Using Big Data to Identify Critical Engagement and Target Networks for Combatant Commanders

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Abstract: Military commanders often use Open Source Intelligence (OSINT) to enhance their situational understanding and to support operational decision making. Recent advancements in technology have yielded an abundance of expansive open source data sets, increasing the need for analysts able to derive significant meaning from this information. Key to this is the ability to quickly retrieve OSINT and organize it to facilitate analysis and the derivation of significance from a variety of sources. This research focuses on providing Regional Commanders with a tool that does precisely that, resulting in the identification of critical topic-driven engagement networks within their area of operations. Using the Global Database of Events, Languages, and Themes (GDELT), we achieve this in two parts: 1) identifying and mapping the myriad doctrine- and stakeholder-based information requirements to the nearly 400 GDELT themes using Domain Mapping Matrix methodology, and then 2) using the resulting mapped dataset to create specific topic-based engagement and targeting networks for user-specified locations. The result is an analytical tool providing Commanders with critical information about these networks, what key persons comprise them, and who they should engage in order to reinforce positive network elements while interdicting negative elements.

Keywords

GDELT, Open Source Intelligence, Domain Mapping Matrix, Network Centrality methods