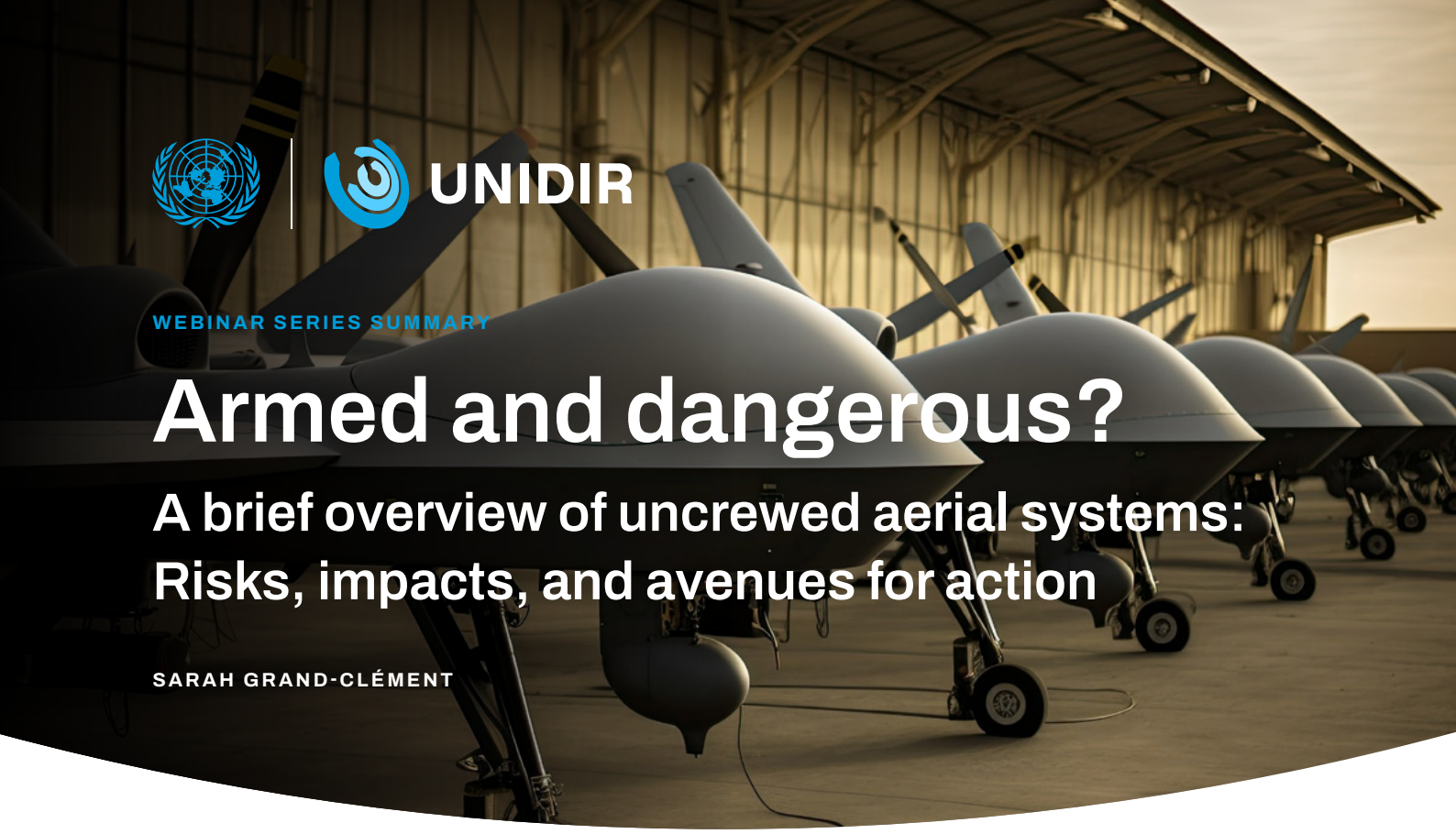

UNIDIR

WEBINAR SERIES SUMMARY

Armed and dangerous?

A brief overview of uncrewed aerial systems: Risks, impacts, and avenues for action

SARAH GRAND-CLÉMENT

Uncrewed systems – which include uncrewed aerial, ground, and maritime systems[1] – are increasingly being developed and used by a range of actors both within and outside situations of armed conflict. Uncrewed aerial systems (UAS) are viewed with particular concern as regards the implications for international peace and security of this proliferation and use.

While these systems are not new – in fact, the first modern type of UAS was developed nearly 100 years ago[2] – in more recent times, UAS have grown in sophistication[3] and are being used by a growing number of actors – individuals, non-State armed groups, and States — for increasingly diverse civilian purposes, from supporting search and rescue efforts to agricultural activities. In recent years, UAS have also become a mainstay of the arsenals of both State and non-State armed actors. But what exactly are we referring to when we talk about UAS? What are the impacts of their use, and what are the benefits and risks that these systems can pose? And why – considering how long they have been around – are we still discussing what should or could be done about the challenges posed by UAS? Such questions were explored in a series of three webinars organized by the United Nations Institute for Disarmament Research (UNIDIR) and the United Nations Office for Disarmament Affairs (UNODA), with key issues distilled from the discussions outlined below.

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[1] Grand-Clément, Sarah. 2023. "Uncrewed Aerial, Ground, and Maritime Systems: A Compendium." *UNIDIR*, 3 April. https://unidir.org/publication/uncrewed-aerial-ground-and-maritime-systems-a-compendium/.

[2] Imperial War Museums. n.d. "A Brief History of Drones." Accessed 9 October 2024. https://www.iwm.org.uk/history/a-brief-history-of-drones.

[3] Grand-Clément, Sarah and Theò Bajon. 2022. "Uncrewed Aerial Systems: A Primer." *UNIDIR*, 19 October. https://unidir.org/publication/uncrewed-aerial-systems-a-primer/.

What's in a name?

Unmanned aircraft. Uncrewed aerial system. Unmanned aerial combat vehicle. Remotely piloted system. Drone. The list of names referring to an uncrewed vehicle or system that operates in the aerial domain is as varied as the types of stakeholders that consider these systems within their areas of work, be it the civilian aviation domain, counter-terrorism, defence, or arms control. As explained during the first webinar on terms and classifications,[4] even within the United Nations system terminology is not homogenous. For example, Security Council resolutions, such as resolution 2370 (2017),[5] refer to 'unmanned aircraft systems', while the UN Register of Conventional Arms[6] (UNROCA) uses the term 'unmanned aerial combat vehicle'. The variation in terminology also indicates different focuses depending on the stakeholder or instrument, which for example may be on UAS as a delivery method versus as a vehicle.

The lack of a common term demonstrates the need to be clear, at the outset, as to what is being referred to. In the context of this piece, the term 'uncrewed aerial system' refers to aerial vehicles that can be piloted remotely, semi-autonomously or autonomously, and which can be armed or unarmed, and includes the command and control elements used for the piloting of the aircraft.

Just as there are many terms, a wide range of types of UAS exist, which can perform different functions and possess different characteristics such as wing type, or can operate at different altitudes, across different distances, or with different payload capacities. Different classification systems exist to categorize UAS, such as within NATO[7] and the United Nations itself[8] (which, as with terminology, can also differ when looking at specific mechanisms – such as the UNROCA[9]). Classifications of systems can be helpful to understand and categorize different capabilities and threats. For instance, within strategic trade controls, classification of systems provides guidance as to what systems are subject to export controls, or which types of systems States should consider in their national reports.

However, classifications of systems, especially those focusing on technical characteristics, come with their own limitations, namely due to evolutions in technology and use which can render classification systems obsolete in the long-term if not updated. While the tendency has been to distinguish between military versus civilian UAS, the lines between these categories are blurring. An alternative option to characteristic-based classification systems is the approach taken by the UN Office of Counter-Terrorism, which focuses on the type of threat and the damage that systems can pose.

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[4] UNIDIR. 2024. "What Are Uncrewed Systems? Unpacking Terms and Classifications." Accessed 9 October 2024. https://unidir.org/event/what-are-uncrewed-systems-unpacking-terms-and-classifications/.

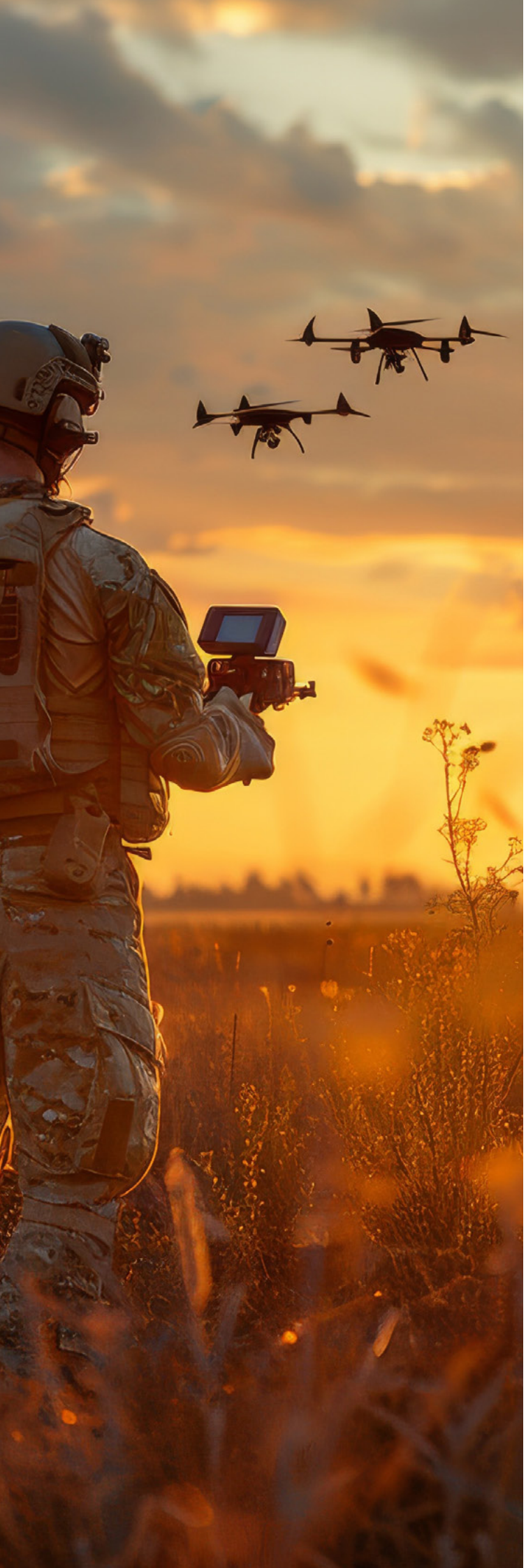
[5] UN Security Council. Resolution 2370 (2017). S/RES/2370 (2017). Accessed 9 October 2024. https://undocs.org/s/res/2370 (2017).

[6] UNROCA. n.d. "UN Register of Conventional Arms." Accessed 9 October 2024. https://www.unroca.org/.

[7] Haider, Andre. 2024. "What Are Uncrewed Systems? Unpacking Terms and Classifications." Moderated by René Holbach. Webinar, July 2. Posted July 3, 2024 by UNIDIR. YouTube. https://youtu.be/nv91JWWHqgo?feature=shared&t=836.

[8] Otmane, Khalil. 2024. "What Are Uncrewed Systems? Unpacking Terms and Classifications." Moderated by René Holbach. Webinar, July 2. Posted July 3, 2024 by UNIDIR. YouTube. https://www.youtube.com/watch?feature=shared&t=1889&v=nv91JWWHqgo.

[9] UNODA. n.d. "Definitions." Accessed 9 October 2024. https://front.un-arm.org/wp-content/uploads/2024/05/DEFINITIONS-71-UNROCA.pdf.



A boon or a threat to international peace and security?

Given that users of UAS are increasingly diverse and include both State and non-State actors, purposes and resulting impacts are not necessarily easy to discern. These challenges were discussed during the second webinar on benefits and risks of (mis)use.[10]

UAS can help humanitarian and other relevant actors facilitate compliance with key international humanitarian law (IHL) obligations by helping to provide humanitarian aid and facilitating the clearance of explosive remnants of war. Given their ability to survey from above, they can be employed to monitor conflict zones to understand risk to civilians, track movements of displaced people to understand where aid needs to be provided, or help to identify IHL violations, thus supporting accountability mechanisms.

Moreover, the use of UAS in situations of conflict is not prohibited *per se*, but they may not be used to deploy weapons that are prohibited by existing instruments or under IHL and must be used in compliance with IHL and international human rights law (IHRL). UAS can be used to improve the precision of strikes, thus potentially acting to avoid or minimize incidental harm to civilians and civilian objects. Outside of armed conflict, the legal constraints on the use of such systems are stricter. In particular, the use of UAS by States to conduct targeted strikes in such settings can raise a number of questions concerning international legal principles.

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[10] UNIDIR. 2024. "Two Sides of the Same Coin: Exploring Benefits and Risks of (Mis)use of Uncrewed Systems." Accessed 9 October 2024. https://unidir.org/event/two-sides-of-the-same-coin-exploring-benefits-and-risks-of-misuse-of-uncrewed-systems/.

However, despite the argument that UAS confer greater precision to military strikes, both within and outside situations of conflict, in practice their increased use in strike operations can have important humanitarian consequences. In addition, precision is a double-edged sword: it could and should help avoid incidental civilian harm, but such benefits are not currently apparent; there continues to be a disproportionate, negative impact on civilians.

While UAS are increasingly used by legitimate users, with an increasing number of States developing, purchasing, and exporting such systems, there are also concerns regarding illicit proliferation and a lack of accountability among States. One such concern is not only related to the proliferation of whole systems, but also of dual-use commercial components, many of which fall outside the scope of existing export control mechanisms, but which could be diverted from their intended civilian use to being integrated in militarized systems. Thus, as these systems and their components continue to proliferate, related risks and threats will do so as well.

Non-State armed groups also employ UAS[11] and can be one of the beneficiaries of their illicit proliferation. The use of UAS by non-State armed groups serves a variety of purposes, such as helping to create propaganda material, conducting surveillance and reconnaissance, smuggling of illicit items, as well as conducting attacks on civilians and infrastructure. With access to military-grade systems – either through State donors or via the ability to construct such systems with commercially available components – non-State armed groups have the potential to attain significant capabilities. The abilities conferred by UAS, namely the ability to lower the perceived risk to the human operator, leads to a perceived absence or minimization of risk, which in turn could lead to the use of lethal force in areas that previously would not have been targeted, lowering the threshold for the use of force. Potential miscalculations could arise during the use of UASs, which could lead to the escalation of conflict and increased lethality of operations, with even unarmed systems potentially playing a role in expanding the ability to conduct attacks through their intelligence, surveillance, and reconnaissance capabilities.

What mechanisms and frameworks exist – and what gaps and challenges remain?

A range of questions could be considered when it comes to managing the risks posed by UAS, including but not limited to:

- Considerations around threats and consequences, such as who has access to and who is using these systems?
- Are UAS being used in line with international law, and in particular international humanitarian law obligations as well as in a responsible way?
- Are human security concerns addressed when used?

[11] Morais Figueiredo, Barbara. 2024. "The Use of Uncrewed Aerial Systems by Non-State Armed Groups: Exploring Trends in Africa." *UNIDIR*. 30 January. https://unidir.org/publication/the-use-of-uncrewed-aerial-systems-by-non-state-armed-groups-exploring-trends-in-africa/.

The third and final webinar, on possible actions to address the identified threats,[12] highlighted two main approaches to UAS and the management of risk: multilateral mechanisms and frameworks, and legal regimes.

Multilateral mechanisms and frameworks

Mechanisms and frameworks guiding international transfers and promoting transparency are in place at the multilateral level. A non-exhaustive inventory of these mechanisms and frameworks includes:

Security Council Resolution 1540[13]

It focuses on preventing the proliferation of nuclear, chemical and biological weapons and their means of delivery, such as missiles, rockets and other "unmanned systems" capable of delivering such weapons.

Security Council Resolution 2370[14]

It notes that States should refrain from providing any form of support to those involved in terrorist acts, including by eliminating the supply of weapons, including UAS and their components, to those involved in terrorist acts.

The UNROCA[15]

A voluntary transparency mechanism whereby Member States can report international transfers of conventional arms, including on unmanned combat aerial vehicles.

The Arms Trade Treaty (ATT)[16]

With 115 States Parties, the ATT establishes common standards for and regulates the international trade of conventional weapons and includes a reporting requirement.

The Missile Technology Control Regime[17]

A voluntary control regime with 35 member States which aims to prevent the proliferation of unmanned delivery systems capable of delivering weapons of mass destruction.

The Wassenaar Arrangement[18]

A voluntary control regime with 42 participating States which aims to promote greater transparency on transfers of conventional arms and dual-use goods and technologies.

Legal regimes

The use of UAS is regulated under various existing legal regimes, including IHL and IHRL. From a legal perspective, the rules applicable to UAS do not differ from those applicable to other military platforms, such as aircraft. As noted above, the use of UAS is not prohibited in situations of armed conflict as long as the manner in which these are used abides by international law. Outside of armed conflict, the legal constraints on the use of such systems are stricter. In particular, the use of UAS by States to conduct targeted strikes outside of armed conflicts can raise a number of questions concerning international legal principles.

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[12] UNIDIR. 2024. "Addressing the Threat of Uncrewed Systems: What Actions for the Multistakeholder Community?" Accessed 9 October 2024. https://unidir.org/event/addressing-the-threat-of-uncrewed-systems-what-actions-for-the-multistakeholder-community/.

[13] UNODA. n.d. "UN Security Council Resolution 1540 (2004)." Accessed 9 October 2024. https://disarmament.unoda.org/wmd/sc1540/.

[14] UN Security Council. Resolution 2370 (2017). S/RES/2370 (2017). Accessed 9 October 2024. https://undocs.org/s/res/2370(2017).

[15] UNROCA. n.d. "UN Register of Conventional Arms." Accessed 9 October 2024. https://www.unroca.org/.

[16] ATT. n.d. "Arms Trade Treaty." Accessed 9 October 2024. https://thearmstradetreaty.org/.

[17] MTCR. n.d. "Missile Technology Control Regime." Accessed 9 October 2024. https://www.mtcr.info/en.

[18] Wassenaar. n.d. "The Wassenaar Arrangement." Accessed 9 October 2024. https://www.wassenaar.org/.

Gaps and challenges

Despite the existence of multilateral mechanisms and frameworks and comprehensive legal regimes, gaps and challenges exist. Namely, the two approaches remain siloed. There has been a shift in approach within the international community from a capabilities-based approach (i.e., examining only the systems and their enabling technologies), to a behaviour-based approach (i.e., examining UAS through the prism of responsible use of force). Despite this shift, existing international mechanisms and frameworks make only a very tenuous link between export and use. The ATT presents a notable exception in this regard. The Joint Declaration for the Export and Subsequent Use of Armed or Strike-Enabled Unmanned Aerial Vehicles[19] also sought to make this link, but has since stalled.

Another issue is that while there are mechanisms to regulate or to increase transparency regarding international transfers, these vary significantly in terms of scope, definitions of UAS, degree of relevance in relation to UAS, and participation rates. Grey zones remain regarding commercial dual-use systems and components, as well as national production and transfers, the latter of which are optional for States to report on, including within the UNROCA.

Transparency in exports and transfers remains insufficient, yet this is a critical element. Transparency enhances the ability to undertake domestic and international scrutiny on transfers, with potential positive knock-on effects on human rights and protection of civilians. Increased transparency is also closely connected to accountability as well as perceived legitimacy of military operations.

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[19] US Department of State. 2016. "Joint Declaration for the Export and Subsequent Use of Armed or Strike-Enabled Unmanned Aerial Vehicles (UAVs)." Accessed 9 October 2024. https://2009-2017.state.gov/r/pa/prs/ps/2016/10/262811.htm.

Areas for reflection and possible future action by the multi-stakeholder community

The discussions from the third webinar also considered the options available to the disarmament and arms control community to increase transparency and accountability of transfer and use of UAS.

1. Implement and improve what exists

States should make full use of the various transparency and reporting mechanisms and all relevant stakeholders should (re)commit to upholding their obligations under international law. This could entail:

- ensuring that the mechanisms remain fit for purpose, in terms of their scope, definitions of items to report on, regulate, or control the transfer, acquisition and use thereof;
- assessing and, if necessary, updating risk-assessment procedures for deciding whether to authorize or deny a transfer of UAS;
- improving reporting templates so that these are clearer and so ensure greater comparability of inputs;
- examining how to increase transparency on data points which are missing, such as national procurement, or membership to various mechanisms; and
- considering how to (better) integrate principles of international law, in particular those that relate to the protection of civilians, into existing mechanisms.

2. Examine the extent to which some of the issues can be addressed outside of existing silos

Threats posed by UAS are addressed in a range of thematic tracks and by a number of different stakeholders. While separate discussions can help to bring forth expertise relating to different risks, an approach that is too fragmented can be counter-productive. As a result, this could entail:

- examining how to consider certain issues holistically rather than divided by intended use (i.e., commercial versus military), types of uses, life cycle phases (i.e., export versus use), and user types;
- considering how to ensure that several 'lenses' are considered simultaneously, namely science and technology considerations, protection of civilians, and international law, as well as considering cross-cutting topics, such as developments in science and technology and the future of warfare; and
- exploring how to ensure that standards are sustainable and widely applicable across a wide variety of situations and stakeholders, and not so narrow that they are threatened by obsolescence (e.g., by avoiding a sole focus on individual systems or individual specifications, including technological framings).

3. Ensure the conversation is inclusive and occurs at various levels of governance.

This could entail:

- ensuring the dialogue is multi-stakeholder, including not only States but also civil society organizations and the private sector;
- ensuring that action is taken across all levels of governance; and
- holding dialogues on this issue at the regional, national and domestic levels in addition to the international level.

4. Be clear about the key concepts and their operationalization

This could entail:

- clarifying frequently mentioned terms such as accountability, oversight, and transparency[20] in the context of UAS so as to enable their practical implementation, thus making them implementable by all relevant stakeholders; and
- harmonizing knowledge and practices pertaining to regulation and broader principles by developing an inventory of best practices and lessons learned, helping to make uptake and implementation more accessible to all.

Overall, while UAS do bring benefits, the risks their use may generate and the threats they pose need to be prevented or mitigated. A more granular understanding of the multifaceted and interlinked considerations – now, and in the future – pertaining to UAS production, transfer, proliferation, and use, and related issues linked to users, new technologies, counter-measures, could help to advance the conversation and stimulate action.

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[20] Borrie, John, Elena Finckh and Kerstin Vignard. 2017. "Increasing Transparency, Oversight and Accountability of Armed Unmanned Aerial Vehicles." *UNIDIR*, 1 December. https://unidir.org/publication/increasing-transparency-oversight-and-accountability-of-armed-unmanned-aerial-vehicles/.

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