UNIT THREE ARTEFACT
E-PORTFOLIO ACTIVITY: RESEARCH PROPOSAL REVIEW

TERRORIST USE OF EMERGING TECHNOLOGIES IN THE SAHEL REGION OF AFRICA

1.0 INTRODUCTION

1.2 Background of the Study

1.2.1 Terrorist Groups in the Sahel Region of Africa

According to Becheikh (2021), the Arab Spring that started in Tunisia in 2010, sweeping through Algeria, Morocco, Mauritania, Western Sahara, Sudan, Egypt and Libya, created an environment of political transitions and, hence, political instability in the Sahel. This political instability was exploited by terrorist groups, especially after the fall of General Muammar Gaddafi in 2011. These terrorist groups exploited ungoverned spaces, Political unrest, and porous to fuel regional instability.

Saka (2024) pointed out that these terrorist groups operating in the Sahel Region include Islamic State in the Greater Sahara (ISGS), Al-Qaeda in the Islamic Maghreb (AQIM), Jama'at Nusrat al-Islam wal-Muslimin (JNIM), and Boko Haram.

Groups like Al-Qaeda in the Islamic Maghreb (AQIM) and Islamic State in the Greater Sahara (ISGS) have exploited these vulnerabilities.

The International efforts to counter the threats from these terrorist groups have included the UN's MINUSMA mission, the French Serval and Barkhane operations, and efforts by the German United States of America.

The regional efforts to counter these terrorist groups have been made up of the ECOWAS, Multinational Joint Task Force (MNJTF), G5 Sahel Joint Force, the United Nations Integrated Strategy for the Sahel (UNISS) and the Alliance of Sahel States (AES).

1.3 Statement of the Problem

The adoption and use of emerging technologies by violent extremist terrorist groups in the Sahel region of Africa has become a key security challenge. Terrorist groups exploit digital technologies to coordinate their operations and organise propaganda and recruitment. These groups' use of these digital technologies has increased their global reach, effectiveness and capabilities.

Therefore, this study will focus on analysing the emerging technologies adopted by these groups and evaluating their impact on regional security in the Sahel. This study will also explore policy responses and their effectiveness in countering these threats in the digital space.

1.4 Purpose of the Study

The study aims to determine the role of emerging technologies in asymmetric warfare in the Sahel Region of Africa.

1.5 Objective of the Study

The study aims to determine the role played by emerging technologies in asymmetric warfare in the Sahel Region of Africa.

1.6 Research Questions

The study objectives were attained by accurately answering the below questions;

i. What emerging technologies do terrorists in the Sahel Region of Africa use?
ii. What are the drivers and enablers of technology adoption by terrorist groups in the Sahel Region?
iii. What is the impact of the various technologies terrorist groups adopt on asymmetric warfare?
iv. What are the regional and international responses to terrorism in the Sahel Region of Africa?
v. What are the future trends and their implication in adopting terrorist groups in the Sahel Region of Africa?

1.7 Significance of the Study

This study will enable policymakers, regional organisations, technology platform providers, researchers, security analysts, police, military and intelligence to have an understanding of the impact of internet accessibility, digital platforms and emerging technologies on cross-border security threats in terms of spreading propaganda, recruitment, coordination of attacks, illicit financing and violent extremism by the terrorist groups in the Sahel. This study will enable the policymakers and all the other stakeholders to understand the threats posed by emerging technologies and, hence, develop better countermeasures.

1.8 Scope of the Study

This study will be limited to understanding the emerging technologies that the terrorists are using, the drivers and enablers of technology adoption, the impact of these technologies on asymmetric warfare, and the implication of the use of these technologies by terrorists on the

security in the Sahel Region. This study will be limited to the G5 Sahel countries of Niger, Mauritania, Mali, Chad and Burkina Faso.

2.0 THEORETICAL LITERATURE REVIEW

2.2.1 Emerging Technologies

Over the last five years, emerging technologies include Artificial Intelligence (AI) and machine learning, quantum computing, blockchain and decentralised finance, edge computing, 6G and connectivity technologies.

2.2.2 The Role of Technology in Modern Asymmetric Warfare

Wither (2023) affirmed that modern technologies are currently used by state and non-state actors, such as terrorist groups, in warfare. These technologies include cyberwarfare and AI. Cyberwarfare enables non-state actors to actor critical infrastructure. AI can also be used for the collection and analysis of intelligence as well as for developing offensive and defensive systems. Autonomous systems and advanced weaponry, such as smart munitions, are now being deployed in conflicts. The various digital platforms have now been used as tools for carrying out psychological operations and information warfare. These platforms influence public opinion and the rapid spread of disinformation, misinformation, propaganda, and recruitment, breaking the enemy's will to continue fighting.

2.2.3 Key Theories on Technology Adoption by Terrorist Groups

This study will be informed by diffusion of innovation and social network theories.

2.3 Emerging Technologies Used by Terrorist Groups in the Sahel

Ouma and Mawia (2023) found that these terrorist groups use communication technologies such as Telegram, WhatsApp, Signal, and satellite telephones. The terrorist are using social media platforms for fundraising, propaganda and recruitment. They also use the dark web, virtual private networks (VPNs), and proxy servers for anonymous communication. The terrorist groups also use commercial drones for monitoring and surveilling security forces. They also use global position systems (GPS) devices and smartphone maps to coordinate attacks. They also use video editing software and graphic design tools to produce high-quality propaganda videos and online content. These groups also use AI to translate vast volumes of propaganda videos and text into several languages.

3.0 RESEARCH METHODOLOGY

3.1Research Philosophy

This mixed-method study will combine quantitative and qualitative methods to adapt the exploratory-descriptive research design. According to Dawadi, Shrestha and Giri (2021),

mixed-method research provides a comprehensive view and understanding of the research problem. A mixed research method comprises the integration of data, sequential and concurrent approaches to the research.

3.2 Research Design

Chali, Eshete, and Debela (2022) illustrated that a research design is a framework that enables the entire process to be conducted systematically. The research design will involve the study population, sampling technique, and data collection methods such as interviews and focused group discussions with policymakers and security experts covering the Sahel Region of Africa: the ethical procedures, data analysis, interpretation and presentation. Case studies of specific incidents will also be used to understand the strategies, patterns, motivation and the impact of these emerging technologies on regional security.

3.3 Population

The population for the study will include former combatants, insurgents, counter-terrorism and security experts, cybersecurity specialists, technology analysts, government policymakers and law enforcement, researchers and academics.

3.4 Sampling Design

3.4.1 Sampling Frame

Stratified random sampling will ensure geographical representation across the G5 Sahel region.

3.4.2 Sampling Techniques

The purpose sampling technique and snowball sampling will be used to reach the population that may be hard to reach.

3.5 Data Collection Methods

The primary and secondary data will be collected and processed. Primary data will be collected from interviews, surveys and focused group discussions. Secondary data from cybersecurity firms, academic publications, intelligence reports from security organisations, institutions studying terrorism in the Sahel and the African Union Counter Terrorism Center.

3.6 Data Analysis Techniques

Statistical methods such as ANOVA and t-tests will be used to compare the countries in the Sahel. A trend analysis of the technology adoption patterns by the terrorist groups will be applied. The quantitative data will be analysed using SPSS version 26.

The Qualitative data will be analysed through thematic coding. A comparison of case studies of cyber-enabled incidents will be conducted. The qualitative data will be analysed using NVIVO. The results of the data analysis will be presented in figures, charts, and graphs.

3.6 Research Procedures

3.6.1 Pilot Study

According to Bujang et al. (2024), a pilot study is a small-scale study conducted before the main study. A pilot study is conducted to ensure the research's feasibility and refine the research instruments. A pilot study will be conducted to validate the research instrument's reliability.

3.6.2 Administration of the Instruments

The questionnaires will be administered electronically, such as survey money. Focus group discussions will be conducted using Google Meet. There is an expectation of some challenges during the administration of the instrument due to security concerns. However, respondents will be well briefed about the purpose of the study.

3.7 Ethical Considerations

The research will seek informed consent, and their anonymity will be protected. Data security will be upheld in order to protect the respondents.

REFERENCES

Becheikh, N. (2021) Political stability and economic growth in developing economies: Lessons from Morocco, Tunisia and Egypt ten years after the Arab Spring. *Insights into Regional Development* 3 (2): 229-251.

Bujang, M.A., Omar, E.D., Foo, D.H.P. & Hon, Y.K. (2024) Sample size determination for conducting a pilot study to assess reliability of a questionnaire. *Restorative Dentistry & Endodontics* 49(1). DOI: https://doi.org/10.5395/rde.2024.49.e3

Chali, M.T., Eshete, S.K. & Debela, K.L. (2022) Learning how research design methods work: A review of Creswell's research design: Qualitative, quantitative and mixed methods approaches. *The Qualitative Report* 27(12): 2956-2960. DOI:10.46743/2160-3715/2022.5901

Dawadi, S., Shrestha, S. & Giri, R.A. (2021) Mixed-methods research: A discussion on its types, challenges, and criticisms. *Journal of Practical Studies in Education* 2(2): 25-36.

Ouma, M. & Mawia, W. (2023) Technological Innovations and Regional Security Control towards Sustainable Development in the G5 Sahel Region. *African Journal of Politics and Administrative Studies* 16(2): 694-711. DOI: https://dx.doi.org/10.4314/ajpas.v16i2.36

Saka, M. (2024) An evaluation of violent terrorist groups, conflict and development in the Sahel-Sahara Region. Acta Universitatis Danubius. *Juridica* 20 (2): 68-79.

Wither, J.K. (2023) Hybrid warfare revisited: a battle of 'buzzwords'. *Connections: The Quarterly Journal* 22 (1): 7-27. DOI: https://doi.org/10.11610/Connections.22.1.02