

# **E-clustering for Effective Regional Integration in Africa: ECOWAS-Cluster as an Example**

by

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## **Abstract**

That regional integration across Africa has been ineffective is hardly a matter of dispute. This is due to the fact that African integrative systems are characterized by substantial economic disparities among the member states. As such, a variety of fiscal and planning mechanisms were built into integrative systems to compensate less industrialized African partners for the unequal distribution of gains that generally result from the liberalization of trade. But the failure to implement such schemes heightened conflicts over cost-benefit issues within these integrative systems. The major question then becomes how regional integration can be made effective in light of these challenges. In this essay, I suggest that E-clustering, which is an innovative approach for economic policy based on the concept known as “cluster-building,” can help. By employing the Explanatory Case Study Methodology, the Economic Community of West African States (ECOWAS) is used to show how an African regional E-cluster can be effective.

## **Introduction**

This essay is an attempt to show how E-clustering can be used to make regional integration effective in Africa. It begins with an assessment of the efforts at regional integration in the continent. This is followed by a review of the three interrelated attributes of E-clustering: (1) the importance of times-technologies—telecommunication, information technology, multimedia, entertainment, and security; (2) the concept of cluster-building; and (3) the cluster strategy. After that, how a regional integration E-clustering strategy for the Economic Community of West African States (ECOWAS), i.e. ECOWAS-Cluster, can work effectively is suggested by utilizing the Explanatory Case Study Methodology. In the end, a conclusion is drawn based on the analysis.

Before doing all this, however, it behooves me to conclude this section with brief discussions of the notion of regional integration in the African context; that the scientific notion of “clustering” is not new, although “E-clustering” is; and the Explanatory Case Study Methodology that undergirds the analysis.

The presupposition of the *Regional Integration Model* (or *Collective Self-reliance*, as other writers refer to it) is that to realize greater self-reliance, a country must inevitably depend on the cooperation from other countries that share similar characteristics and goals. African countries learned very quickly after independence that in order for them to overcome the problems of limited economic resources, economic cooperation with their neighbors was a sensible strategy.

*Scientific clustering* emerged as an important statistical application in the early 1980s as researchers studying similarly situated entities employed the Cluster Analysis Methodology: a number of techniques that are utilized to create a classification. A clustering method is a multivariate statistical procedure that empirically forms “clusters” or groups of highly similar entities. It starts with a dataset containing information about a sample of entities and attempts to reorganize these entities into relatively homogenous “clusters” or groups (Aldenderfer and Blashfield, 1984:7).\

*E-clustering*, according to Ute Hansen (2004a), is an economic approach based on the concept of “cluster-building.” In this case, an economic cluster initiates the networking of all participants in a value-added chain. The objective is to bundle the potentials and competences for increasing the innovation power and competitiveness of the partners in a cluster. Given Internet technology, even business and government networking in rural areas can obtain a driving force. Internet technologies such as infrastructure, applications, platforms, and broadband can enable the business processes among companies, academic institutions, research institutes and governments to be networked. E-business and E-government/E-administration cause fundamental structural changes of the private and public sectors. Given this reality, there is a need for economic and technology policy. This need is taken into account in E-clustering. The partner countries in an E-cluster can be networked by processes that are more standardized and so able to be supported by online applications. The E-cluster will require a central infrastructure and services. Knowledge management, E-learning, E-marketplaces, personnel management and E-government will be the main processes and services of an E-cluster.

The *Explanatory Case Study Methodology* is defined by Robert Yin as an empirical inquiry that “investigates a contemporary phenomenon within its real-life context, when the boundaries between phenomenon and context are not clearly evident, and in which multiple sources of evidence are used,” by probing the question “how?” or “why?” (Yin, 2003:23).

The unit of analysis in this study comprises the ECOWAS member states. The level of analysis is therefore the regional. The technique used for data collection is document analysis of books, scholarly journals and credible Internet sources, because it is a study of references and an analysis of their contents. The factors that shaped the choice of the data collection technique were availability of information and its relevance to the topic.

## **Assessing Regional Integration in Africa**

The idea of regional integration in Africa is not new. Before independence, colonial powers instituted regional integration systems for their own needs instead of those of Africans. Transportation networks linking peripheral areas and coastal centers were created by colonial administrators to minimize their financial commitments, coordinate markets, and establish common currency areas under their rule. Britain and France even promoted the formation of federations, common service organizations, and common banking systems among their colonies (Legum et al., 1979:177).

Post-independence regional integration in Africa, however, is of a different sort. While international capital favored the creation of free trade areas from which it stood to benefit, it nonetheless sought to undermine those regional integrative systems that through planning might inhibit its freedom of action. Multinational corporations (MNCs) are particularly reluctant to encourage regional integration if they have medium- or large-size markets and some limited local industrial capacity (Legum et al., 1979:177).

African integrative systems are characterized by substantial economic disparities among the member states. As such, a variety of fiscal and planning mechanisms were built into integrative systems to compensate less industrialized African partners for the unequal distribution of gains that generally result from the liberalization of trade. But the failure to implement such schemes heightened conflicts over cost-benefit issues within these integrative systems. In some of the systems (for example, the Organization pour la mise en valeur de la Vallée du Fleuve Sénégal), these conflicts led to the transformation of the associations and their abandonment of planning objectives. In other systems (such as the Economic Community of West African States—ECOWAS), cost-benefit conflicts led to many postponements in the signing of the treaties and subsequent delays in implementing key harmonizing elements in them. In still others (such as the East African Community—EAC), similar conflicts led to the dissolution of the systems (Legum et al., 1979:178).

The South African Development Coordination Conference (SADCC), which grew out of the grouping of Front Line States (Angola, Botswana, Lesotho, Malawi, Mozambique, Tanzania, Swaziland, Zambia, and Zimbabwe), established to promote the transition to majority rule in Zimbabwe, emerged as the most innovative attempt on the African continent to translate aspirations of regional integration into reality.

The system enjoyed moderate success in its first years of existence. It was able to attract finance for a number of projects in the transportation and communications fields. There was an increase in the amount of trade among some of the member states. The trade was often conducted on the basis of barter or paid for in local currencies (Chazan et al., 1988:270-271).

Despite this moderate success, SADCC faced two major vulnerabilities. The first had to do with the fact that the organization was heavily dependent on foreign donors for its projects. Its annual donors' conferences were able to attract support for some projects, but the total assistance provided fell far short of the group's expectations. In a number of cases, the aid actually represented the redirection of existing pledges instead of additional finance. Aid donors demonstrated a marked reluctance to finance SADCC's agricultural and industrial projects. Reliance on foreign assistance was somewhat paradoxical since the organization's stated goal was to reduce dependence of foreign aid (Chazan et al., 1988:271).

The second source of vulnerability was the Front Line States nemesis at the time: i.e. apartheid South Africa. Because Pretoria perceived SADCC to be a challenge to its hegemony in the region, it sought to undermine the organization. South Africa frequently invaded those states that share a border with it and also sponsored guerilla movements hostile to the established Front Line governments (such as the Mozambique National Resistance Movement—RENAMO and the National Union for the Total Independence of Angola—UNITA) to carry out acts of sabotage in these countries—destruction of transportation and communication links, blowing up power lines, etc. Other forms of South Africa's sabotage were quite subtle: refusing to provide railroad locomotive to head trains originating in Zimbabwe, redirecting South Africa's trade away from the port of Maputo, and offering reduced tariffs on rail transport through South Africa for Zimbabwe's main exports of tobacco and cotton to encourage traders not to use SADCC routes (Chazan et al., 1988:272).

Recent studies have identified a number of challenges to regional integration in Africa. These challenges include lags in gross domestic product (GDP) growth, per capita income, capital inflows, and general living standards (e.g., Qobo, 2007); significant membership overlap, ambitious targets, and poor implementation strategies (e.g., Hertenberg); political motives, geography, uneven distribution of gains, sharp differences in policy preferences, pursuit of the "linear model of integration" ("with a stepwise integration of goods, labour, and capital markets"); and monetary and fiscal integration (e.g., Melo and Tsekata, 2014; see also Hertenberg, 2011 for the latter factor).

In its most recent *Africa Regional Integration Index Report 2016*, the United Nations Economic Commission for Africa (UNECA) discusses the five “Dimensions” it considers to be the major socioeconomic categories that are the basis of Africa’s regional integration. It employs 16 indicators for which data were available to measure the five Dimensions in order to calculate the Index for the 54 member countries of the eight “Regional Economic Communities” (RECs) recognized by the African Union (AU): i.e. (1) Community of Sahel-Saharan States—CEN-SAD, (2) Common Market for Eastern and Southern Africa—COMESA, (3) East African Community—EAC, (4) Economic Community of Central African States—ECCAS, (5) Economic Community of West African States—ECOWAS, (6) Intergovernmental Authority on Development—IGAD, (7) Southern African Development Community—SADC, and (8) Arab Maghreb Union—UMA (UNECA, 2016).

The five dimensions and their attendant 16 indicators are the following: (1) Trade integration—level of customs duties on imports, share of intra-regional goods imports as a percentage of the GDP, and share of total intra-regional goods trade as a percentage of total intra-REC trade; (2) Productive integration—share of intra-regional intermediate goods exports as a percentage of intra-regional exports, share of intra-regional intermediate goods imports as a percentage of intra-regional imports, and Merchandise Trade Complementarity Index; (3) Free movement of people—proportion of REC member countries whose nationals are issued with a visa on arrival, ratification or non-ratification of REC protocol on free movement of persons, and proportion of REC member countries whose nationals do not require a visa for entry; (4) Financial and macroeconomic integration—regional convertibility of national currencies and inflation rate differential based on the Customized Consumer Price Index; and (5) Regional infrastructure—Infrastructural Development Index reflecting transport, electricity, information communications technology, water and sanitation; proportion of intra-regional flights; total regional electricity trade (net) per capita; and average cost of roaming (UNECA, 2016).

With a 95 percent confidence interval (or 0.05 level of significance), a country is ranked within a REC as either (a) high performer—score higher than average of countries; (b) average performer—score within the average of countries; or (c) low performer—score below the average of countries. The average REC scores on Regional Integration equal 0.470 on a scale from 0 (or low) to 1 (or high). The average Regional Integration scores for the eight RECs are below half of the scale from 0 to 1 (UNECA, 2016).

As shown in Table 1, the chi-square test (a statistical method used to assess the goodness of fit between observed values and those expected theoretically) I performed on the *Africa Regional Integration Index* reveals that none of the RECs (or their average) has achieved significant integration. Both the Pearson Chi-Square (a statistical test utilized to evaluate whether any observed difference between sets of categorical data is spurious) and Likelihood Ratio (a statistical test that yields a numerical measure of the probability of an effect) coefficients are not statistically significant at the 0.05 level given the coefficient of the two-sided asymptote (i.e. a line that continually approaches a given curve but does not meet it at any finite distance).

In fact, a Reimann Sum test (an approach employed to determine a numerical approximation for a total accumulation of a function) for integration yielded no result because the index contains similar matrices which contain 0's and 1's (this is referred to as logical indexing), albeit the index matrix is not a logical array. In short, regional integration in Africa has not lived up to expectations after many years of its launching.

Table 1: Regional Economic Community Scores in the Five Dimensions

<b>Regional Economic Community</b>	<b>Trade Integration</b>	<b>Regional Infrastructure</b>	<b>Productive Integration</b>	<b>Free Movement of People</b>	<b>Financial and Macro-economic Integration</b>
CEN-SAD	0.353	0.251	0.247	0.479	0.524
COMESA	0.572	0.439	0.452	0.268	0.343
EAC	0.780	0.496	0.553	0.715	0.156
ECCAS	0.526	0.451	0.293	0.400	0.599
ECOWAS	0.442	0.426	0.265	0.800	0.611
IGAD	0.505	0.630	0.434	0.454	0.221
SADC	0.508	0.502	0.350	0.530	0.397
UMA	0.631	0.491	0.481	0.493	0.199
<b>Average</b>	0.540	0.461	0.384	0.517	0.381
<b>Chi-Square Tests</b>	<b>Value</b>	<b>Degrees of Freedom</b>		<b>Asymptote Significance (2-sided)</b>	
Pearson Chi-Square	20.000	16		0.220	
Likelihood Ratio	16.094	16		0.446	

Source: Self-generated by author using UNECA (2016) Data and computed by using MATLAB

The foregoing assessment of regional integration in Africa indicates that successful policy reforms and economic development in the continent call for substantial political will on the part of African governments. African leaders must seriously work for the establishment of a Union of African States as an alternative.

## **The E-clustering Approach**

It behooves me to mention here that various versions of the discussion in this section appear in three of my works (Bangura, 2009, 2012, & 2015). As I point out, in a series of six papers (2004a, 2004b, 2005a, 2005b, 2006a, 2006b), Ute Hansen of the Ministry of Economic Affairs, Employment and Transport of the State of Schleswig-Holstein in the Federal Republic of Germany developed E-clustering as an innovative approach for economic policy. The three interrelated attributes of this approach mentioned earlier are described in the following subsections.

## **The Importance of Times-technologies for an Innovative Economic Policy**

According to Hansen, times-markets (a wide range of instruments that cluster the volatility of markets and time periods) comprise a major mechanism for the transformation from industrial to information society. Developing rapidly and causing innovations in all industries, times-technologies (telecommunication, information technology, multimedia, entertainment, and security technologies that support networking) can be an accelerator for the economic and technological development of a region. The digitization and networking precipitated by the development of broadband infrastructure and applications can push the convergence of different media: information technology and telecommunications industries. Changing business processes, new integrated value-added chains, different organizational structures and innovative products will spur increased employment and economic growth.

The strategy of an economic and technology policy that focuses on clusters ensures innovation, growth and employment in a region. Times-cluster (reports of field clustering that occurs during the same time) performs two important functions for the processes of innovation. The first function is that due to cross-function technologies, times-cluster accelerates innovation and, thus, the technological and economic development of the application-clusters like life sciences and tourism. The second function is that time-cluster itself is an application-cluster. These functions of times-cluster provide a great potential for innovation and growth for a region to become economically competitive and dynamic. The realization of the strategic E-clustering strategy can lead to an interlocking of the regional times-cluster policy and user-cluster policy.

## **The Cluster-building Concept**

Hansen points out that the goal of a policy that is geared towards cluster-building is to support regional networks of competitive and cooperative actors in a cluster. An economic cluster initiates and pushes the networking of all participants in a value-added chain, which are companies, institutions such as universities and research institutes, customers, suppliers, employees, representatives of interest groups, and the public sector. A cluster consists of independent organizations that strive for economic growth and efficiency. In accordance with the concept of cluster-building, it is the intensity of the interaction of the actors, not the individual actors, that has a positive effect on the competitiveness of a regional cluster.

The focus of cluster analysis then is the regional or geographic agglomeration of networked organizations and individuals. Efficiency and specialization are derived because the geographic concentration of firms in internationally successful industries often occurs as the influence of the individual determinants in the “diamond” and their mutual reinforcement are heightened by the close geographic proximity within a region. A concentration of rivals, customers, and suppliers will promote efficiencies and specialization. “Diamond” here refers to factor conditions such as cost and quality of inputs, demand conditions such as the experiences of local customers, the context for firm master plan and maneuvering such as the nature and strength of local competition, and related and supporting industries such as the local expanse and experience of suppliers and related industries. Thus, Diamond Theory deals with how these elements are combined to produce a dynamic, stimulating, and intensely competitive business environment. A concentration of rivals, customers, and suppliers therefore promotes efficiencies and specialization. Geographic concentration on improvement and innovation is an even more important influence.

The cluster-building concept inherits a new dimension because the innovative time-technologies provide new technological possibilities to support the process of cluster-building. Independent of time and location, the actors of a cluster are able to take part in information, communication and transaction processes with internal and external partners of a cluster. The ability of a cluster to be competitive hinges upon its capacity to digitalize the internal cluster processes and the processes among different clusters. Thus, the competitive advantages of a regional and local cluster-building are enforced by the digitalization of the cluster processes. The concept of local and geographic clustering has to be extended by the E-clustering concept.

A paradox concerning regional clustering and the process of globalization implicitly undergird the E-clustering approach. Since the classical factors of production are now more accessible due to globalization, competitive advantage in advanced industries is increasingly determined by differential knowledge, skills, and rates of innovation that are embodied in skilled people and organizational routines. The development of skills and the important influences on the rate of improvement and innovation have become local. The paradox is that as global competition becomes more open, the home base becomes more, not less, significant.



Processes of knowledge management and learning are increasingly being supported by information and communication technology (ICT). As a result, the competitiveness of a regional cluster in the global market will depend on the extent to which the cluster specific process of knowledge management and learning are standardized and digitized. Employing E-knowledge management and E-learning applications will allow the cluster to concentrate on the cluster specific and regional competitive factors described in the paradox of regional clustering and the process of globalization.

An E-clustering approach of a regional economic and technological policy means, on the one hand, a digitized network of the actors of a process-oriented cluster organization and, on the other hand, a digitized network of different clusters. Consequently, distinction should be made between internal and external processes.

A cluster is characterized by a critical mass of actors in a value-added chain that can be focused on technology, processes, or industries. Thus, E-clusters will yield the following positive effects: (a) accelerate the distribution of knowledge, (b) reduce transaction costs, (c) provide for an infrastructure, (d) produce economies of scale, (e) cause external economies, (f) produce economies of specialization, (g) stimulate competition and cooperation, and (h) enforce the internationalization of the economic and cluster-specific relations.

The focus of a cluster policy then is the potential growth of a regional cluster. The acceleration of the innovation processes fostered by cooperation and competition leads to increased employment and growth in the region. An all-embracing cluster has to take into account and to balance out business, economic, technological, employment and educational objectives in order for a management instrument to be applied that meets these requirements. Robert Kaplan and David Norton's "balanced scorecard" (1996) is a management instrument that can be applied to delineate a concept for a comprehensive cluster strategy. The outcome will be a strategic frame for E-clustering that is transferable to all regional cluster initiatives or strategies.

## **The E-clustering Strategy**

Hansen identifies four major characteristics of E-clustering strategy. The first characteristic is the use of a balanced scorecard as a strategic instrument—i.e. a strategic management system that, on the one hand, is appropriate to evaluate a strategy and, on the other hand, has its main function during the realization of the strategy. The balanced scorecard depends strictly on times-supported processes. A cluster organized by these particular processes is imperative for the application of the balanced scorecard to develop a cluster strategy. The balanced scorecard concept is therefore based on the assumption that managers of the public and private sectors have visions and have also developed a mission and a cluster strategy. The process of developing a scorecard proceeds in the following seven stages:

- Stage 1: Evaluation of the strategy by taking the vision and mission into account
- Stage 2: Deduction of the strategic objectives
- Stage 3: Connection of the strategic objectives
- Stage 4: Determination of the measured values
- Stage 5: Determination of the assigned values
- Stage 6: Determination of the strategic activities
- Stage 7: Interconnection with the operational planning

The strategic objectives are linked to measured values with a long-term focus. To realize the objectives and measured values, strategic activities must be planned. In addition, milestones that have to ensure the connection between strategy and the operational plan must be specified. Thus, the balanced scorecard must entail a vision, a mission, a strategy, perspectives, objectives, activities, measured values, and a cause-effect-chain.

The second characteristic entails the vision, mission and strategy, which must be integrated in the objectives of the regional economic policy. The goal is to maximize the welfare objectives concerning stability, growth, structure, and distribution. The economic policy should always be geared towards innovation, growth, and employment. In order to develop the model of a cluster policy, a vision, a mission, and a strategy are needed. The model serves as the starting point for the conception of the E-clustering balanced scorecard. It is the first step in the dynamic strategic process: i.e. the scorecard process. Cluster actors must therefore participate in the scorecard process because all results, like the model, have to be accepted by the whole cluster.

The third characteristic is about the perspectives of an E-cluster, which are needed to establish a balanced system of objectives and measured values that are necessary to develop a comprehensive strategy. An E-cluster in its formative phase should develop five interrelated perspectives. The first is the economic perspective of an E-cluster, which represents the final output produced by all economic cluster activities. The decisive goal is to improve the economic output and, thus, the gross value-added. The second is the partner and cooperation perspective, which is immensely essential for the cluster strategy. The cluster actors, particularly the companies, the universities, the research institutes, and the public institutions, should organize themselves in network and in cooperation in order to bundle and, therefore, increase their potentials and competences. The third is the cluster perspective, which entails the internal and cluster overlapping processes that are critical for the successful market position of the cluster. The collaborative processes are part and parcel of the main E-cluster processes. Innovation, knowledge management, learning and government/public processes are used to illustrate the perspective processes of the cluster strategy.

The fourth is the improvement and development perspective, which focuses on activities and measured values that represent, on the one hand, the improvement and development of competencies of the cluster actors and, on the other hand, the optimal application of times-technologies in the cluster processes. This strategic perspective is oriented towards the growth of the cluster because the human capital and the times-technologies are vital motors for innovation. The main processes of the cluster are collaborative processes that can be supported by times-technologies that will generate a benefit for the cluster actors and for the cluster as a whole. These processes include (a) E-innovation in which companies, research institutes, universities, and government participate; (b) E-knowledge management and learning through which the processes and contents of knowledge management and learning are digitized so that the cluster actors could use them on demand at any time and from anywhere; and E-government through which strategies are realized with the objective to organize public services as processes and to support them with times-technologies. The fifth is the organization and policy perspective which is concerned with the objectives and activities of the cluster management and the cluster policy. During the formative stage of the development of a cluster, it is imperative to integrate the organization and policy perspective in the balanced scorecard.

The final characteristic is the cause-effect-chain, which must be developed because its assumptions concern the perspectives' overlapping effects that must be controlled and evaluated. The objective is to determine whether the assumptions about the effects are valid. The following questions must be raised and probed: How is cooperation influenced by the funding activities of the public sector? Is the influence of the cooperation within the cluster on the innovation processes of a cluster significant? Which effects on the gross value-added and the employment are to be expected? Cause-effect-chains of the balanced scorecard are all based on assumptions concerning the dependencies of objectives and measured values. A controlling and, if necessary, an adaptation of the balanced scorecard are needed to empirically test the assumptions. To produce reliable assertions with the instrument of the cause-effect-chain, statistical methods must be applied.

## **An E-clustering Strategy for the ECOWAS**

What I suggest here is a prototype E-cluster that would enable various entities/actors in the 15 states that are members of the ECOWAS (Benin, Burkina Faso, Cabo Verde, Côte d'Ivoire, The Gambia, Ghana, Guinea, Guinea-Bissau, Liberia, Mali, Niger, Nigeria, Senegal, Sierra Leone, and Togo) to manage critical aspects of their operations from a single interface. The ECOWAS E-cluster aims to identify some possible solutions to sustain and support the regional community. Thus, the E-cluster entails tools designed to pull down geographical distances and facilitate information and knowledge sharing. The general key elements are (a) geographical concentration, (b) specialization, (c) multiples actors, and (d) critical mass.

The main challenges for the ECOWAS E-cluster are globalization and dematerialization, both of which call for radical redefinitions of physical proximity (local or global) and cultural identity (new or old). These developments have created the need for social or indigenous knowledge preservation while at the same time being open to internationalization.

I recommend three project steps. The first step is to set up a model of the E-cluster and test it. The second step is to implement the model, and I suggest the use of action research methodology: i.e. research that involves the active participation or inclusion of groups under study (for more on this technique, see, for example, Bangura and McCandless, 2007). The final step is to evaluate the outcomes of the model in order to be able to replicate it in similar circumstances.

As represented in Figure 1, I identify 14 potential clusters that can be digitized into a network for an ECOWAS E-clustering strategy: (1) government/administration, (2) geographical, (3) higher education and research institutes, (4) customers/population, (5) commodities, (6) interest/political pressure groups, (7) communications, (8) security, (9) transportation, (10) internationalization, (11) health, (12) tourism, (13) religious, and (14) refugees. The following subsections entail brief descriptions of these clusters.

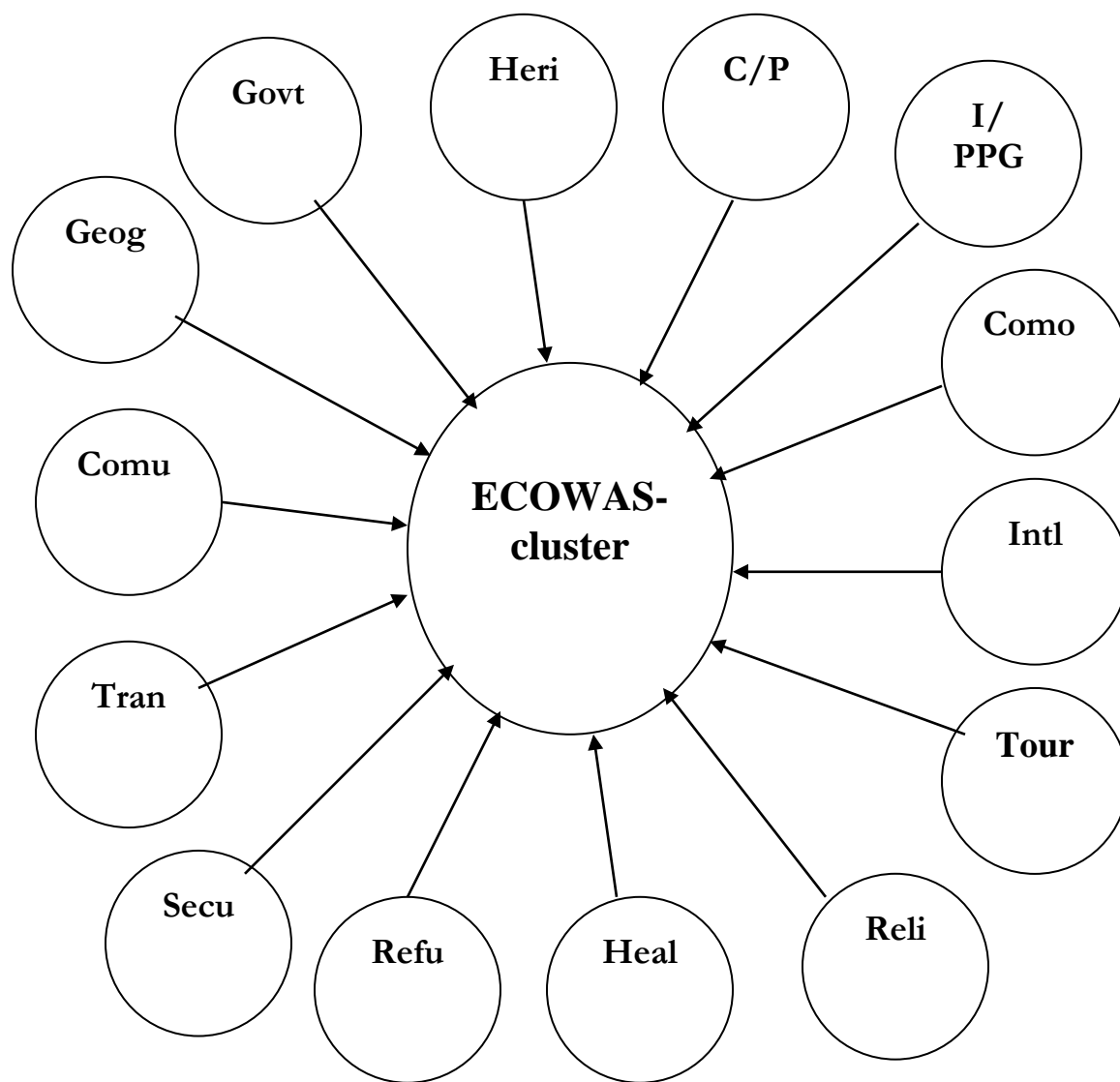


Figure 1: ECOWAS-Cluster

where Govt = government/administration, Geog = geographical, Heri = higher education and research institutes, C/P = customers/population, Como = commodities, I/PPG = interest/political pressure groups, Comu = communications, Secu = security, Tran = transportation, Intl = internationalization, Heal = health, Tour = tourism, Reli = religious, and Refu = refugees

## Government/Administration Cluster

From Table 2, it can be gleaned that the type of government that exists in all of the ECOWAS member states is a multiparty presidential regime. The majority of the countries (11) are presidential republics (i.e. the head of the government is also head of state and leads an executive branch that is separate from the legislative branch.), two countries are semi-presidential republics (i.e. a president, a prime minister, and cabinet are collectively responsible to the legislature), and one is a federal presidential republic (i.e. smaller areas such as states or provinces where the central government cedes certain powers to the individual areas for self-government purposes).

In addition, the table shows that the presidents of most of the countries are directly elected by an absolute majority of the popular vote in two rounds if needed. Only in one country (Guinea) is the president elected by a simple majority of the popular vote. Also, most of the countries have unicameral (i.e. one chamber or house) legislatures. Only Liberia and Nigeria have bicameral (i.e. two chambers or houses) legislatures comprising of a Senate and a House of Representatives. Furthermore, the judicial branches of all the countries have a Supreme Court and a number of subordinate courts, including appeals, military, customary, various professions, district, villages, Assize and religious courts.

In sum, the ECOWAS member states have the mechanisms for nurturing vibrant democratic governments. What is needed is a coordinated effort to discourage military interventions and civil wars. This can be done by professionalizing the military and leaders striving to meet the basic human needs of the populace via a government/administration cluster.

Table 2: Selected Government/Administration Features, 2016

<b>Country</b>	<b>Government Type</b>	<b>Legal System</b>	<b>Election/Appointment</b>	<b>Legislative Branch</b>	<b>Judicial Branch</b>	<b>Number of Political Parties</b>
Benin	Presidential Republic	Civil law based on the French civil code	President directly elected by absolute majority of popular vote in two rounds if needed	Unicameral National Assembly	Supreme Court and 4 types of subordinate courts	11 major and 20 minor parties
Burkina Faso	Presidential Republic	Civil law based on the French civil code	President directly elected by absolute majority of popular vote in two rounds if needed	Unicameral National Assembly	Supreme Court and 5 types of subordinate courts	20 political parties

Cabo Verde	Parliamentary Republic	Civil law system of Portugal	President directly elected by absolute majority of popular vote in two rounds if needed	Unicameral National Assembly	Supreme Court and 5 types of subordinate courts	8 political parties
Côte d'Ivoire	Presidential Republic	Civil law based on the French civil code	President directly elected by absolute majority of popular vote in two rounds if needed	Unicameral Parliament	Supreme Court and 4 types of subordinate courts	7 major and 144 minor parties
Gambia, The	Presidential Republic	Mixed legal system of English common law, Islamic law, and customary law	President directly elected by simple majority of popular vote	Unicameral National Assembly	Supreme Court and 6 types of subordinate courts	9 political parties
Ghana	Presidential Republic	Mixed system of English common law and customary law	President and Vice President directly elected by absolute majority of popular vote in two rounds if needed	Unicameral Parliament	Supreme Court and 5 types of subordinate courts	4 political parties
Guinea	Presidential Republic	Civil law based on the French model	President directly elected by simple majority of popular vote	Unicameral People's National Assembly	Supreme Court and 7 types of subordinate courts	5 most popular political parties
Guinea-Bissau	Semi-Presidential Republic	Mixed legal system of civil law which incorporated Portuguese	President directly elected by absolute majority of popular vote	Unicameral People's National Assembly	Supreme Court and 3 types of subordinate courts	6 political parties

		law at independence and influenced by early French civil code and customary law	in two rounds if needed			
Liberia	Presidential Republic	Mixed legal system of common law (based on Anglo-American law) and customary law	President directly elected by absolute majority of popular vote in two rounds if needed	Bicameral National Assembly comprising a Senate and House of Representatives	Supreme Court and 3 types of subordinate courts	14 political parties
Mali	Semi-Presidential Republic	Civil law based on the French civil code	President directly elected by absolute majority of popular vote in two rounds if needed	Unicameral National Assembly	Supreme Court and 6 types of subordinate courts	13 political parties
Niger	Semi-Presidential Republic	Mixed legal system of civil law (based on the French civil code), Islamic law, and customary law	President directly elected by absolute majority of popular vote in two rounds if needed	Unicameral National Assembly	Constitutional Court and 4 types of subordinate courts	16 political parties (2 other parties have been banned)
Nigeria	Federal Presidential Republic	Mixed legal system of English common law, Islamic law (in 12 northern states), and traditional law	President directly elected by "qualified" majority popular vote and at least 25% of the votes cast in 24 of	Bicameral National Assembly comprising a Senate and House of Representatives	Supreme Court and 6 types of subordinate courts	6 political parties



			Nigeria's 36 states			
Senegal	Presidential Republic	Civil law based on the French civil code	President directly elected by absolute majority of popular vote in two rounds if needed	Unicamera l National Assembly	Supreme Court and 5 types of subordinate courts	21 political parties
Sierra Leone	Presidential Republic	Mixed legal system of English common law and customary law	President directly elected by absolute majority of popular vote in two rounds if needed	Unicamera l Parliament	Superior Court of Judicature and 3 types of subordinate courts	2 major parties and many minor parties
Togo	Presidential Republic	Customary law system	President directly elected by simple majority of popular vote	Unicamera l National Assembly	Supreme Court and 6 types of subordinate courts	10 political parties

Source: Self-generated by author using data from the United States Central Intelligence Agency's *The World Factbook*, 2017

## Geographical Cluster

As can be seen in Figure 1 (map), a majority of the ECOWAS countries are very well geographically located. Only three member states (Burkina Faso, Mali, and Niger) are landlocked, as the other 13 are located on the Atlantic Ocean. As also shown in Table 3, the region is very well endowed in terms of arable land. A geographical cluster will make it possible for ECOWAS member states to benefit from their strategic geographical locations and endowments, particularly from major powers seeking such access.

It must be further noted here that each country enjoys maritime claims of 12 nm (nautical mile) of territory and an exclusive economic zone of 200 nm. Some countries also have a contiguous zone of 24 nm.



Figure 1: Map of ECOWAS Member States, 2017

Source: ECOWAS Web Site: <http://www.ecowas.int/member-states/>

Table 3: Selected Geographical Features, 2016

Country	Area (sq km)	Climate	Arable Land (%)	Irrigated Land (sq km)
Benin	Total: 112,622 Land: 110,622 Water: 2,000	Tropical; hot, humid in south; semiarid in north	22.0	230
Burkina Faso	Total: 274,200 Land: 273,800 Water: 400	Tropical; warm, dry winters; hot, wet summers	20.8	550
Cabo Verde	Total: 4,033 Land: 4,033 Water: 0	Temperate; warm, dry summer; precipitation meager and erratic	11.7	35
Côte d'Ivoire	Total: 322,463 Land: 318,003 Water: 4,460	Tropical along coast, semiarid in far north; three seasons - warm and dry (November to March), hot and dry (March to May), hot and wet (June to October)	9.1	730
Gambia, The	Total: 11,300 Land: 10,120 Water: 1,180	Tropical; hot, rainy season (June to November); cooler, dry season (November to May)	4.1	50
Ghana	Total: 238,533 Land: 227,533 Water: 11,000	Tropical; warm and comparatively dry along southeast coast; hot and humid in southwest; hot and dry in north	20.7	340
Guinea	Total: 245,857 Land: 245,717 Water: 140	Generally hot and humid; monsoonal-type rainy season (June to November) with southwesterly	11.8	950

		winds; dry season (December to May) with northeasterly harmattan winds		
Guinea-Bissau	Total: 36,125 Land: 28,120 Water: 8,005	Tropical; generally hot and humid; monsoonal-type rainy season (June to November) with southwesterly winds; dry season (December to May) with northeasterly harmattan winds	8.2	250
Liberia	Total: 111,369 Land: 96,320 Water: 15,049	Tropical; hot, humid; dry winters with hot days and cool to cold nights; wet, cloudy summers with frequent heavy showers	5.2	30
Mali	Total: 1,240,192 Land: 1,220,190 Water: 20,002	Subtropical to arid; hot and dry (February to June); rainy, humid, and mild (June to November); cool and dry (November to February)	5.6	3,780
Niger	Total: 1.267 million Land: 1,266,700 Water: 300	Desert; mostly hot, dry, dusty; tropical in extreme south	12.3	1,000
Nigeria	Total: 923,768 Land: 910,768 Water: 13,000	Varies; equatorial in south, tropical in center, arid in north	37.3	2,930
Senegal	Total: 196,722 Land: 192,530 Water: 4,192	Tropical; hot, humid; rainy season (May to November) has strong southeast winds; dry season (December to April) dominated by hot, dry, harmattan wind	17.4	1,200
Sierra Leone	Total: 71,740 Land: 71,620 Water: 120	Tropical; hot, humid; summer rainy season (May to December); winter dry season (December to April)	23.4	300
Togo	Total: 56,785 Land: 54,385 Water: 2,400	Tropical; hot, humid in south; semiarid in north	45.2	70

Source: Self-generated by author using data from the United States Central Intelligence Agency's *The World Factbook*, 2017

## Higher Education and Research Institutes Cluster

As shown in Table 4, the ECOWAS as a region has a large number of universities and a significant number of think tanks. The universities provide instruction and examination of students in many branches of advanced learning, conferring degrees in various faculties, and often embodying colleges and similar institutions. These universities combined have programs in all academic fields: Arts, Humanities, Social Sciences, Natural Sciences, and Applied Sciences. The think tanks launch research projects that yield results used to provide advice and ideas on specific political, economic and social problems. In fact, one of the leading think tanks in the region, the Council for the Development of Social Science Research in Africa (CODESRIA) based in Dakar, Senegal, was named the number one think tank in Africa in the *2016 Global Go-To Think Tanks Index* published by the Lauder Institute of the University of Pennsylvania and released in January of 2017.

It also should be noted here that there are many government agencies, and non-governmental agencies that are engaged in various types of scientific and other research activities in the region. Thus, a higher education and research institutes cluster will promote inter-exchange, contact and cooperation among the ECOWAS higher education institutions; collect, classify and disseminate information on higher education and research, particularly in the ECOWAS region; promote cooperation among ECOWAS institutions in curriculum development and in the determination of equivalent degrees; encourage increased contacts between ECOWAS members and the international academic world; study and make known the educational and related needs of ECOWAS institutions and, as far as possible, to coordinate the means whereby those needs may be met; encourage the development of wider use of ECOWAS languages; and organize, encourage and support seminars and conferences among ECOWAS faculty members, administrators and others dealing with problems of higher education in the region. In essence, this cluster will serve as the apex and principal means for consultation, exchange of information and cooperation among the universities and other higher education institutions in the ECOWAS region.

Table 4: Selected Education and Research Features, 2016

Country	Number of Universities	Number of Think Tanks
Benin	20	15
Burkina Faso	7	16
Cabo Verde	9	2
Côte d'Ivoire	24	12
Gambia, The	1	6
Ghana	35	37
Guinea	29	2
Guinea-Bissau	2	1
Liberia	6	3
Mali	9	12
Niger	9	4
Nigeria	126	48
Senegal	112	16
Sierra Leone	3	1
Togo	10	4

Source: Self-generated by author using data from McGann, 2017; UNESCO, 2017; author on Sierra Leone's Universities

## Customers/Population Cluster

Table 5 reveals that the total population of the ECOWAS region is almost 400 million, which is almost five percent of the total world population. The average population growth rate for the region is about 2.75 percent, the average life expectancy rate is about 56 years, and a majority of the population in each country is under the age of 25. An ECOWAS customers/population cluster therefore suggests an enormous economy of scale for entrepreneurs looking for potential consumers for a long duration.

Table 5: Selected Customers/Population Features, 2016

Country	Estimated Population	Population Growth Rate (%)	Life Expectancy at Birth (years)	Population under the Age of 25 (years)
Benin	10,741,458	2.75	61.9	63.36
Burkina Faso	19,512,533	3.01	55.5	65.12
Cabo Verde	553,432	1.35	72.1	50.16
Côte d'Ivoire	23,740,424	1.88	59.7	58.38
Gambia, The	2,009,648	2.11	64.9	58.52

Ghana	26,908,262	2.18	66.6	56.86
Guinea	12,093,349	2.62	60.6	61.37
Guinea-Bissau	1,759,159	1.88	50.6	59.45
Liberia	4,299,944	2.44	59.0	61.20
Mali	17,467,108	2.96	55.8	66.46
Niger	18,638,600	3.22	55.5	68.16
Nigeria	186,053,386	2.44	53.4	62.27
Senegal	14,320,055	2.42	61.7	62.21
Sierra Leone	6,018,888	2.36	58.2	60.47
Togo	7,756,937	2.66	65.0	59.78

Source: Self-generated by author using data from the United States Central Intelligence Agency's *The World Factbook*, 2017

## Commodities Cluster

As illustrated in Table 6, a majority of the ECOWAS member states produce many similar agricultural products and a small number of different ones as well. There is nonetheless a significant variation among them in terms of their industries.

Thus, there is great potential for vibrant inter-regional trade. Unfortunately, as I have demonstrated in another study, with the exception of a few countries, most of the ECOWAS member states do not have other members among their principal trading partners (Bangura, 2017). A commodities cluster will help to change this situation and also allow ECOWAS member states to leverage for fair prices for their products.

Table 6: Selected Commodities, 2016

Country	Agricultural Products	Industries	Proved Oil Reserves (million bbl)	Proved Gas Reserves (billion cu m)
Benin	Cotton, corn, cassava (manioc, tapioca), yams, beans, palm oil, peanuts, cashews; livestock	Textiles, food processing, construction materials, cement	8	1.133
Burkina Faso	Cotton, peanuts, shea nuts, sesame, sorghum, millet, corn, rice; livestock	Cotton lint, beverages, agricultural processing, soap, cigarettes, textiles, gold	0	0
Cabo Verde	Bananas, corn, beans, sweet potatoes, sugarcane, coffee,	Food and beverages, fish processing, shoes and garments, salt	0	0

	peanuts; fish	mining, ship repair		
Côte d'Ivoire	Coffee, cocoa beans, bananas, palm kernels, corn, rice, cassava, sweet potatoes, sugar, cotton, rubber; timber	Foodstuffs, beverages; wood products, oil refining, gold mining, truck and bus assembly, textiles, fertilizer, building materials, electricity	100	28.32
Gambia, The	Rice, millet, sorghum, peanuts, corn, sesame, cassava, palm kernels; cattle, sheep, goats	Peanuts, fish, hides, tourism, beverages, agricultural machinery assembly, woodworking, metalworking, clothing	0	0
Ghana	Cocoa, rice, cassava, peanuts, corn, shea nuts, bananas; timber	Mining, lumbering, light manufacturing, aluminum smelting, food processing, cement, small commercial ship building, petroleum	660	22.65
Guinea	Rice, coffee, pineapples, mangoes, palm kernels, cocoa, cassava, bananas, potatoes, sweet potatoes; cattle, sheep, goats; timber	Bauxite, gold, diamonds, iron ore; light manufacturing, agricultural processing	0	0
Guinea-Bissau	Rice, corn, beans, cassava, cashew nuts, peanuts, palm kernels, cotton; timber; fish	Agricultural products processing, beer, soft drinks	0	0
Liberia	Rubber, coffee, cocoa, rice, cassava, palm oil, sugarcane, bananas; sheep, goats; timber	Mining (iron ore), rubber processing, palm oil processing, timber, diamonds	0	0
Mali	Cotton, millet, rice, corn, vegetables, peanuts; cattle, sheep, goats	Food processing; construction; phosphate and gold mining	0	0
Niger	Cowpeas, cotton, peanuts, millet, sorghum, cassava, rice; cattle, sheep,	Uranium mining, petroleum, cement, brick, soap, textiles, food processing,	150	0

	goats, camels, donkeys, horses, poultry	chemicals, slaughterhouses		
Nigeria	Cocoa, peanuts, cotton, palm oil, corn, rice, sorghum, millet, cassava, yams, rubber; cattle, sheep, goats, pigs; timber; fish	Crude oil, coal, tin, columbite; rubber products, wood; hides and skins, textiles, cement and other construction materials, food products, footwear, chemicals, fertilizer, printing, ceramics, steel	37	5.111
Senegal	Peanuts, millet, corn, sorghum, rice, cotton, tomatoes, green vegetables; cattle, poultry, pigs; fish	Agricultural and fish processing, phosphate mining, fertilizer production, petroleum refining, zircon, and gold mining, construction materials, ship construction and repair	0	9.911
Sierra Leone	Rice, coffee, cocoa, palm kernels, palm oil, peanuts, cashews; poultry, cattle, sheep, pigs; fish	Diamond mining; iron ore, rutile and bauxite mining; small-scale manufacturing (beverages, textiles, footwear)	0	0
Togo	Coffee, cocoa, cotton, yams, cassava, corn, beans, rice, millet, sorghum; livestock; fish	Phosphate mining, agricultural processing, cement, handicrafts, textiles, beverages	0	0

Source: Self-generated by author using data from the United States Central Intelligence Agency's *The World Factbook*, 2017



## Interest/Political Pressure Groups Cluster

Table 7 shows that the prominent interest/political pressure groups in the ECOWAS member states comprise those organized by students, labor organizers, peace activists, civil society organizers, and former military personnel. These groups can learn from one another about how to support one another and effectively advance their causes peacefully. The governments in the region can also gain these groups' support in critical societal matters by soliciting their opinions on such matters via an interest/political pressure groups cluster.

Table 7: Interest/Political Pressure Groups, 2016

Country	Groups
Benin	Economic groups; environmentalists; political groups; teachers' unions and other educational groups
Burkina Faso	Balai Citoyen, Burkinabe General Confederation of Labor, Burkinabe Movement for Human Rights, Burkinabe Society for Constitutional Law, Center for Democratic Governance, Coalition for African Renaissance, National Independent Union of Burkinabe Magistrates, National Union for Health Workers, National Union for Primary Education Teachers; other: watchdog/political action groups throughout the country
Cabo Verde	Environmentalists; political pressure groups
Côte d'Ivoire	Federation of University and High School Students of Cote d'Ivoire, National Congress for the Resistance and Democracy, Panafrican Congress for Justice and Peoples Equality
Gambia, The	The Association of Non-Governmental Organizations, Female Lawyers Association of Gambia, Gambia Committee on Traditional Practices, Gambia Press Union, West African Peace Building Network-Gambian Chapter, Youth Employment Network Gambia; other: special needs group advocates; teachers and principals
Ghana	Christian Aid (water rights), Committee for Joint Action (social and economic issues), National Coalition Against the Privatization of Water (water rights) Oxfam (water rights), Public Citizen (water rights), Students Coalition Against EPA (education reform), Third World Network (social and economic issues)
Guinea	National Confederation of Guinean Workers-Labor Union of Guinean Workers (includes National Confederation of Guinean Workers, Labor Union of Guinean Workers), Syndicate of Guinean Teachers and Researchers
Guinea-Bissau	Chamber of Commerce of Agriculture, Industry, and Services
Liberia	Demobilized former military officers
Mali	The army; Islamic authorities; state-run cotton company Compagnie malienne pour le développement du textile
Niger	Information not available
Nigeria	Academic Staff Union for Universities, Campaign for Democracy, Civil Liberties Organization, Committee for the Defense of Human Rights, Constitutional Right Project, Human Right Africa, National Association of

	Democratic Lawyers, National Association of Nigerian Students, Nigerian Bar Association, Nigerian Labor Congress, Nigerian Medical Association, Universal Defenders of Democracy; other: the press
Senegal	Catholic clergy; labor; religious groups; students; Sufi brotherhoods, including the Mourides and Tidjanes; teachers
Sierra Leone	Student unions; trade unions
Togo	Information not available

Source: Self-generated by author using data from the United States Central Intelligence Agency's *The World Factbook*, 2017

## Communications Cluster

As can be seen in Table 8, the status of the communications media in the ECOWAS region is quite robust. Mobile cellular telephones have become the major mode of communication in the region and the number of Internet users is quite encouraging.

It also should be mentioned here that all of the countries have state-run radio and television stations with multiple channels providing a wide broadcast reach and print media; many privately-owned television and radio stations, satellite television subscription services, and print media are also available. Radio is still the most prevalent means of reaching wider audiences across the region.

Table 8: Selected Communications Media, 2016

Country	Fixed Line Telephones (total subscriptions)	Mobile Cellular Telephones (million)	Total Number of Internet Users
Benin	194,666	9.318	709,000
Burkina Faso	75,075	14.447	2.156 million
Cabo Verde	58,456	0.646	235,000
Côte d'Ivoire	277,248	25.408	4.892 million
Gambia, The	45,000	2.586	337,000
Ghana	275,570	35.008	6.181 million
Guinea	18,000	10.764	554,000
Guinea-Bissau	5,000	1.238	61,000
Liberia	9,000	3.652	248,000
Mali	169,006	22.699	1.753 million
Niger	110,000	8.959	401,000
Nigeria	187,155	150.830	86.138 million
Senegal	300,219	14.959	3.031 million
Sierra Leone	17,000	5.657	147,000
Togo	52,690	4.657	538,000

Source: Self-generated by author using data from the United States Central Intelligence Agency's *The World Factbook*, 2017

## Security Cluster

Table 9 reveals that almost all of the ECOWAS countries have an Army, Navy, and Air Force. A few also have National Gendarmerie, Coast Guard, and Marine. Some countries have voluntary military service and others have compulsory service. The general age of enlistment begins at 18, with other higher age requirements for certain services. All of the ECOWAS member states spend less on their military compared to the world average, which is 2.3% of GDP for the year 2015, according to the Stockholm International Peace Research Institute (SIPRI, 2016).

Indeed, as it is a well observed truism in international relations, the security of any nation or region hinges mostly upon that state's or region's own capabilities. The ECOWAS member states already have plenty of troops and an adequate amount of other military resources. What is needed is a coordinated strategy via a security cluster to keep the region secure and stable.

Table 9: Selected Security Features, 2016

Country	Military Branches	Military Service Age and Obligation	Military Expenditure (as a % of GDP)
Benin	Army, Navy, Air Force	18-35 years of age for selective compulsory and voluntary military	1.03

		service; a higher education diploma is required; both sexes are eligible for military service; conscript tour of duty - 18 months	
Burkina Faso	Army, Air Force, National Gendarmerie	18 years of age for voluntary military service; no conscription; women may serve in supporting roles	1.39
Cabo Verde	Army (also called the National Guard), Coast Guard (includes naval infantry)	18-35 years of age for male and female selective compulsory military service; 2-years conscript service obligation; 17 years of age for voluntary service (with parental consent)	0.51
Côte d'Ivoire	Army, Navy, Air Force	18-25 years of age for compulsory and voluntary male and female military service; conscription is not enforced; voluntary recruitment of former rebels into the new national army is restricted to ages 22-29	1.65
Gambia, The	Army, Navy, Republican National Guard	18 years of age for male and female voluntary military service; no conscription; service obligation 6 months	1.50
Ghana	Army, Navy, Air Force	18-26 years of age for voluntary military service, with basic education certificate; no conscription; must be HIV/AIDS negative	0.56
Guinea	Army, Navy (includes Marines), Air Force	18-25 years of age for compulsory and voluntary military service; 18-month conscript service obligation	1.80
Guinea-Bissau	Army, Navy, Air Force, Presidential Guard	18-25 years of age for selective compulsory military service (Air Force service is voluntary); 16 years of age or younger, with parental consent, for voluntary service	1.85
Liberia	Army, Navy, Air Force	18 years of age for voluntary military service; no conscription	0.82
Mali	Army, Air Force, National Guard	18 years of age for selective compulsory and voluntary military service; 2-year conscript service obligation	1.44
Niger	Army, Air Force	18 is the presumed legal minimum age for compulsory or voluntary military service; enlistees must be Nigerien citizens and unmarried; 2-year service term; women may serve in health care	1.06
Nigeria	Army, Navy, Air	18 years of age for voluntary military	0.89

	Force	service; no conscription	
Senegal	Army, Navy, Air Force	18 years of age for voluntary military service; 20 years of age for selective conscript service; 2-year service obligation; women have been accepted into military service since 2008	1.60
Sierra Leone	Army (includes Maritime Wing and Air Wing)	18 is the legal minimum age for voluntary military service (younger with parental consent); women are eligible to serve; no conscription; candidates must be HIV negative	0.72
Togo	Army, Navy, Air Force, National Gendarmerie	18 years of age for compulsory and voluntary military service; 2-year service obligation	1.60

Source: Self-generated by author using data from the United States Central Intelligence Agency's *The World Factbook*, 2017; The World Bank, 2017

## Transportation Cluster

As displayed in Table 10, a majority of the airports in the ECOWAS region have unpaved roads. This situation portends danger during the rainy season. The railways and waterways are also not adequate for the size and economic potential of the region. In addition, while the roadways seem adequate, many of them are unpaved which, again, forebodes danger during the rainy season.

There is no question that in order for the ECOWAS member states to benefit from intra-country and inter-regional trade, they must invest in their transportation sectors. Efforts must be made through a transportation cluster to connect the transportation networks of all the countries to entice investors looking for economies of scale and to also boost inter-regional trade and tourism.

Table 10: Selected Transportation Features, 2016

Country	Number of Airports with Paved Roads	Number of Airports with Unpaved Roads	Railways (km)	Total Roadways (km)	Waterways (km)
Benin	1	5	438	16,000	150
Burkina Faso	2	21	622	15,272	Not available
Cabo Verde	9	0	0	1,350	Not available
Côte d'Ivoire	7	20	660	81,996	980
Gambia, The	1	0	0	3,740	390
Ghana	7	3	947	109,515	1,293
Guinea	4	12	662	44,348	1,300
Guinea-Bissau	2	6	0	3,455	Not available

Liberia	2	27	429	10,600	Not available
Mali	8	17	593	22,474	1,800
Niger	10	20	0	18,949	300
Nigeria	40	14	3,798	193,200	8,600
Senegal	9	11	906	15,000	1,000
Sierra Leone	1	7	0	11,300	800
Togo	2	6	568	11,652	50

Source: Self-generated by author using data from the United States Central Intelligence Agency's *The World Factbook*, 2017

Notes: (a) some reports have 0 for countries for which data were not available for waterways; (b) while data also exist for some countries' paved and unpaved roads, there are no such data for others; thus, only the data for total roadways are reported here.

## Internationalization Cluster

As depicted in Table 11, in addition to being members of the Economic Community of West African States (ECOWAS), almost all of these countries have memberships and/or participate in the following other international organizations: African, Caribbean and Pacific Group of States (ACP), African Development Bank (AfDB), Alliance of Small Island States (AOSIS), African Union (AU), Commonwealth/Commonwealth of Nations or formerly British Commonwealth (C), Community of Democracies (CD), Community of Portuguese Language Countries (CPLP), Developing-8 Countries (D-8), Extractive Industries Transparency Initiative (EITI), Conseil de l'Entente (Entente), Food and Agriculture Organization of the United Nations (FAO), Franc Zone (FZ), Group of 15 Developing Countries (G-15), Intergovernmental Group of Twenty-Four on Monetary Affairs and Development (G-24), Group of 77 Developing Countries (G-77), International Atomic Energy Agency (IAEA), International Bank for Reconstruction and Development (IBRD), International Civil Aviation Organization (ICAO), International Criminal Court (ICC), International Council on Clean Transportation (ICCT), International Red Cross and Red Crescent Movement (ICRM), International Development Association (IDA), Islamic Development Bank (IDB), International Fund for Agricultural Development (IFAD), International Finance Corporation (IFC), International Federation of Red Cross and Red Crescent Societies (IFRCS), International Health Organization (IHO), International Labor Organization (ILO), International Monetary Fund (IMF), International Maritime Organization (IMO), International Mobile Satellite Organization (IMSO), International Criminal Police Organization (ICPO or Interpol), International Olympic Committee (IOC), International Organization for Migration (IOM), Inter-Parliamentary Union (IPU), International Standards Organization or International Organization for Standardization (ISO or IOS), International Telecommunications Satellite Organization (ITSO), International Telecommunication Union (ITU), International Trade Union Confederation (ITUC—NGOs), Multilateral Investment Guarantee Agency

(MIGA), United Nations Mission for the Referendum in Western Sahara (MINURSO), United Nations Multidimensional Integrated Stabilization Mission in Mali (MINUSMA), United Nations Organization Stabilization Mission in the Democratic Republic of the Congo (MONUSCO), Non-Aligned Movement (NAM), Organization of American States (OAS—observer), Organization of Islamic Cooperation (OIC), International Organization of la Francophonie (OIF), Organization for the Prohibition of Chemical Weapons (OPCW), Organization of the Petroleum Exporting Countries (OPEC), Permanent Court of Arbitration (PCA), United Nations (UN), United Nations Security Council—temporary (UNSC), United Nations Mission in Darfur (UNAMID), United Nations Conference on Trade and Development (UNCTAD), United Nations Educational, Scientific and Cultural Organization (UNESCO), United Nations High Commissioner for Refugees (UNHCR), United Nations Industrial Development Organization (UNIDO), United Nations Interim Force in Lebanon (UNIFIL), United Nations Interim Security Force for Abyei (UNISFA), United Nations Institute for Training and Research (UNITAR), United Nations Mission in Liberia (UNMIL), United Nations Mission In South Sudan (UNMISS), United Nations Operation in Côte d’Ivoire (UNOCI), United Nations World Tourism Organization (UNWTO), Universal Postal Union (UPU), West African Development Bank (WADB), West African Economic and Monetary Union (WAEMU), World Customs Organization (WCO), World Federation of Trade Unions (WFTU—NGOs), World Health Organization (WHO), World Intellectual Property Organization (WIPO), World Meteorological Organization (WMO), and World Trade Organization (WTO).

What all this suggests is that ECOWAS member states have benefited from the international community’s assistance in helping to resolve conflicts in the region as they have also done similarly in other regions. They have also served as staging grounds for one another’s conflicts. A concerted effort among the member states through an internationalization cluster can help to minimize the potential for conflicts and to better coordinate the goodwill of the international community.

Table 11: Selected Internationalization Feature, 2016

<b>Country</b>	<b>Memberships and Participation in International Organizations</b>
Benin	ACP, AfDB, AU, CD, ECOWAS, Entente, FAO, FZ, G-77, IAEA, IBRD, ICAO, ICCT, ICRM, IDA, IDB, IFAD, IFC, IFRCs, ILO, IMF, IMO, Interpol, IOC, IOM, IPU, ISO, ITSO, ITU, ITUC (NGOs), MIGA, MINUSMA, MONUSCO, NAM, OAS (observer), OIC, OIF, OPCW, PCA, UN, UNAMID, UNCTAD, UNESCO, UNHCR, UNIDO, UNMIL, UNMISS, UNOCI, UNWTO, UPU, WADB (regional), WAEMU, WCO, WFTU (NGOs), WHO, WIPO, WMO, WTO
Burkina Faso	ACP, AfDB, AU, CD, ECOWAS, EITI (compliant country), Entente, FAO, FZ, G-77, IAEA, IBRD, ICAO, ICC (NGOs), ICCT, ICRM, IDA, IDB, IFAD, IFC, IFRCs, ILO, IMF, Interpol, IOC, IOM, IPU, ISO, ITSO, ITU, ITUC (NGOs), MIGA, MINUSMA, MONUSCO, NAM, OIC, OIF, OPCW, PCA, UN, UNAMID, UNCTAD, UNESCO, UNIDO, UNISFA, UNITAR, UNWTO, UPU, WADB (regional), WAEMU, WCO, WFTU (NGOs), WHO, WIPO, WMO, WTO
Cabo Verde	ACP, AfDB, AOSIS, AU, CD, CPLP, ECOWAS, FAO, G-77, IAEA, IBRD, ICAO, ICCT (signatory), ICRM, IDA, IFAD, IFC, IFRCs, ILO, IMF, IMO,

	Interpol, IOC, IOM, IPU, ITSO, ITU, ITUC (NGOs), MIGA, NAM, OIF, OPCW, UN, UNCTAD, UNESCO, UNIDO, Union Latina, UNWTO, UPU, WCO, WHO, WIPO, WMO, WTO
Côte d'Ivoire	ACP, AfDB, AU, ECOWAS, EITI (compliant country), Entente, FAO, FZ, G-24, G-77, IAEA, IBRD, ICAO, ICC, ICct, ICRM, IDA, IDB, IFAD, IFC, IFRCS, ILO, IMF, IMO, Interpol, IOC, IOM, IPU, ISO, ITSO, ITU, ITUC (NGOs), MIGA, MINUSMA, MONUSCO, NAM, OIC, OIF, OPCW, UN, UNCTAD, UNESCO, UNHCR, UNIDO, Union Latina, UNWTO, UPU, WADB (regional), WAEMU, WCO, WFTU (NGOs), WHO, WIPO, WMO, WTO
Gambia, The	ACP, AfDB, AU, ECOWAS, FAO, G-77, IBRD, ICAO, ICct, ICRM, IDA, IDB, IFAD, IFC, IFRCS, ILO, IMF, IMO, Interpol, IOC, IOM, IPU, ISO (correspondent), ITSO, ITU, ITUC (NGOs), MIGA, MINUSMA, NAM, OIC, OPCW, UN, UNAMID, UNCTAD, UNESCO, UNIDO, UNMIL, UNOCI, UNWTO, UPU, WCO, WFTU (NGOs), WHO, WIPO, WMO, WTO
Ghana	ACP, AfDB, AU, C, ECOWAS, EITI (compliant country), FAO, G-24, G-77, IAEA, IBRD, ICAO, ICC (national committees), ICct, ICRM, IDA, IFAD, IFC, IFRCS, ILO, IMF, IMO, IMSO, Interpol, IOC, IOM, IPU, ISO, ITSO, ITU, ITUC (NGOs), MIGA, MINURSO, MINUSMA, MONUSCO, NAM, OAS (observer), OIF, OPCW, UN, UNAMID, UNCTAD, UNESCO, UNHCR, UNIDO, UNIFIL, UNISFA, UNMIL, UNMISS, UNOCI, UNWTO, UPU, WCO, WFTU (NGOs), WHO, WIPO, WMO, WTO
Guinea	ACP, AfDB, AU, ECOWAS, EITI (compliant country), FAO, G-77, IBRD, ICAO, ICct, ICRM, IDA, IDB, IFAD, IFC, IFRCS, ILO, IMF, IMO, Interpol, IOC, IOM, IPU, ISO (correspondent), ITSO, ITU, ITUC (NGOs), MIGA, MINURSO, MINUSMA, MONUSCO, NAM, OIC, OIF, OPCW, UN, UNCTAD, UNESCO, UNHCR, UNIDO, UNISFA, UNMISS, UNOCI, UNWTO, UPU, WCO, WFTU (NGOs), WHO, WIPO, WMO, WTO
Guinea-Bissau	ACP, AfDB, AOSIS, AU, CPLP, ECOWAS, FAO, FZ, G-77, IBRD, ICAO, ICRM, IDA, IDB, IFAD, IFC, IFRCS, ILO, IMF, IMO, Interpol, IOC, IOM, IPU, ITSO, ITU, ITUC (NGOs), MIGA, MINUSMA, NAM, OIC, OIF, OPCW, UN, UNCTAD, UNESCO, UNIDO, UNWTO, UPU, WADB (regional), WAEMU, WCO, WFTU (NGOs), WHO, WIPO, WMO, WTO
Liberia	ACP, AfDB, AU, ECOWAS, EITI (compliant country), FAO, G-77, IAEA, IBRD, ICAO, ICC (NGOs), ICct, ICRM, IDA, IFAD, IFC, IFRCS, ILO, IMF, IMO, IMSO, Interpol, IOC, IOM, ISO (correspondent), ITU, ITUC (NGOs), MIGA, MINUSMA, NAM, OPCW, UN, UNCTAD, UNESCO, UNIDO, UNWTO, UPU, WCO, WFTU (NGOs), WHO, WIPO, WMO, WTO (observer)
Mali	ACP, AfDB, AU, CD, ECOWAS, EITI (compliant country), FAO, FZ, G-77, IAEA, IBRD, ICAO, ICct, ICRM, IDA, IDB, IFAD, IFC, IFRCS, ILO, IMF, Interpol, IOC, IOM, IPU, ISO, ITSO, ITU, ITUC (NGOs), MIGA, MONUSCO, NAM, OIC, OIF, OPCW, UN, UNAMID, UNCTAD, UNESCO, UNIDO, UNISFA, UNMISS, UNWTO, UPU, WADB (regional), WAEMU, WCO, WFTU (NGOs), WHO, WIPO, WMO, WTO
Niger	ACP, AfDB, AU, CD, ECOWAS, EITI (compliant country), Entente, FAO,



	FZ, G-77, IAEA, IBRD, ICAO, ICCT, ICRM, IDA, IDB, IFAD, IFC, IFRCs, ILO, IMF, Interpol, IOC, IOM, IPU, ISO (correspondent), ITSO, ITU, ITUC (NGOs), MIGA, MINUSMA, MONUSCO, NAM, OIC, OIF, OPCW, UN, UNCTAD, UNESCO, UNIDO, UNMIL, UNOCI, UNWTO, UPU, WADB (regional), WAEMU, WCO, WFTU (NGOs), WHO, WIPO, WMO, WTO
Nigeria	ACP, AfDB, AU, C, CD, D-8, ECOWAS, EITI (compliant country), FAO, G-15, G-24, G-77, IAEA, IBRD, ICAO, ICC (national committees), ICCT, ICRM, IDA, IDB, IFAD, IFC, IFRCs, IHO, ILO, IMF, IMO, IMSO, Interpol, IOC, IOM, IPU, ISO, ITSO, ITU, ITUC (NGOs), MIGA, MINURSO, MINUSMA, MONUSCO, NAM, OAS (observer), OIC, OPCW, OPEC, PCA, UN, UN Security Council (temporary), UNAMID, UNCTAD, UNESCO, UNHCR, UNIDO, UNIFIL, UNISFA, UNITAR, UNMIL, UNMISS, UNOCI, UNWTO, UPU, WCO, WFTU (NGOs), WHO, WIPO, WMO, WTO
Senegal	ACP, AfDB, AU, CD, CPLP (associate), ECOWAS, EITI (candidate country), FAO, FZ, G-15, G-77, IAEA, IBRD, ICAO, ICC (national committees), ICCT, ICRM, IDA, IDB, IFAD, IFC, IFRCs, ILO, IMF, IMO, IMSO, Interpol, IOC, IOM, IPU, ISO, ITSO, ITU, ITUC (NGOs), MIGA, MINUSMA, MONUSCO, NAM, OIC, OIF, OPCW, PCA, UN, UNAMID, UNCTAD, UNESCO, UNHCR, UNIDO, UNMIL, UNMISS, UNOCI, UNWTO, UPU, WADB (regional), WAEMU, WCO, WFTU (NGOs), WHO, WIPO, WMO, WTO
Sierra Leone	ACP, AfDB, AU, C, ECOWAS, EITI (compliant country), FAO, G-77, IAEA, IBRD, ICAO, ICCT, ICRM, IDA, IDB, IFAD, IFC, IFRCs, IHO (pending member), ILO, IMF, IMO, Interpol, IOC, IOM, IPU, ISO (correspondent), ITU, ITUC (NGOs), MIGA, MINUSMA, NAM, OIC, OPCW, UN, UNAMID, UNCTAD, UNESCO, UNIDO, UNIFIL, UNISFA, UNWTO, UPU, WCO, WFTU (NGOs), WHO, WIPO, WMO, WTO
Togo	ACP, AfDB, AU, ECOWAS, EITI (compliant country), Entente, FAO, FZ, G-77, IAEA, IBRD, ICAO, ICRM, IDA, IDB, IFAD, IFC, IFRCs, ILO, IMF, IMO, Interpol, IOC, IOM, IPU, ISO (correspondent), ITSO, ITU, ITUC (NGOs), MIGA, MINURSO, MINUSMA, NAM, OIC, OIF, OPCW, PCA, UN, UNAMID, UNCTAD, UNESCO, UNHCR, UNIDO, UNMIL, UNOCI, UNWTO, UPU, WADB (regional), WAEMU, WCO, WFTU (NGOs), WHO, WIPO, WMO, WTO

Source: Self-generated by author using data from the United States Central Intelligence Agency's *The World Factbook*, 2017

## Refugees Cluster

Based on Table 12, there are significant numbers of refugees and internally displaced persons in the ECOWAS region. Côte d'Ivoire, Ghana, Mali, Mauritania, Nigeria, and Senegal are the countries of origin for the refugees in other ECOWAS member states. Only three countries reported to have stateless persons, with Côte d'Ivoire reporting as having the largest proportion of them.

Consequently, serious negotiations on how to deal with the refugee situation in the ECOWAS region is necessary through a refugees cluster. Of particular importance is developing modalities on how to accommodate the desire of those refugees who have found their new environments more hospitable and would prefer to stay there.

Table 12: Selected Refugee and Internally Displaced Persons Features, 2016

Country	Number of Refugees and/or Internally Displaced Persons	Country of Origin	Number of Stateless Persons
Benin	0	–	–
Burkina Faso	32,017 (refugees)	Mali	–
Cabo Verde	0	–	115
Côte d'Ivoire	308,272 (internally displaced)	–	700,000
Gambia, The	7,392 (refugees)	Senegal	–
Ghana	11,419 (refugees)	Côte d'Ivoire	–
Guinea	7,354 (refugees)	Côte d'Ivoire	–
Guinea-Bissau	8,601 (refugees)	Senegal	–
Liberia	19,875 (refugees) 23,000 (internally displaced)	Côte d'Ivoire	1
Mali	13,539 (refugees) 36,690 (internally displaced)	Mauritania	–
Niger	105,491 (refugees) 60,813 (refugees) 137,337 (internally displaced)	Nigeria Mali	–
Nigeria	2,093,030 (internally displaced)	–	–
Senegal	13,687 (refugees) 24,000 (internally displaced)	Mauritania	–
Sierra Leone	0	–	–
Togo	18,476 (refugees)	Ghana	–

Source: Self-generated by author using data from the United States Central Intelligence Agency's *The World Factbook*, 2017

## Health Cluster

Evident from the data in Table 13 is that the ECOWAS region faces serious health challenges, as the HIV/AIDS prevalence is high for four member countries and moderate in seven of them. The recent EBOLA epidemic that quickly spread across the region is evidence of the contagion characteristic of such diseases.

Despite the challenging health problems, ECOWAS member states spend relatively little on healthcare; they have low physician and hospital bed densities; and while the percentage of their populations who have access to improved drinking water is fairly high, the percentage of those who have access to improved sanitation facilities is quite low. Given the fact that the health systems of all the countries can be impacted by the same diseases because of their geographical proximities, pooling their resources and their scientists engaging in serious collaborative research via a health cluster can help the ECOWAS countries to find cures for and effectively combat these diseases.

Table 13: Selected Health Features, 2016

Country	Health Expenditure (as % of GDP)	Physician Density (per 1,000 population)	Hospital Bed Density (per 1,000 population)	Total Improved Drinking Water Source (% of population)	Total Improved Sanitation Facilities Access (% of population)	HIV/AIDS Adult Prevalence (%)
Benin	4.6	0.06	0.5	77.9	19.7	1.06
Burkina Faso	5.0	0.05	0.4	82.3	19.7	0.83
Cabo Verde	4.8	0.31	2.1	91.7	72.2	0.96
Côte d'Ivoire	5.7	0.14	0.4	81.9	22.5	3.17
Gambia, The	7.3	0.11	1.1	90.2	58.9	1.82
Ghana	3.6	0.10	0.9	88.7	14.9	1.61
Guinea	5.6	0.10	0.3	76.8	20.1	1.56
Guinea-Bissau	5.6	0.10	1.0	79.3	20.8	3.69
Liberia	10.0	0.01	0.8	75.6	16.9	1.09
Mali	6.9	0.08	0.1	77.0	24.7	1.25
Niger	5.8	0.02	0.3 (2005)	58.2	10.9	0.46
Nigeria	3.7	0.41	0.5 (2004)	68.5	29.0	3.17
Senegal	4.7	0.06	0.3	78.5	47.6	0.52
Sierra Leone	11.1	0.02	0.4	62.8	13.3	1.34
Togo	5.2	0.05	0.7	63.1	11.6	2.40

Source: Self-generated by author using data from the United States Central Intelligence Agency's *The World Factbook*, 2004, 2005 & 2017

## Tourism Cluster

Table 14 shows that one ECOWAS member state (Nigeria) attracted more than six million tourists in 2015, followed by two member countries (Côte d'Ivoire and Senegal ) attracting more than one million tourists each. Two countries (Cabo Verde and Ghana) seem to have done relative well in attracting tourists. The rest did not capitalize on their great tourism potential.

It is quite evident from the discussion on the geographical cluster that the ECOWAS region has a great potential for joint beach-based and an eco-tourism industries that will be very lucrative. Through a tourism cluster, well-advertised cross-country tours in a peaceful and safe environment will attract many tourists to the region.

Table 14: Selected Tourism Feature, 2015

Country	Total Arrivals
Benin	255,000
Burkina Faso	163,000
Cabo Verde	520,000
Côte d'Ivoire	1,441,000
Gambia, The	–
Ghana	911,000
Guinea	35,000
Guinea-Bissau	–
Liberia	–
Mali	159,000
Niger	135,000
Nigeria	6,017,000
Senegal	1,014,000
Sierra Leone	31,000
Togo	273,000

Source: Self-generated by author using data from the United States Central Intelligence Agency's *The World Factbook*, 2017

## Religious Cluster

As Table 15 reveals, Islam is the most dominant faith in the ECOWAS region (11 of the 15 countries). It is followed by Christianity which is dominant in three countries (Cabo Verde, Ghana, and Liberia). Only one country (Togo) has indigenous beliefs comprising the majority faith.

The multiplicity of religious views and the very large numbers of Muslims and Christians call for concerted efforts through a religious cluster to get all citizens to respect indigenous religions and to expose them to the connections among the Abrahamic faiths. Such efforts will help to prevent religious conflicts that beseech a small area in a country that has the potential to spread as in the case of Nigeria.

Table 15: Selected Religion Feature, Various Years

Country	Adherents by Religion (as a % of population)
Benin	Muslim 27.7%, Catholic 25.5%, Protestant 13.5% (Celestial 6.7%, Methodist 3.4%, other Protestant 3.4%), Vodoun 11.6%, other Christian 9.5%, other traditional religions 2.6%, other 2.6%, none 5.8% (2013 est.)
Burkina Faso	Muslim 61.6%, Catholic 23.2%, traditional/animist 7.3%, Protestant 6.7%, other/no answer 0.2%, none 0.9% (2010 est.)
Cabo Verde	Roman Catholic 77.3%, Protestant 4.6% (includes Church of the Nazarene 1.7%, Adventist 1.5%, Assembly of God 0.9%, Universal Kingdom of God 0.4%, and God and Love 0.1%), other Christian 3.4% (includes Christian Rationalism 1.9%, Jehovah's Witness 1%, and New Apostolic 0.5%), Muslim 1.8%, other 1.3%, none 10.8%, unspecified 0.7% (2010 est.)
Côte d'Ivoire	Muslim 40.2%, Catholic 19.4%, Evangelical 19.3%, Methodist 2.5%, other Christian 4.5%, animist or no religion 12.8%, other religion/unspecified 1.4% (2011-12 est.)
Gambia, The	Muslim 95.7%, Christian 4.2%, none 0.1%, no answer 0.1% (2013 est.)
Ghana	Christian 71.2% (Pentecostal/Charismatic 28.3%, Protestant 18.4%, Catholic 13.1%, other 11.4%), Muslim 17.6%, traditional 5.2%, other 0.8%, none 5.2% (2010 est.)
Guinea	Muslim 86.7%, Christian 8.9%, animist/other/none 4.4% (2012 est.)
Guinea-Bissau	Muslim 45.1%, Christian 22.1%, animist 14.9%, none 2%, unspecified 15.9% (2008 est.)
Liberia	Christian 85.6%, Muslim 12.2%, Traditional 0.6%, other 0.2%, none 1.4% (2008 Census)
Mali	Muslim 94.8%, Christian 2.4%, Animist 2%, none 0.5%, unspecified 0.3% (2009 est.)
Niger	Muslim 80%, other (includes indigenous beliefs and Christian) 20% (2016 est.)
Nigeria	Muslim 50%, Christian 40%, indigenous beliefs 10% (2016)
Senegal	Muslim 95.4% (most adhere to one of the four main Sufi brotherhoods), Christian 4.2% (mostly Roman Catholic), animist 0.4% (2010-11 est.)
Sierra Leone	Muslim 60%, Christian 10%, indigenous beliefs 30% (2016 est.)
Togo	Indigenous beliefs 51%, Christian 29%, Muslim 20% (2016 est.)

Source: Self-generated by author using data from the United States Central Intelligence Agency's *The World Factbook*, 2017

## Conclusion

That a comprehensive and balanced cluster is required to expand the potentials of the regional development and competitiveness of ECOWAS member states in the global market is hardly a matter of dispute. Thus, the process orientation and the application of times-technologies are the key factors for the development of an ECOWAS-Cluster and for the realization of the innovation and growth objectives of the cluster.

To optimize the strategic process in an ECOWAS-Cluster, the participation of all 15 member states is imperative. The determination of the vision, mission and strategy in particular requires the process of participation. From the cluster strategy, individual strategies and balanced scorecards of the various clusters can be deduced. The strategic network of all actors will decisively improve the competitiveness of an ECOWAS-Cluster.

Indeed, an important issue in the implementation process of innovative actions is the existence of innovation management of tools necessary to support the innovation process from the generation of ideas to launching successful ventures throughout the innovation life cycle. The availability of regional innovation infrastructure and support tools becomes a crucial factor for the deployment of innovative actions in the ECOWAS region. This action line will provide the necessary tools and methods needed to enhance the regional innovation capacity and the networking interoperability. These goals and tools should be widely and freely available to all regional actors using Internet technologies. The collective effort will take the form of a portal for innovation management, concentrated in supporting innovation actions.

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