Department of Homeland Security (DHS) Science and Technology Directorate

[Name of the Writer]

[Name of the Institution]

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**Introduction**

The *(DHS) Science and Technology Directorate* is a research and development facility which was initiated by the President of the United States and confirmed by the States Senate. It specializes in the independent development of homeland security technologies and accumulates four leading groups of research. These groups would be identified in the discussion below along with explaining what each does to contribute towards counterterrorism efforts.

**Discussion**

**Identification**

The four leading research groups in the Department of Homeland Security (DHS) are;

**Chemical and Biological Defense**

Deals in the nation’s attentiveness against substance and organic warfare by improving consciousness amongst complex observation and uncovering, and approachable countermeasures. These biological threats pose a significant danger to the nation's welfare, and this requires a diverse group of scientists and engineers to tackle such problems through focus and expertise. It deals with counter-terrorism efforts through mobilizing resources against the use of hazardous chemical substances. In case of any chemical and biological terrorist warfare, the DHS and the research group would be able to countermeasure any inefficient or ineffective trap set by the terrorists. Through the chemical expertise individuals and the biological defense program, the scientists and the biologists would be able to analyze and identify the imminent threat.

**Infrastructure and Geophysical**

This research group deals with identifying the vulnerabilities that pose a significant threat to our economy while making every effort to mitigating such threats for an active functioning economy. It uses different technologies to fight counterterrorism efforts such as the tunnel resiliency technology, the broad area surveillance and change detection, the intrusion and anomaly detection, power grid modeling and operations, etc (Prior, & Hagmann, 2014).

**Command, Control, and Interoperability**

This particular research division for the DHS develops interoperable communication protocols and standards for emergency responders. They also specialize in counter-terrorism measures by creating multiple cybersecurity tools for protecting sensitive information over the internet and recognize or analyze and potential terrorist threats. The criticality of cybersecurity under the provisional protocols described the method for improving counter models for internet topography. A scalable, comprehensive next network model would elaborate and provide a careful expansion of the contribution being made by the department to counter-terrorism efforts. For all semi and multi-faceted purposes linked with the countermeasures, the information sharing database and the border security plans allow for a more protected infrastructure. All of this is connected with the transition and evaluation of surveillance technologies in counterterrorism efforts.

**Borders and Maritime Security**

This particular research department enhances U.S. air, land and maritime border security through analyzing all anti-terrorist countermeasures. It maximizes the flow of legitimate travel and trade through transitioning scientific and technical knowledge. The activities this research department performs in terms of counter measuring terrorism is through understanding the methodological magnitude of homeland defense challenges, applying meticulous process and methodology, and running across the homeland sanctuary enterprise. It focuses on consistency by enhancing security for both land and maritime security. In case of any air or maritime terrorist attack, the research department would be able to have the situational awareness of the current threats and the emerging terrorist patterns and trends (Helmick, 2008). It specializes in disrupting and dismantling transnational criminal and terrorist organizations. It consists of the arctic communications program and the port surveillance.

**Conclusion**

The aforementioned research analysis on the DHS Science and Technology Directorate and its four leading groups of research explain the contribution they have towards counterterrorism efforts. The research accumulates the technology base and the strategic analysis each research gate holds for a specific threat.

**References**

Helmick, J. S. (2008). Port and maritime security: A research perspective. *Journal of Transportation Security*, *1*(1), 15-28.

Prior, T., & Hagmann, J. (2014). Measuring resilience: methodological and political challenges of a trend security concept. *Journal of risk research*, *17*(3), 281-298.