These slides are preliminary works of individual iPRAW members and do not necessarily present the position of the whole group.
iPRAW – Workshop Series

- **Workshop I**
  - October 27, 2020
  - focus on conceptualizing human control

- **Workshop II**
  - December 10, 2020
  - focus on human-machine interaction and operational context

- **Workshop III**
  - February 25, 2021
  - focus on regulation
WORKSHOP III – AGENDA

1. Introduction

2. Human Control in a Future Regulation – Lessons from Workshop I & II
   by Anja Dahlmann

3. Approaches towards Definitions
   by Elisabeth Hoffberger-Pippan

4. Architecture of Existing International Legal Frameworks
   by Denise Garcia

5. Conclusion
WORKSHOP III – CONTEXT

- iPRAW position: A politically or legally binding regulation should operationalize and apply the principle of human control.
  - In this workshop: focus on a treaty as one regulatory option
- Focus on specific aspects regarding human control, for others see e.g.
REGULATING HUMAN CONTROL
LESSONS FROM WORKSHOP I & II
Anja Dahlmann
WORKSHOP I
CONCEPTS OF HUMAN CONTROL
IN THE USE OF FORCE
27.10.2020

DEFINING LAWS OR NOT
Don't define laws [lethal autonomous weapon systems]
It's not the killer robot but autonomous functions in the targeting process!
Needs qualitative assessment
Talk about the human role

TERMINOLOGY OF HUMAN CONTROL
Many different terms for human element in the use of force
Maintain meaningful human control
= technical meaning = a process ≠ direct manipulation
Common ground
Human element is needed!

CONCEPTS OF HUMAN CONTROL
Several concepts:
- Is human involvement in development enough?
- Human control needed in all steps but definitely in attack!
Life cycle, wider targeting process & mission execution
Target - environment - human-machine-interaction

SCENARIO AND DISCUSSION
89% success rate of differentiating between humans and objects
Jet pilot deploys 5 UAVs
UAV cannot differentiate between military and civilian objects
No further human intervention needed when no humans are present (but possible)
Either successful without civilian casualties
Alternative ending: hospital hit

Who is most likely affected?
- Enemy combatants
- Civilian alternatives
Human-machine interaction:
Human relies on machine's assessment
Is the technology adequate to identify enemy combatants and assess the proportionality?
- Mostly sufficient
despite technical limitations
- Potentially problematic in urban area

Is human control sufficient?
<table>
<thead>
<tr>
<th>Situational Understanding</th>
<th>Intervention</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control by design (technical control)</td>
<td>Mostly yes</td>
</tr>
<tr>
<td>Control in use (operational control)</td>
<td>Mostly</td>
</tr>
</tbody>
</table>

Many grey areas especially in complex, dynamic situations
Operational context plays a big role!
Keep up the discussion!

Graphic Recording: Lorna Schütte
**Workshop II**

**Human-Machine Interfaces and Human Control**
- Production Line Use Need to Work Together!
- Autonomous Functions Are on the Rise
- Overestimation of Technology
- Human-Machine Interaction
- Cooperation
- Autonomy
- Clear Measurements Needed
- Legal Issues
- Finding the Balance
- PMID Box

**Scenario: Zelos**
- Autonomous
- Veto Power of Human Operator
- Citizen? Height? Age?
- Not Child Soldiers!
- Mission: Neutralize Combatants
- Bad Weather Conditions
- 98% Success Rate in Identification
- In Scenario: Successful Neutralization of Adult Combatant

**Analysis of Necessary Type and Level of Human Control**

**Planning the Mission**
- Political Decision to Deploy "Laws"
- Training of Operators
- Zelos e Pea Operator
- Planning Needs: Rules of Engagement, Target Sets
- Development Lifecycle, Planning to Use

**Control by Design**
- Situational Understanding
- Constant Communication Link
- Sensor Data Adequate to Weapon and Environment?
- Predictability
- Reliability
- Option for Intervention: At Least Veto Power of the Operator
- Quick Look at Video: Enough to Decide?

**Control in Use**
- Situational Understanding
- Option for Intervention: Automation Bias and Over-Trust
- 98% Seems Very Accurate!
- Not the Attack!

**Operational Context**
- What About Combatants Who Do Combat?
- What About Civilians as Collateral Damage?
- Restrictions on Target HMI Environment

**Conclusion**
- It's All About the Context!
- Planning Shopper Need and Options for Human Control During Use.
- Human Target
- Stricter Rules?
**WORKSHOP II**

**HUMAN-MACHINE INTERFACES AND HUMAN CONTROL**

- Production & Use need to work together!
- Autonomous functions are on the rise.
- Overestimation of technology.

**ANALYSIS OF NECESSARY TYPE AND LEVEL**

- Planning the Mission
  - Political decision to deploy "laws"
  - Training of operators
  - Weapon review
  - Sensor data adequate to weapon and environment?
  - Predictability
  - Reliability
  - Option for intervention

- Control by design
  - Situational understanding
  - Constant communication
  - Bad signals

- Development
  - Life cycle planning

**BAD WEATHER CONDITIONS**

- Mission neutralize combatants?
  - Right? Age?
  - Not child soldiers!

**98% SUCCESS RATE IN IDENTIFICATION**

- In scenario: successful neutralization of adult combatant

**98%**

**MISSIONS**

**CONCLUSION**

- It's all about the Context!
- Planning shaper need and options for human control during use.

**HUMAN CONTROL WITH RULES IS INSUFFICIENT IN MOST CONTEXTS, BUT IN THE PARTICULAR MISSION HHL IS NOT VIOLATED.**

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**Host is sharing poll results**

1. In your opinion, are the type and degree of human control sufficient in the specific mission?
   - Yes: 48%
   - No: 52%

2. In your opinion, are the type and degree of human control sufficient in general with this weapon?
   - Yes: 36%
   - No: 64%

**Close**
TAKEAWAYS

1. Scenarios helped to visualize potential applications and variety of autonomous functions
2. Showed limitations in modelling the operational requirements
3. Clear understanding and expectations of operator necessary
4. Defining the adequate type and level of human control takes a lot of details
   - Not one-size-fits-all solution, much more details than a treaty could take - therefore broad categories like environment, target, human-machine interaction
5. Despite long debate different perceptions and expectations on human control
ELEMENTS OF A NORMATIVE FRAMEWORK, e.g. TREATY+

Treaty:
- obligation to maintain adequate human control, i.e. prohibition of LAWS

+ Annex?

- Best practices on operational context, interfaces, weapon reviews, training, …

- Commentary, Manual

- Other elements, e.g. Code of Conduct

LAWS
- Principles
- training requirements
- transparency / verification
- frequent reviews

General Rules in Hard Law

Specifics in Soft Law
APPRAOCHES TOWARDS DEFINITIONS

Dr. Elisabeth Hoffberger-Pippan
APPROACHES TAKEN IN THE GGE

- **Group 1**: no definition necessary
- **Group 2**: working definition (to enable negotiations)
- **Group 3**: definition (to enable regulation)

Critical functions
A DEFINITION OF (L)AWS – YES OR NO?

- Any weapon system with autonomy in its critical functions that is, a weapon system that can autonomously select (search for, detect, identify, track or select) and attack (use force against, neutralize, damage or destroy) targets without human intervention.

- Details and more specific aspects could be implemented and discussed by the following means:
  - Declaration of interpretation
  - Reservations
**Which types of weapons do not fall under this category?**

- Specific types and categories of weapons systems should not be covered by the term LAWS, such as:
  - Air defense systems (or other, purely defensive systems)
  - Loitering munitions
  - Sentry weapons

- Nevertheless, such weapons may be regulated and their use restricted or entirely prohibited by other rules of international law, such as humanitarian or human rights law (this clause could also become part of a treaty)
Do we need an annex?

- An annex could be added to a future regulation

- After the states parties meetings the annex could be filled with **specific types or categories of LAWS** (depending on technological advancements and the actual deployment of such weapons on the battlefield) that are by all means prohibited

- Adding such weapons to the annex could require consent of all states parties
SAMPLE REGULATION

- **Prohibition:** The deployment of lethal autonomous weapon systems without human control in the selection and engagement of targets is prohibited.

- **Obligation:** In the deployment and use of lethal autonomous weapon systems human control has to be maintained throughout the entire targeting process.
PITFALLS

- Excluding specific weapon systems from scope of application: risk of loopholes/ regulatory gaps

- Declaration of Interpretation/ Reservations: dilution of normative value

- Definition of “autonomy“ and “lethality“ difficult to agree upon/diverging views
  - LAWS are not a category of weapons; autonomous functions can be distributed
ALTERNATIVE: REGULATION WITH A FOCUS ON HUMAN CONTROL

- **Prohibition:** The deployment of *weapon systems* without human control in the selection and engagement of targets is prohibited.

  - **Alternative:** Targeting and engaging legitimate military objectives without human control is prohibited.

- **Obligation:** In the deployment and use of *weapon systems* human control has to be maintained throughout the entire targeting process.

  - **Alternative:** Human control has to be maintained throughout the entire targeting process.
STRUCTURAL CONSIDERATIONS

- **Embedded in CCW**: definition of weapons obligatory?

- The requirement to maintain human control in the process of selecting and engaging targets would thus **extend to all** weapon systems.

- **Focus on human control**: possibility to cover all different types of weapon systems – **proactive** and **progressive** approach

- **Focus on human control**: provisions would be rather imprecise and abstract
  - Easier to reach consensus
  - Protective of sovereignty of States Parties
  - Minimal consensus as point of departure for further debate on LAWS (treaty+?)
The Architecture of Relevant Existing International Legal Frameworks
Prof. Denise Garcia
Relevant and Applicable International Law

- International Criminal Law
- Human Rights Law
- International Humanitarian Law
- Law on the Use of Force
- Global Commons Law
- State Responsibility
- Other Governance Sources
Architecture of Existing Inspiring Treaties: Essential features

- **Military-Civilian Dual-use technologies**
- **Contain a general guiding principle**
- **Establish and maintain human element/control to prevent bodily harm**
- **Stand the test of time**
- **Use of technology that is harmful and/or need to be substituted**
Universal Prohibition eradicates by controlling harmful activities
Restricts dual-use chemicals. Promotes free trade in chemicals and open exchange
Fosters peaceful uses of chemistry
Promotes scientific cooperation (art. XI)

Retains peaceful uses and purposes (art. I)
Exchange of information and cooperation (art. X)
Control of harmful activities

Precautionary action
Stands the test of time by including new scientific evidence
Cooperative compliance
coordinated by:

Stiftung Wissenschaft und Politik – German Institute for International and Security Affairs
Ludwigkirchplatz 3-4
10719 Berlin, Germany

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