the utmost importance.

24.   She then explained the added value that NATO, as an organisation, offered to Allies: among other things, NATO could help the diffusion of technological innovations among member states; allow for burden sharing so that no one country is responsible for the cost of innovation alone; ensure interoperability; and allow for capacity building and quality assurance.

25.   Ms Alleslev took a moment to highlight the NATO Industrial Advisory Group as especially important. She said that member states' industrial base was underutilised, especially given that many members did not have the research and development capabilities in their military but rather embedded in their industrial base. As such, successful technological development in the military was inextricably linked to the industrial base.

26.   Ms Alleslev then highlighted other areas for improvement. She said that there was a need for faster prototyping; ensuring that science and technology was part of long-term strategic thinking; establishing an enhanced national network of experts. She also said it was essential to have a more concrete definition of programmes of work, so that each member could work on a targeted goal which participated towards NATO's technological edge, and that national and NATO Science and Technology capacities should be connected to ensure no duplication takes place.

27.   The Rapporteur concluded by highlighting further topics to explore: how to quantify and measure whether NATO is keeping its technological edge; ways in which NATO could keep up with technological advances as an Alliance; how to make it easier for members of the Science and Technology community to connect; how to make the Science and Technology community more diverse; whether investment in defence science and technology should be measured; and whether NATO as a whole is effectively funded and organised.

28.   Following Leona Alleslev's presentation, Committee members asked her if benchmarking on the output was something to consider. Other members wished to comment that clearly defining objectives and setting goals was as important as the 2% commitment. Some members insisted on the importance for Allies to spend at least 20% of their defence budget on major equipment and proposed to ask Allies to commit 5% of these 20% specifically for research and development. Other

members asked if it would be possible to transfer technological advances from the civilian sector to the military sector.

29.   Leona Alleslev said that in her view benchmarking was indeed a necessity, as the only way to lead in technology was first and foremost to see how NATO compared to others. She also agreed that it was necessary to look at how science and technology supported security objectives for the Alliance and said that she would be happy to clarify in the report that the science and technology edge was meant to sit within the broader objectives of NATO. The Rapporteur said that she liked the idea of the 5% and would see if it was possible to integrate this idea in the report. Finally, Ms Alleslev agreed that today, when most technological innovations come from the private sector instead of the military, it is indeed necessary to figure out how to use advances coming from the civilian sector.

VIII.   Presentation by Robert MURRAY, Head, Intelligence, Surveillance and Reconnaissance, Defence Investment Division, NATO, on *Following on from AWACS: How to Make Allied Future Surveillance and Control a Reality*, followed by a discussion

30.   **Robert Murray** expressed his agreement with Ms Alleslev's draft special report. He argued that three elements were necessary to maintain NATO's technological edge: a greater sense of urgency; an understanding of current NATO capabilities; and engagement with the industrial base.

31.   Mr Murray briefly explained that his role was to bridge the gap between policy and technological implementation – in other words, to make sure that the political engagement existed to implement necessary technology upgrades and fund the necessary research.

32.   The speaker first explained that the Alliance Future Surveillance and Control (AFSC) system was meant to replace the Airborne Warning & Control System (AWACS) aircraft when these would reach the end of their service life. This change would not only affect the Alliance, but also individual member countries, such as the United States, the United Kingdom and France since their AWACS would retire at around the same time frame.

33.   Mr Murray first went through the timeline for AFSC system, including the most important elements of each stage. He said that the pre-concept stage had just finished, delivering a broad set of requirements for what the AFSC should be. The next step would be the concept stage. Mr Murray underlined that this stage was critical. He explained that Allies would first need to agree on detailed requirements, after which NATO would commission six high-level concepts. Industry would then be asked to provide perspective on what they believed could be delivered within each concept. Then NATO would commission studies on these concepts in order to analyse each concept's feasibility to deliver an AFSC system by 2035.

34.   The speaker insisted that, before any of this was possible, the scope of the AFSC had to be set. Currently, the speaker believed that the scope remained too broad. He said that, to his mind, the best solution would be to deliver the AFSC in stages. In the first stage, the AFSC would be an air-based system which replaced AWACS. Then, the second stage could include integration with space-based assets, and the third stage would be integrated with ground-based assets. The key would be to build interoperability incrementally at each state to ensure that no capability gaps between Allies would develop.

35.   The speaker then addressed why he thought the AFSC should be an air-based system and not follow a networked and integrated system of systems approach. According to Mr Murray, programmes based on such approaches tended to be delivered late and over budget and consistently underperformed.

36.   Mr Murray concluded his presentation by listing what had already been done in the AFSC project. A permanent governance framework had been drawn up and an initial blueprint created.

NATO was also conducting studies to help inform the broader objectives and establish a dialogue with industry. The AFSC project thus remained on track.

37.   After the presentation, Committee members asked what they could do, as parliamentarians in their individual countries, to help push the project forward and how serious the 2035 timeframe for AWACs obsolescence was. Other members wanted to know if Allies who also used AWACS were at the same stage of programme development as NATO and whether there would be some integration of those countries' programmes with NATO's programme.

38.   Mr Murray answered that parliamentarians could help narrow down the scope of the programme. For example, they could clearly state that the AFSC would be an air system which would allow the project to be more focused. The speaker insisted that, in 2035, AWACS would be 50 years old and that further extending their lifetime would be too dangerous. Mr Murray said that the AFSC project was the only one where NATO was leading the way for the Allies. Therefore, there was a possibility for member countries to integrate their programmes with NATO's if they so desired.

IX.   **Presentation by Jennifer HENDERSON, Keeper of the Registers of Scotland, former Transformation Director at the UK Defence Science and Technology Laboratory, on** *Improving Gender Equality in the UK's Defence Science and Technology Laboratory, followed by a discussion*

39.   **Jennifer Henderson** explained that the Defence Science and Technology Laboratory (DSTL) was part of the British Ministry of Defence and focused on developing science and technology which could support the United Kingdom's welfare. DSTL was also involved in security operations, for example the security of the London Olympics, and worked with the British Health Department during the Ebola outbreak in Sierra Leone.

40.   As Ms Henderson had risen in the ranks of DSTL, she had realised how significant of an issue gender imbalance was, as the number of women in the organisation was very low. Having established that there was a problem, Ms Henderson explained why the gender balance at DSTL was important. For one, the moral argument was that men and women needed to have equal opportunities. However, the speaker also explained that a business performed better with a diverse population and that women serving in the British armed forces would be better served by DSTL if they had female scientists that could think about their needs. Finally, the speaker also underlined that, overall, too few university graduates studied Science, Technology, Engineering or Mathematics (STEM), and therefore DSTL needed to recruit from the broadest population possible to get the most talented individuals.

41.   Next, Ms Henderson addressed how DSTL tackled its gender imbalance. In the long-term, the goal was to have equal opportunities reflected in the employment statistics throughout the company. Based on this, Ms Henderson established that the medium-term goal had to be at least one female role model in each type of senior role. The short-term goal was then to have at a minimum of one woman applying for all advertised positions.

42.   Ms Henderson elaborated on how this short-term goal was achieved. In talking to women at DSTL, she identified three preconditions for women's desire to apply to a position: aspiration or ambition; a belief that they had a chance to get the position; and a climate which encouraged them to apply. DSTL started to run "speaking with confidence" workshops, invited senior females from scientific organisations to discuss about their careers and created mentoring circles.

43.   Three years later, progress was noticeable in almost every part of the organisation. After a long lack of movement, women were increasingly being appointed to senior positions. Ms Henderson also pointed out that when women did apply for a job, they were twice as likely as men to get it.

44.   After the speaker's presentation, members asked a number of questions, including:

- how DSTL attracted and retained women;
- how Ms Henderson convinced top management to support the initiative;
- how the programme was evaluated;
- whether men were being trained in how to address their unconscious bias;
- what could be done to encourage more women to study STEM disciplines; and
- how such a move towards gender equality helped troops on the ground.

45.   The speaker answered that the key to attract and retain women was to give them the opportunity to work flexible hours, as they were more likely to want to balance their home and work life. The speaker added that, as a consequence, other employees also started enjoying a better work-life balance, which created a healthier work environment without harming output. Ms Henderson was lucky that the chief executive was passionate about the issue and provided additional incentives, such as requiring anyone applying for promotion to give an example of what they had done to support diversity in DSTL. Ms Henderson said that evaluation was done within the organisation as well as through an independent accreditation process. DSTL was also training people in unconscious bias, both for men and for women. She reminded members that women too could have biases, for example assumptions that a woman would be ill-equipped for particular jobs. Ms Henderson said that in her experience, by the time girls were eleven, many had made up their mind as to whether or not they were interested in science. Role models for girls aged 5 to 11 were therefore very important as was encouraging non-gender specific activities while these girls were growing up. It was also important to have systems in place which supported women's entry into science. Ms Henderson stated that recent decisions made about military capabilities were headed by female scientists, demonstrating the direct impact of gender diversity on the armed forces. She added that it also helped DSTL teams to think about women on the frontline when designing technology.

X.   Consideration of the draft Report of the Sub-Committee on Technology Trends and Security *Dark Dealings: How Terrorists Use Encrypted Messaging, the Dark Web and Cryptocurrencies* [077 STCTTS 18 E] by Matej TONIN (Slovenia), Rapporteur, presented by Bruno VITORINO (Portugal), Vice-Chairperson of the STC

46.   **Bruno Vitorino** (PT) introduced himself and explained that Matej Tonin had recently become the leader of his political party and was therefore unable to join the Committee due to the upcoming Slovenian parliamentary elections.

47.   In laying out the report, Mr Vitorino first drew the attention of his colleagues to the rise of Daesh and the way they used technology to support their activities. He insisted that in the future NATO needed to be better prepared to face such groups use of technology.

48.   Mr Vitorino then gave an overview of the three technologies studied in the draft report: encrypted communications, the dark web and cryptocurrencies. He explained that terrorist organisations had always used the open internet, but that government pressure had pushed them to use more secure technologies to evade law enforcement and intelligence agencies, such as the encrypted communication platforms WhatsApp or Telegram.

49.   Mr Vitorino went on to list some of the terrorist actions these three technologies facilitated: propaganda, radicalisation, recruitment, internal communications, financing and illicit acquisitions. He then outlined four types of efforts that had been used successfully to disrupt terrorist activity on these platforms: monitoring, reporting and disruption; law enforcement and intelligence operations; new laws and regulations; and weakening or targeting encryptions.

50.   In conclusion, Mr Vitorino stated that any efforts to disrupt terrorist groups' use of technology would have to balance keeping citizens safe with maintaining fundamental rights such as the right to

privacy. He then outlined some of Matej Tonin's recommendations. All recommendations were based on existing efforts, for example recommending further law enforcement cooperation, except one. This recommendation said that governments should not weaken encryption deliberately. While some governments played with this thought or had implemented it in some way, Mr Vitorino explained that the systematic weakening of encryption would undermine the security of everyone and would thus do more harm than good.

51.   The Committee members thanked Mr Vitorino for the briefing. One member asked that the future report include material on blockchain technology, as a proper understanding of this new technology would be essential for governments to enact appropriate legislation. Other members commented that Germany had put in place laws to enforce the removal of hateful and violent content on the web and that the European Commission should think of doing the same. Members also reported on their own experience with terrorism and extremism, including through internet-enabled technologies, pointing out, *inter alia*, that countering financing streams was vital.

52.   Mr Vitorino thanked all members for their contributions and said he would pass all comments on to Matej Tonin. As a comment he insisted on the fact that in the case of technology, nothing was black or white and that it needed to be understood to make effective policy. He also insisted that no country could fight terrorism alone.

XI.   Presentation by Sean KANUCK, Director for Cyber, Space & Future Conflict, The International Institute for Strategic Studies (IISS), on *The Evolving Cyber Threat Landscape,* followed by a discussion

53.   **Sean Kanuck's** presentation focused on the integrity of information – or the value and accuracy of information. He explained he used the term "information" instead of "cyber" because he saw cyber threats as a means to an end, where the end was to extract valuable information.

54.   The speaker then explained a few important trends in cyber threats. First, he said that most cyber-attacks operated below the threshold for use of force, which meant they could not be answered by the use of force. Second, he said a lack of norms concerning cyberspace and cyber-attacks existed, pointing out that, in 2017, the international community could no longer reach a consensus on how international law applied in cyberspace. Third, he said industry rather than the military was increasingly targeted. Fourth, he said that cost-saving measures were making infrastructure less resilient. Finally, the speaker said there was an increasing focus on information manipulation and 'fake news'.

55.   Going forward, the speaker recommended assuming a compromised environment as full security would remain impossible. In fact, a cyber-attack can last for days, months and even years before it is detected. Assuming a compromised environment would allow governments and organisations to avoid single points of failure and have operating procedures ready in case of a hack or attack that causes a systems failure. This was especially important when looking at critical infrastructure.

56.   Committee members asked the speaker how to punish Russia and North Korea for cyber-attacks attributed to them if sanctions were not achieving their aims. Some members wanted to know whether the Stuxnet cyber-attack on Iranian centrifuges had been effective. Other members asked how democracies could legally function in an environment where "offense is the best defence", while some wanted to know how much of a risk there was for cyber-currencies to be used to finance terrorist groups. Finally, some members wanted to know whether having an Allied repository of information about cyber-attacks, breaches of security systems, viruses and cyber fixes would be possible.

57.   The speaker said that sanctions might be the best option to respond to cyber-attacks, as other measures would be costly. NATO could for example release embarrassing information about other regimes, but retaliation would likely be costly and could cause uncontrollable escalation. Mr Kanuck said, as an analyst, he considered Stuxnet a milestone. It did impair Iran's programme, though perhaps not as badly or as long as desired by the designers. He highlighted that this attack had caused very little collateral damage, which for him showed the importance of having norms surrounding cyber-attacks. The speaker stated that, while most countries did not want to be in an all-out cyberwar, some capabilities needed to be in place as deterrence. The speaker proposed the idea of limited "hack backs" by states against specific entities as a way to strengthen deterrence. Commenting on cryptocurrencies the speaker said such technology, as others, had many advantages but came with some risks. He believed law enforcement had the capacity to address such risks, however. Mr Kanuck saw some value in working towards a shared Allied database. He said Computer Service Emergency Teams (CERTs) and companies already engaged in this kind of information exchange very well. However, he warned that attributing an attacker would likely not be made easier by this shared information.

XII.   Presentation by Dr Marco OVERHAUS, Associate in the Research Division: The Americas, German Institute for International and Security Affairs (SWP), Berlin, on *After the US-withdrawal from the JCPOA – What Next for Transatlantic Policy towards Iran?*, followed by a discussion

58.   **Marco Overhaus** started his presentation by saying that the transatlantic differences around the issue of Iran were caused by differing assumptions around Iran's values and goals. Despite these differences, the speaker said that the Germany, France and the United Kingdom had still believed a joint approach with the Trump administration had been feasible. As such, many Europeans were disappointed by the withdrawal of the US government from the Iran deal.

59.   The speaker explained that a key difference within the Alliance was that Europe had always wanted to integrate Iran and change the regime through continuous engagement, while the United States wanted to isolate the regime until it abandoned its current course. As a result of these different goals, each side assessed the Joint Comprehensive Plan of Action (JCPOA) differently.

60.   For Europeans, the JCPOA was successful in moderating Iran's nuclear activities. They saw this agreement as a first step in dealing with larger issues such as Iran's ballistic missiles or its regional influence, from support for Assad's regime to its funding of Hezbollah. The problem with this, the speaker explained, was that the JCPOA was not a panacea and that Europeans neglected non-nuclear issues as a result of their focus on the agreement.

61.   For some in the United States, the JCPOA was a first stepping stone to enable regime change in Iran and was valuable only in its capacity to do so. The problem with this approach was that the US government did not name alternatives when it withdrew from the agreement and, as a result, lost all progress that had been made with the regime.

62.   As a result, both sides had lost leverage over Iran. The speaker said that the United States risked losing everything it fought to achieve, as now there was no deal, and it was unlikely the United States could rebuild the sanctions regime. For the EU, the goal of minimising the nuclear risk and nudging Iran towards more responsible conduct seemed remote.

63.   The speaker said that the French government had argued for a longer-term 'supplemental agreement' as a solution to this dilemma. However, Dr Overhaus believed that with the US withdrawal, adding on to the original agreement had little value. He said that without the support of the United States any supplemental agreement would not be attractive to Iran.

64.   The speaker underlined that as it was in the best interest of Europe to curb Iran's programme. Europe would need to carefully calibrate its steps towards Iran to maintain the necessary transatlantic coherence to make Iran agree to a deal. This meant that responses to US secondary sanctions on Iran had to be carefully weighed. The speaker concluded by saying that the Trump administration had made a bet that Iran could be coerced into adopting a different direction, but it was not clear whether this was the right bet.

65.   During the discussions, members discussed a range of issues and asked follow-up questions to Mr Overhaus, including:

- whether any future Iran deal would need to address Iran's financing of terrorism and human rights record;
- how to preserve transatlantic unity after the US withdrawal from the JCPOA;
- whether it was a mistake to exclude the ballistic missile programme from the JCPOA in the first place;
- what the advantages and disadvantages of the JCPOA were;
- how the JCPOA compared to other disarmament deals;
- how regional security and the nuclear issue were linked;
- how a middle ground between the US and European positions could be found; and
- about the potentially deleterious effects on trust between the United States and the rest of the Alliance.

66.   Dr Overhaus explained to the Committee that Iran's ballistic missiles were included in the UN resolution endorsing the JCPOA and that it was probably wise to exclude the programme from the JCPOA itself. The key problem for the speaker was that all Iran issues had not been linked in a coherent diplomatic framework. The speaker also said that it would be desirable to reengage on a multilateral track, but that trust had been broken for the Europeans and for Iran. He insisted that there were other ways for the United States to leave, including a formal mechanism in the JCPOA, instead of a unilateral breaching of the agreement. Dr Overhaus agreed with Committee members that the Middle East was a region complicated by the number of actors involved in different conflicts. He added that the EU and the United States were neutralising each other's' effects on Iran and that the issue had become a power contest. Dr Overhaus recommended small and pragmatic steps on the Iran issue for both the United States and the EU in the future.

XIII.   Presentation by Dr Antoine BONDAZ, Research fellow, *Fondation pour la recherche stratégique* and senior lecturer, Institute of Political Studies, on *Cautious optimism Should Prevail in the Korean Peninsula*, followed by a discussion

67.   **Antoine Bondaz** thanked the Committee members for the opportunity to speak to them about his recent work on the security situation on the Korean Peninsula. He started by recalling recent events which led US President DonaldTrump to cancel his meeting with North Korea's leader Kim Jong-un. The speaker surmised that there would likely be a rescheduled summit, as the leaders of South Korea and North Korea had met following President Trump's cancellation.

68.   Overall, he felt cautious optimism about upcoming developments: optimistic because he had seen positive changes in recent months after a year marked by more than 20 nuclear missile tests in North Korea; and cautious because even in the best of situations the Democratic People's Republic of Korea (DPRK) had a long path to rejoin the international community and because the DPRK had reneged on nuclear commitments in the past.

69.   Mr Bondaz first reminded the members of some historical precedents. In 2007, an action plan for the DPRK's denuclearisation had been agreed to; the International Atomic Energy Agency (IAEA) had visited nuclear test sites; and progress had been expected to be reported at a summit in South Korea. Yet the DPRK failed to meet its commitments. He pointed out that denuclearising test sites

was easy for the DPRK at this point in time. If the test sites had achieved their goals, they were no longer needed. The reason why the DPRK might want or at least pretend to be cooperative was that it needed to improve relations with South Korea and China to avoid further sanctions. The country's economy could hardly afford more pressure.

70.   The speaker added that nuclear technology had become part of the country's identity and that the regime saw nuclear weapons as necessary for its survival. This made denuclearisation particularly risky. Therefore, any denuclearisation agreement would have to reassure the DPRK about its security – both externally and internally.

71.   The speaker concluded that denuclearisation would not be achieved overnight. A freeze was a small step because it was reversible, so the next step should be for North Korea to sign the international nuclear treaties. In the long-term the DPRK's denuclearisation was essential to regional stability and should therefore be encouraged as much as possible.

72.   **Soo Hyuck Lee** (KR), Head of the Delegation of the Republic of Korea, said that during the last few weeks, both South and North Korea had reaffirmed their commitment towards denuclearisation. Mr Lee said that he thought even a "blissful optimism" could be nurtured, as he did not believe an agreement could be achieved with pessimism. He said that President Trump today believed that what North Korea cared most about was regime survival and that a compromise between regime survival and denuclearisation could be reached.

73.   Mr Bondaz responded to Mr Lee's comment by saying that denuclearisation should be irreversible and giving a regime security guarantees often meant making measures reversible. He commented, however, that the fact that negotiations were still ongoing was very positive.

74.   Other Committee member asked how relevant it was that inspectors were unable to access the recently destroyed test site and if any future agreement should include unfettered access to any ballistic missile site without forewarning. Another member said that, in view of the US withdrawing from the Iran deal because it was not far-reaching enough in the eyes of the US President, any agreement with North Korea would have to involve absolute denuclearisation. Some members also heard from Mr Bondaz how the regime could see nuclear weapons as necessary to its survival, arguing that in a totalitarian regime people were expected to obey with or without nuclear weapons.

75.   Mr Bondaz highlighted that a key issue with the recently destroyed test site was that North Korea said it would welcome inspection and then did not allow it. He said that in the future the Comprehensive Nuclear-Test-Ban Treaty Organization (CTBTO) could play a key role and be involved in an agreement. Commenting on potential US influence, the speaker argued that North Korea was satisfied with the US withdrawal from the Iran deal because Trump now had more incentive to strike a deal with North Korea. The speaker said that US negotiators did say any agreement would include long-range missiles, but that, in the long-term, medium- and short-range missiles would also become an issue. Finally, the speaker recognised that while nuclear weapons were not the only way for Kim Jong-un to maintain his legitimacy, it was one of the ways to do it. Mr Bondaz pointed out that control of nuclear weapons was a way for the party to maintain superiority over the army.

XIV. Summary of the Future Activities of the Science and Technology Committee and the Sub-Committee on Technology Trends and Security

76.   The chair thanked the Norwegian delegation for its organisation of the visit to Oslo and the High North.

77.   She reminded members that the last visit of the year would be in San Diego, California on the 15-19 October and explained the objectives of the visit.

78.   Ms Martens also called upon members to come forward with visit ideas for 2019, as the Committee officers would discuss potential destinations in the September/October time frame.

XV.   Other business

79.   No other business was raised.

XVI.   Date and place of next meeting

80.   The chair stated that the full Committee would reconvene at the Annual Session in Halifax, Canada in November 2018.

XVII. Closing remarks

81.   The chair concluded the meeting by thanking everyone for their participation and thanking the Polish delegation for its hospitality.

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