A. Statement of research question and its importance

This report, titled "3D-Printed Guns and School Safety: The Evolution of a Technology Allowing Minors to Manufacture Semi-Automatic Weapons," addressed three salient questions on the use of 3D-printed weapons by minors to conduct violent attacks:

- 1) How do the affordability, accessibility, and sophistication of 3D printers and weapon blueprints enable minors to create firearms?
- 2) What steps are required to produce a 3D-printed weapon?
- 3) What loopholes enable minors to bypass existing regulations regarding the creation of 3D-printed weapons?

In recent years, an increase in the trend of adolescents attempting to build 3D printed weapons for use in violent attacks has been observed, creating a looming public safety issue. Simultaneously, reported and observed increases in the radicalization of minors into newly-developed extremist and hate-based communities have also been identified. In some cases, these two trends have existed in tandem with one another, combining to provide adolescents with a violent ideological worldview and the means of creating a weapon to be used in support of that worldview. This report addresses the lack of regulation associated with the acquisition of 3D printing devices and the creation of 3D-printed weapons, and provides recommendations for lowering the public safety risk of violent attacks with 3D-printed firearms.

- B. List of collaborators and partners
  - Erica Barbarossa, *Principal Investigator*
  - Isabela Bernardo, Senior Research Analyst
  - Stian Lothe, Graduate Research Assistant
  - Lexa Molinari, Graduate Research Assistant
- C. Summary of research findings

The affordability, accessibility, and sophistication of 3D printers and weapon blueprints enable minors to build firearms with relative ease. With limited steps involved in the production of a 3D-printed weapon, 3D printed technology carries the potential to become the norm for weapons obtainment among violent extremist and hate-based organizations and individuals.

To address current vulnerabilities that allow minors to produce a 3D-printed weapon, future research and policy should address the implementation of mandatory age verification for purchasing 3D printers, the accessibility of firearm blueprints, and the ordering (or other obtainment) of non-printable gun components. Additionally, restricting search engine access to websites hosting weapon designs could significantly mitigate risks. While each measure raises barriers individually, together they hold the potential to prevent the first school shooting involving a 3D-printed gun from ever occurring.

D. Implications for study and practice of conflict transformation

This research project underscored the need for future research to explore the potential for the implementation of mandatory age verification for the purchase of 3D printers, the accessibility of firearm-building blueprints, and the ordering of non-printable gun components. It also highlights the importance of additional research into the messaging tactics associated with extremist and hate-based online communities that radicalize minors and encourage them to build 3D-printed weapons for the purposes of engaging in violence.

E. List of publications, performances, media coverage, and other output Stian Lothe: <u>3D-Printed Guns and School Safety: The Evolution of a Technology Allowing Minors</u> to Manufacture Semi-Automatic Weapons