In the last 5 years, the center of gravity of terrorism has shifted from the Middle East and North Africa (MENA) region to sub-Saharan Africa. As of 2018, this region had the highest number of fatalities and the greatest material damage. This paper assesses the situation of the countries most affected by terrorism in the WCA (West and Central-Africa) region by examining economic complexity, the costs of cross-border trade and corruption. The AEO (Authorized Economic Operator) program is a means of ensuring the security of international supply chains while simultaneously facilitating the cross-border flow of goods. By 2020, 97 countries in the world had operational AEO programs, but only one country in the WCO (World Customs Organization) WCA region had implemented one. The threat of terrorism is very high in seven countries of the region: Nigeria, Burkina Faso, Cameroon, Democratic Republic of Congo, Niger, Chad and Mali. As a result of the evaluation, it can be concluded that these countries need mechanisms to facilitate international trade and would benefit from the implementation of the AEO program.
Introduction

The trend of terrorism has changed, its center of gravity is increasingly moving from the Middle East and North Africa region to the territory of Sub-Saharan Africa. In addition to the direct damage caused to human lives and property, terrorism has a negative impact on many areas of the economy, including international trade. Modern, primarily religiously motivated terrorism made it necessary to ensure the security of international supply chains. International trade by its very nature requires careful planning and substantial investments, which can be recouped only over long periods of time (Nagy et al, 2017; Erdeiné Késmárki-Gally Sz. 2014; Tiutiunyk et al., 2022). With the cooperation of the World Customs Organization (WCO), the AEO program (Authorized Economic Operator), a tool that guarantees the security of trade while promoting it, was created. After the publication of the SAFE Framework (Standards to Secure and Facilitate Global Trade), which laid down the basic principles in 2005, countries developed and implemented their AEO programs. In the West and Central-Africa (WCA) region of the WCO, among 24 countries, only one country has implemented an AEO program, and it became operational only in 2020. This study examines the terrorist threat of countries in the WCA region and whether these countries would benefit from the AEO program, in particular Burkina Faso, Cameroon, Chad, DR Congo, Mali, Niger and Nigeria.

Methodology and Data

This research adopts a non-experimental research design. The data used were obtained from secondary sources: the Institute for Economics & Peace, the World Customs Organization, the World Bank, Transparency International, and the Observatory of Economic Complexity.

The method used is a descriptive-analytical exploration of economic, social and political aspects and elements that influence the impact of terrorism on international trade, examination of cost correlation and ad valorem equivalent conversion and the utilization and application of relevant indices such as the Global Terrorism Index (GTI), Trading Across Borders Ranking, Economic Complexity Index (ECI) and the Corruption Perceptions Index (CPI).

The evolution of terrorism

In the second decade of the second millennium, the number of terrorist attacks in the world increased significantly. It caused 2.5 times more death than the previous decade worldwide, where there was:

- 130% growth in the Middle East and North Africa (MENA);
- 160% growth in South Asia (SA);
- 486% increase in Sub-Saharan Africa (SSA);
- 17% decline in the rest of the world (The Global Economy.com, 2022).

The more serious acts of terrorism, which claimed more lives, took place in the first half of the decade; the highest number of fatalities was in 2014. From 2018, the center
of gravity of terror shifted from the MENA region and became more concentrated in South Asia and Sub-Saharan Africa. Since 2018, there have been more deaths from terrorism in Sub-Saharan Africa than in the MENA region. In 2018 the economic impact in SSA amounted to 12.5 billion USD. (Institute for Economics & Peace, 2019)

In 2019 41% of ISIL-related attacks occurred in Sub-Saharan Africa. (OEC, 2020) The Islamic State and its affiliates’ focus shifted to the Sahel region. In 2021 35% of global terrorism deaths occurred in this region, compared with 1% in 2007. (Institute for Economics & Peace, 2022) In Nigeria, the most populous African country, which has the richest oil reserves in the region as well, terrorism considerably hinders achieving economic prosperity and social progress which may lead to stability and the long-term peaceful co-existence of the various ethnic and religious communities (Neszmélyi, 2012).

In developing countries, terrorism can be linked to ethnic and religious differences and corruption. (Institute for Economics & Peace, 2020; Tóth & Topa, 2014)

The impact of terrorism on international trade
It was first demonstrated by Nitsch and Schumacher’s empirical study that terrorism has a reductional effect on international trade. According to their results, a doubling of the number of terrorist acts in one year reduces international trade by 4 percent, ceteris paribus. This has a very significant effect, as it shows that the terrorist act already results in a marked reduction in the year of its occurrence. In the relationship between a pair of countries, if at least one terrorist act occurred in one of them, it caused a nearly 10% decrease in bilateral trade. (Nitsch & Schumacher, 2004.)

The disaggregated approach study by Bandyopadhyay, Sandler, and Younas also showed the trade-reducing effect of terrorism, both in the case of transnational and domestic terrorism in both exports and imports.

Terrorism also affects the product composition of international trade. Disaggregated studies by Bandyopadhyay, Sandler, and Younas in 2018 showed that domestic terrorism can cause an increase in the export of raw materials in parallel with a decrease in the export of manufactured goods in developing countries, further reducing the already small portion of higher value-added exports. (Bandyopadhyay, et al., 2018)

Terrorism also affects the direction of international trade. According to Chang Hoon Oh’s investigation, terrorist attacks and technological disasters increase the trade of developed countries with each other. Less developed countries can increase their attractiveness in trade by cultivating a more stable political climate. (Oh, 2017.) While the exports of countries with a high threat of terrorism decrease, a country less affected by terrorism can benefit from the increased demand for goods whose supply chain has been disrupted by the high threat of terrorism and the increased prices. (Bandyopadhyay, et al., 2016)

Terrorism reduces trade openness according to the study of Saeed, Ding, Hammoudeh and Ahmad. The impact is significant for developing countries. The stronger
economies of developed countries can generally reduce the impact of terrorism on the openness of the economy, while developing countries must reckon with more serious consequences of terrorism and are less able to prevent these effects. (Saeed, et al., 2018)

Terrorism increases the costs of international trade. Blomberg, Hess, and Orphanides, examining the impact of violent acts on trade processes, concluded that the combined effect of terrorism and external and internal conflicts corresponds to a 30% tariff. Considering the evolution of the average levied duties, this is a very significant barrier to entry. Albeit the mentioned study did not separate terrorism, according to GTI (Global Terrorism Index) data, terrorism is strongly linked to other violent conflicts, meaning that the study’s result clearly shows the harmful effects on economies affected by terror by proxy. (Institute for Economics & Peace, 2022)

Marsai and Tarrósy add to this discussion another considerable dimension – via the cases of Boko Haram and al-Shabaab –, i.e. that violent extremist organizations (VEOs) exploit crisis situations, such as the COVID-19 pandemic, and prove to be more adaptive to the changing circumstances than central governments, in particular in “ungoverned spaces” (Marsai & Tarrósy, 2022), further escalating insecurities.

**AEO program**

The events of 9/11 drew attention to the vulnerability of international supply chains. The USA already implemented the C-TPAT (Customs-Trade Partnership Against Terrorism) program in 2002, which serves to increase the security of import shipments.

![Figure 1: Weighted average applied tariff rates in %](Image)

Source: Authors’ visualisation of data from WTO
In June 2005, the World Customs Organization (WCO) published the SAFE Framework of Standards to Secure and Facilitate Global Trade with the aim of countering the threat of terrorism. According to the objectives set out in its foreword, there is a need for a strategy approved by the World Customs Organization that ensures the security of international trade in goods in a way that facilitates the conditions for international trade. (World Customs Organization, 2005)

Several countries have established AEO programmes within the framework of the Standards system. The Authorized Economic Operator (AEO) programmes transpose the objectives and basic elements of the system of standards into national law and thus operationalize it. An Authorized Economic Operator is an economic operator with a special status, who based on his special status, is considered by the customs authorities to be a reliable partner, and therefore receives several benefits from the customs authorities.

These benefits include fewer customs inspections, faster and simpler administration, and favorable payment conditions for the certified companies, thus resulting in significant cost reductions parallel to the increase in security of the flow of goods.

Most AEO programs require economic operators to comply with the law and maintain liquidity to obtain certification, in addition to keeping appropriate records in a transparent manner and ensuring the security of their premises. These qualities, in turn, make licensed companies desirable trading partners in international trade.

The economic actors participating in the program may differ from country to country, but in most countries all companies participating in international trade can apply for a certificate: exporters, importers, warehouse operators, forwarders, carriers, customs brokers etc.

Since the publication of the Standards System and subsequent launch of operational programmes, the AEO programme has become the number one tool for the safe and smooth conduct of international trade.

As Figure 2 shows, in 2020, 97 countries had an operational AEO program broken down by WCO region: 42 countries in the Europe Region (EU), 19 countries in

![Figure 2: Operational AEO Programs by WCO Region (2016–2020)](image_url)

Source: Online AEO Compendium (World Customs Organisation, 2022)
the Americas and Caribbean Region (AMS), 17 countries in the Asia Pacific Region (A/P), 10 countries in the North of Africa, Near and Middle East (MENA), 8 countries in the East and Southern Africa Region (ESA) and 1 country in the West and Central Africa Region (WCA).

The application of AEO programmes in accordance with the international standard allows the countries operating AEO or equivalent programmes to recognize each other’s programmes and to sign Mutual Recognition Agreements (MRAs). (World Customs Organization, 2018) Since 2016, the number of MRAs has increased significantly, as Figure 3 shows.

The theoretical advantages of AEO programs and MRAs are also confirmed by practical experience. Korean and Chinese Customs presented the results of a research on AEO and AEO MRA effects conducted by an empirical study of the time measurement of the good’s release and by survey. The research found that before MRA, the time needed to release the goods after custom clearance was shorter by AEO certified companies than by non-AEOs. After the MRA, the effect was greater from AEO export to AEO import. Import customs clearance time for AEO exporter was greatly reduced, and the number and percentage of cargo inspection for AEO companies was significantly reduced after MRA. (Lee & Shao, 2014)

The survey of the University of Virginia’s Center of Survey Research had very similar results after asking 3,901 C-TPAT members about the program in 2010. The perception of the benefits increased in proportion to the duration of the membership. The findings about the benefits of the C-TPAT membership include the decrease of the time to release cargo by CBP (Customs and Border Protection) and in CBP

\[Figure 3:\text{Mutual Recognition Arrangements/Agreements (MRA) (2016–2020)}\]
\[
\text{Source: Online AEO Compendium (World Customs Organisation, 2022)}
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inspection lines, decreased waiting time for carriers at land borders and at ports of entry and decreased disruption of the supply chain, and increased in the predictability of good flows and in security. (U.S. Customs and Border Protection, 2010)

Based on a European survey, modelling the effect of safety on efficiency Urciuoli and Ekwall also concluded that in the case of companies that ensure the safety of the flow of goods with an AEO certificate, the efficiency also increased. (Urciuoli & Ekwall, 2015)

WCA Region
It is striking that while 10 of the 18 countries of the MENA region and 8 of the 24 countries of the ESA region had an operational AEO program, only one of the 24 countries of the WCA Region had an AEO program operational in 2020.

The question arises: Do the countries of the WCA Region need the AEO program?

Terror Rankings in the WCA Region
The Global Terrorism Index (GTI) analyses the impact of terrorism in 163 countries and makes a ranking with the most impacted country in the first place.

As the Figure 4 shows, there are many countries in the region particularly affected by terror. Nigeria has been around 4th place almost since the introduction of the GTI, mainly due to the activities of Boko Haram. Cameroon’s ranking around 10th place is also constant, and this is also the case for Chad at around 20th place.

However, a significant increase in terrorist activity can be observed in Burkina Faso. Since its 30th place in 2016, the country has continuously moved up in the ranking, and in 2021 it also surpassed Nigeria as the region’s most terror-stricken country, at 4th place in the GTI ranking. Since 2016, Mali has also experienced increased terrorist activity, moving from 13th to 7th place. In the case of Niger, an even greater deterioration can be observed, from the 19th place in the ranking to the 8th place by 2021. After the temporary improvement in DR Congo (from 36th place in 2016 to 57th place in 2018), the number of terrorist acts increased again, so that in 2021 the country was already in 17th place.

Seven countries of the region can therefore be considered to be strongly affected by terrorism.

Economic complexity
The Economic Complexity Index (ECI) is a measure of the relative knowledge intensity of an economy by considering the knowledge intensity of the products it exports. ECI has been validated as a relevant economic measure by showing its ability to predict future economic growth. (OEC, 2020)

Since the ECI is based on the export of products requiring complex knowledge, it gives a good indication of a country’s ability to export manufactured goods. The deterioration of the country’s position in the ranking usually indicates a decrease in the export of more complex products, but it can also be caused by a lack of growth in a period when other countries increase the export of manufactured goods.
Depending on the year, ECI ranks between 125 and 135 countries depending on the availability of data. In 2020, 127 countries were included in the ranking. Among the examined countries, no 2020 data is available for Chad.

As Figure 5 illustrates, the reduction in complexity is clearly visible in the case of countries particularly affected by terrorism in the WCA region. A significant continuous decline can be observed in the case of Burkina Faso, which by 2020 has slipped to the penultimate, 126th place among the ranked countries. The 125th place in the ranking is occupied by Nigeria, whose efforts to diversify exports have not been fruitful. DR Congo reached 123rd place in 2020, which can be evaluated as an almost stagnant performance. On the other hand, the situation of Cameroon deteriorated significantly, falling from 94th place to 121st place in 4 years. In 2020, four of the last seven places in the ECI ranking were occupied by the countries included in the study. After a few weaker years, Mali, which ranked in the top 100 again, slipped back to 103rd place, and Niger’s constantly improving situation also reversed, and in 2020, it slipped 10 places in one year to 95th place.

The decrease in complexity experienced in 2020 can probably not be written 100% at the expense of terrorism, but it certainly played a significant role in the
countries examined. The impact of the pandemic on the exports of these countries is assumed to be negligible.

**Cost barriers of trade across borders**

The trade openness of the examined countries is low, mostly below the average of the African continent. (The Global Economy.com, 2022) This value may be appropriate for Nigeria due to the size of its economy, while for smaller economies it indicates that these countries are largely excluded from international supply chains.

International trade is significantly hindered by the difficulty and high costs of transporting goods across national borders. The World Bank provides survey data as part of the Doing Business index in the framework of the Trading across Borders ranking.

The data is calculated for export and import of a container of goods in the value of 50,000 USD. It evaluates the times and the costs for documentary compliance and for border compliance for normal procedures. These costs to be paid by the companies reimburse the costs of operating the state bodies that carry out entry and exit examinations and procedures.

For this research, translating time into costs, for every hour 1 USD is calculated for labour costs, additional financing and potential demurrage charges.

It is important to emphasize that the data only includes the administrative costs of crossing the border, the taxes, customs duties, and excises to be paid are not included. This also means that importers and exporters pay these costs, but state budgets do not realize income from these company costs.
In the ranking of Trading across borders index the examined countries have the following ranks out of 187 countries:

- 187 DR Congo
- 186 Cameroon
- 179 Nigeria
- 173 Chad
- 126 Niger
- 122 Burkina Faso
- 95 Mali

The rankings achieved show that these countries have higher-than-average costs for clearing the goods across the border. For DR Congo, Cameroon and Nigeria, these costs are significantly higher than average.

To better understand the impact of border crossing costs on the flow of goods, these costs can be converted into ad valorem customs rates. Figure 6 shows the extent of the equivalent of additional customs rates by the seven countries examined. Refer back to Figure 1 for the average rates of customs rates.

In the case of goods with a lower duty rate and shipments of lower value, this may mean a significant increase or even a multiplication of the duties to be paid on imports and may result in a significant increase in the domestic price of imported goods. For example, in the case of a shipment worth 10,000 USD a 4% additional ad valorem rate means that the importer must pay 20% of the value of the shipment for border crossing costs. If the normal duty rate of the goods is 5%, then the 20% additional cost to be paid will quintuple the importer’s burden. This is due to the fact that the administrative costs are nominative, resulting in the penalization of lower value shipments, probably to the point of raising a barrier to entry.

Figure 6: Ad valorem customs rates equivalent of Trading across borders costs in % for a 50,000 USD value containerload.
Source: Authors’ visualisation of data from World Bank (Doing Business, 2018)
In exports, the high costs of crossing the border make the exported goods more expensive, thus impairing the country’s international competitiveness.

It should be noted that the border crossing costs of the three port countries reach extremely high values. Some of these costs are probably the result of the inefficient operation of congested ports, thus affecting the costs of landlocked countries as well. In the case of landlocked countries, these do not appear as border crossing costs, but are part of the freight cost.

Previous research has shown that there is a strong positive correlation between import and export border crossing administrative costs. In the case of imports, it could be assumed that these costs were intentionally kept high since high border crossing costs represent an additional market entry barrier. In exports, however, the additional costs threaten the market positions of the country, so except in crisis situations, no country puts obstacles in front of its exports. The strong correlation between export and import costs suggests a lack of intentionality and makes it likely that the high border crossing administrative costs are the result of inefficiency of the procedures.

The extreme extent of the costs of crossing the border is even better illustrated by the comparison with GDP per capita shown at purchasing power parity, which is illustrated in Figure 7. Among the countries examined, in Mali, Burkina Faso and Nigeria, which show a more favourable ratio, the entry of a container load into the country costs almost a third of the GDP per person. An acceptable average cost level corresponding to the reimbursement level is around 300-500 USD for import and 100-300 USD for export. The reimbursement level should be even lower in developing countries due to lower wages and operating costs.

Since the data used are the results of surveys of companies, it cannot be guaranteed that the cost data only represents official costs.

![Figure 7: Trading across border costs compared to GDP in USD](Data/Stats/image.png)

Source: author’s visualisation of data from World Bank (Doing Business, 2018)
Corruption

Corruption greatly distorts the functioning of governance and the public sector. It increases costs and risks, makes the operation of the regulatory environment opaque and unpredictable. Corruption disrupts business processes. This makes the companies of the highly corrupt country undesirable business partners, thus having a negative impact on international trade and making it difficult for the country to join international supply chains.

High level of perceived corruption in a country increases social disparities consequently increasing dissatisfaction. It makes it easier to radicalize the population and creates a hotbed for the growth of terrorism. However, the spread of corruption can also be a consequence of increasing terror.

The Corruption Perceptions Index (CPI) published by Transparency International ranks 180 countries based on the perceived corruption of their public sectors. The scores are given on a scale of 0 to 100, where 100 is very clean and 0 is highly corrupt.

Perceived corruption is high on the African continent. In 2020, out of the 54 countries evaluated, only 6 countries scored higher than 50 points, and another 9 scored between 40 and 50 points. The average score of the assessed African countries was 32 out of 100.

It can be read from the data in Table 1. that only Burkina Faso’s result is better than the average of the African continent, and Niger’s result is the same as the average, Mali’s is not far behind. The DR Congo can be classified as one of the most corrupt countries in the world.

The AEO program makes the process of border administration transparent and simple, thereby helping to reduce corruption. However, the authors’ previous research showed that high levels of corruption hinder the implementation of the AEO program. The only country with an AEO program in operation in the WCA Region is Cote d’Ivoire which improved its perceived corruption index score by 7 points between 2012 and 2020.

<table>
<thead>
<tr>
<th>Country</th>
<th>Rank</th>
<th>Score</th>
</tr>
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<tbody>
<tr>
<td>DR Congo</td>
<td>170</td>
<td>18</td>
</tr>
<tr>
<td>Chad</td>
<td>160</td>
<td>21</td>
</tr>
<tr>
<td>Nigeria</td>
<td>149</td>
<td>25</td>
</tr>
<tr>
<td>Cameroon</td>
<td>149</td>
<td>25</td>
</tr>
<tr>
<td>Mali</td>
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<td>30</td>
</tr>
<tr>
<td>Niger</td>
<td>123</td>
<td>32</td>
</tr>
<tr>
<td>Burkina Faso</td>
<td>86</td>
<td>40</td>
</tr>
</tbody>
</table>

Table 1. CPI score and rank of the examined countries in 2020.

Source: (Transparency International, 2020)
**AEO in WCA Region**

The Region has only 1 operational AEO program, launched in 2020. Four countries included in the analysis, Burkina Faso, Cameroon, Nigeria, DR Congo – in addition to Gabon and Ghana – have started developing their AEO program, but they are moving at a snail’s pace. It is not clear when the programs will become operational. The introduction of the AEO program should be accelerated throughout the region.

**Conclusions**

Terrorism has adverse economic effects in the WCO WCA and represents a further growing threat. Seven countries are particularly strongly affected. In the case of the examined 7 countries, the decreasing complexity of the economy, the extremely high administrative costs of trading across the border, and the high level of corruption can be clearly demonstrated. To compensate for all these harmful effects, these countries are in great need of the introduction of the AEO program.

It is encouraging that the countries most in need of the AEO program, DR Congo, Nigeria and Cameroon, are actively working on the introduction of the program. In the case of Burkina Faso, the AEO program under preparation will help prevent further deterioration.

The introduction of the AEO program is also strongly recommended for the other three examined countries and for the less terror-affected countries of the region to take advantage of the trade facilitation effect. The large and growing number of operational AEO programs and MRAs may result in countries without them being marginalized in international trade and unable to participate in international supply chains.

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