



THE AIR UNIVERSITY



Team Sentry: Improving the Speed of Decision-Making through Autonomy

Capt Brian Baumgarten, 36 STUS/H-70

Capt Jonathan Denton, 30 STUS/A-15

Capt Matthew Serfling, 32 STUS/C-30



Overview



- Problem
- Definitions
- Background
- Solution
- Benefits and Constraints
- Conclusion



Problem



- How can the U.S. military ensure that the speed of its decision-making continues to keep pace with the accelerating speed of action on the battlefield?
- Technology is augmenting the speed of battle and outpacing the speed of decision-making



Definitions



- Autonomous System
 - A machine that **is not** able to rewrite its own logic
 - Must conform to a pre-programmed logic set
- Artificial Intelligence
 - A machine that **is** able to rewrite its own logic
 - Able to modify the existing logic set based on learning



Background



- 2011 – Unmanned Systems Integrated Roadmap (USIR) outlines military path forward for autonomy in unmanned systems
- 2012 – DoDD 3000.09 prohibits utilization of autonomous systems to deliver lethal effects
- 2015 – Law of War Manual confirms autonomous weapons as legal (including lethal effects)



Law of War Manual



- 6.5.9.2 *No Law of War Prohibition on the Use of Autonomy in Weapon Systems.*
 - “The law of war does not specifically prohibit or restrict the use of autonomy to aid in the operation of weapons. In fact, in many cases, the use of autonomy could enhance the way law of war principles are implemented in military operations...”



Other Countries' Capabilities





Solution



- Remove the lethal effects restriction on autonomous systems from DoDD 3000.09
- Ensure proactive approach, rather than a reactive response
- Limit employment to tactical level of war
- Keep a kill switch built in for contingency



Benefits



- Reduces total number of tactical decisions
- Faster reaction time under fire
- Better information sharing (net-centric)
- Operational commanders more informed for decisions at the speed of battle
- Reduces loss of life/traumatic injury



Constraints



- Public opinion
 - Moral objections
 - Further separation between the actual fighting and the public
- Cost
 - As yet unknown, but will likely be large
 - Tradeoff between lives and money
 - Manpower and maintenance
- Law
 - DoD Directive
 - International laws pending discourse



Conclusion



- Autonomous weapons will reduce the number of tactical decisions
- More timely and accurate information enables faster decision-making
- Ensures our national security advantage



Summary



- Problem
- Definitions
- Background
- Solution
- Benefits and Constraints
- Conclusion



Questions?

