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Supply Chain of Africa: Building for Prosperity

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Aim of the Presentation

- A critical assessment of the current maturity of the supply chain infrastructure in Africa (with a focus on Ghana) to help achieve the objectives of the African Continental Free Trade Agreement (ACFTA)
- Bring to focus, the critical links between manufacturing, warehousing, transportation, customer service, technology, and the overall network.

Presentation Outline

- Objectives of AfCFTA
- The Global Outlook of the African Supply Chain
- The nature of the African Supply Chain infrastructure
- The critical linkages within the supply chain
- The maturity of Ghanaian Supply Chain
- Conclusion

Objectives of the Study

- Creating one African market
- Eliminating barriers to trade in Africa
- Promote trade across all sectors of Africa's economy
- Above all, significantly boosting intra-Africa trade by particularly increasing value-added production.

To understand what needs to be overcome, the next few slides present an overview of Africa.

Global Outlook of the African Supply Chain

Number of fully recognized sovereign states : 55
(8 – territories and 2 – de facto independent states with limited or no recognition.

Estimated Population: 1,414,512,604 (Based on UN estimates as at Oct 22, 2022).

Rank in the world in terms of Pop: 2nd

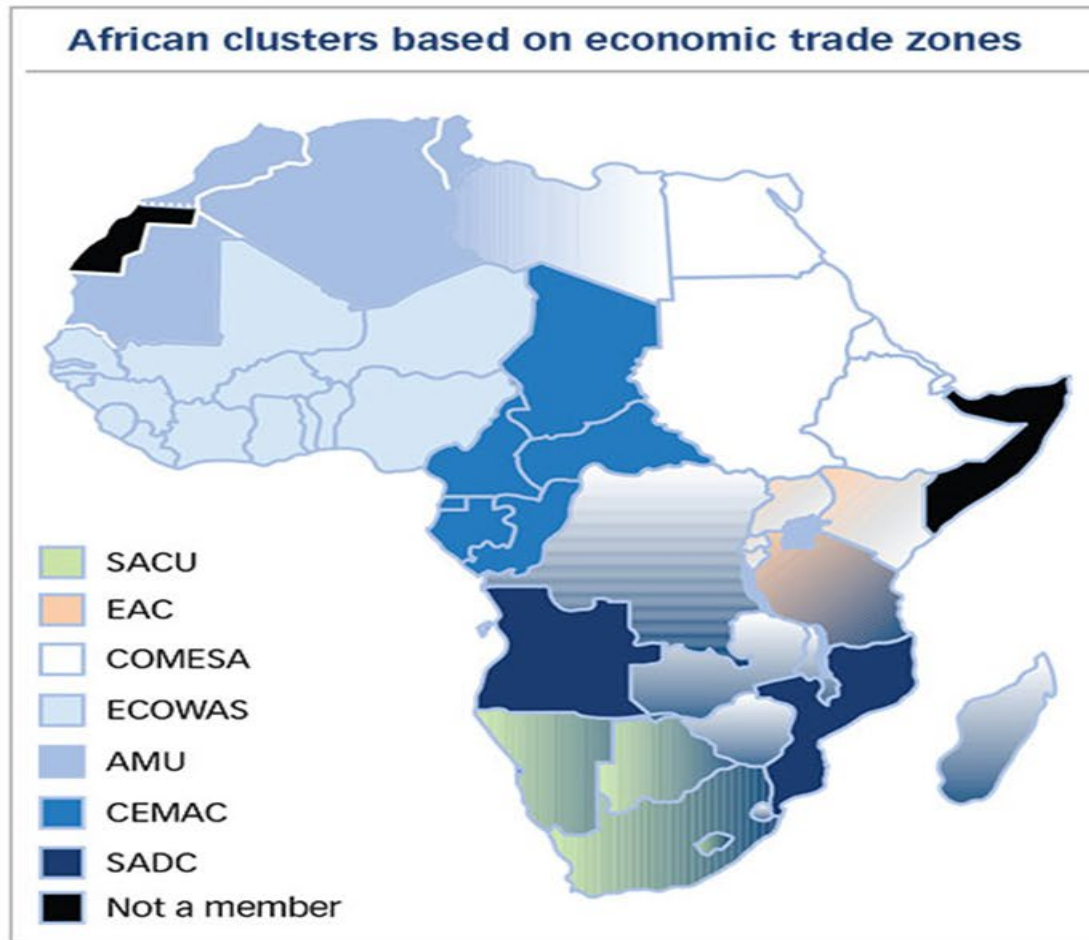
This is expected to reach 2.4 billion by the year 2050 with more than half expected to be below 25 years old.

Area: 30,370,000 Sq. km (1,275,920,972 sq. mi)

[Figure 1]: Political Map of Africa



[FIGURE 2] CURRENT ECONOMIC ALLIANCES



1. All GDP (gross domestic product) and population figures are for 2012.
2. Libya is a member of both COMESA and AMU.
3. Democratic Republic of Congo is a member of CEMAC, SADC, and COMESA.
4. Madagascar, Malawi, Mauritius, Seychelles, Swaziland, Zambia, and Zimbabwe are members of both COMESA and SADC.
5. Tanzania is a member of both SADC and EAC; Kenya, Uganda, Burundi, and Rwanda are members of both EAC and COMESA.
6. All SACU members also belong to SADC.

Key facts¹

COMESA: Common Market for Eastern and Southern Africa

- 19 member states
- Total GDP: US \$561 billion
- Total population: 464 million

ECOWAS: Economic Community of West African States

- 15 member states
- Total GDP: US \$416 billion
- Total population: 303 million

AMU: Arab Maghreb Union

- 5 member states²
- Total GDP: US \$398 billion
- Total population: 89 million

CEMAC: Economic and Monetary Community of Central Africa

- 6 member states³
- Total GDP: US \$70 billion
- Total population: 41 million

SADC: Southern African Development Community

- 15 member states⁴
- Total GDP: US \$622 billion
- Total population: 281 million

EAC: East African Community Customs Union

- 5 member states⁵
- Total GDP: US \$95 billion
- Total population: 143 million

SACU: Southern African Customs Union

- 5 member states⁶
- Total GDP: US \$421 billion
- Total population: 58 million

[SOURCE: GLOBAL INSIGHT WORLD MARKET MONITOR, TRADING BLOC WEBSITES, WORLD TRADE ORGANIZATION]

Some Economic Statistics

- GDP (Nominal): 2.45 trillion (2019)
- GDP per capita: \$1,930 (2019)
- GDP (ppp): \$7.16 trillion
- **Largest urban areas:**
Lagos, Cairo, Kinshasa,
Johannesburg, Khartoum, Dar es
Salaam, Abidjan, Alexandria, Nairobi,
Cape Town, Kano, Dakar, Casablanca,
Addis Ababa

- **Total trade from Africa** to the rest of the world averaged **US\$760 billion** in current prices in the period 2015–2017, compared with \$481 billion from Oceania, \$4,109 billion from Europe, \$5,140 billion from America and \$6,801 billion from Asia.
- Meanwhile intra-Africa trade based on data from 35 of the 55 countries up to 2019 stands at paltry **US\$69 billion**.

(Source: UN World Report, WITS, Tralac)

Future Outlook



- By 2050, the population of Africa is expected to be 2.4 billion with about 1.2 billion being below the age of 25 year (United Nations).
- Feeding and keeping this population size **healthy** will require that African's participation in the global economy increases significantly while at the same time reducing dependency on commodity exports and increasing intra-continental trade.
- African Exports and Imports must be very closely looked at.
- The role of the supply chain in this cannot be overemphasized and a major step towards the realisation of these goals is the need to remedy existing ***supply chain challenges*** to enhance Africa's role in global value chain.

Africa's largest Imports in 2018 (excl. petroleum and mineral oils)



- Africa's imports was worth approximately \$549 billion which is 2.8% of the world's total imports in 2018.
- The largest imported products in Africa (excluding petroleum and mineral oils) are:
 - Motor Cars {1.6% increase from 2017}
 - Medicaments {0.1% increase from 2017} and
 - Telephone Sets {10.9% increase from 2017}.
- South Africa (17%), Egypt (14.8%), Morocco (9.3%), Algeria (8.6%) and Nigeria (6.6%) were the 5 largest importers in 2018.
- China (17.2%), France (5.4%), USA (5.1%), Germany(4.7%), and India(4.6%) were the top exporters to the African region in 2018.

*% in () are of Africa's total Imports

Source: Trade Map (2019), africon analysis (2019)

Africa's Export Map

Top three export products in Africa, 2012

Algeria — Petroleum & other oils, crude (45.0%), natural gas in gaseous state (20.0%), light oils and preparations (8.7%)

Angola — Petroleum & other oils, crude (96.8%)

Benin — Cotton (19.0%), petroleum oils or bituminous minerals (13.7%), gold (13.4%)

Botswana — Unworked diamonds (74.3%), other non-industrial diamonds (7.2%), gold in semi-manufactured forms (5.4%)

Burkina Faso — Cotton (44.9%), gold in unwrought forms (29.4%), gold in semi-manufactured forms (5.4%)

Burundi — Unroasted coffee (58.0%), black tea (12.2%), niobium, tantalum, vanadium ores & concentrates (9.0%)

Cabo Verde — Mackerel (16.5%), skipjack or stripe-bellied bonito (15.4%), yellowfin tunas (14.2%)

Cameroon — Petroleum & other oils, crude (48.1%), cocoa beans (9.0%), tropical woods (7.7%)

Central African Rep. — Unsorted diamonds (32.3%), tropical wood (26.6%), cotton (14.0%)

Chad — Petroleum & other oils, crude & preparations (97.0%)

Comoros — Cloves (56.1%), floating vessels for breaking up (21.2%), essential oils (9.8%)

Congo. Rep. — Petroleum & other oils, crude (87.1%)

Congo. Dem. Rep. — Cathodes (43.9%), unrefined copper (13.2%), petroleum & other oils, crude (13.2%)

Côte d'Ivoire — Cocoa beans (31.8%), petroleum & other oils, crude (12.3%), natural rubber (7.2%)

Djibouti — Live animals (23.0%), sheep (18.1%), goats (15.6%)

Egypt — Petroleum & other oils, crude (24.0%), liquefied natural gas (11.1%),

Equatorial Guinea — Petroleum & other oils, crude (73.6%), liquefied natural gas (19.8%)

Eritrea — Gold (88.0%), silver (4.9%)

Ethiopia — Unroasted coffee (39.5%), sesamum seeds (19.7%), fresh cut flowers (10.2%)

Gabon — Petroleum & other oils, crude (85.4%), manganese ores & concentrates (6.7%)

Gambia — Wood (48.6%), cashew nuts (16.2%), petroleum & other oils (6.5%)

Ghana — Gold (36.0%), cocoa beans and paste (16.5%), petroleum & other oils, crude (22.0%)

Guinea — Gold (40.5%), bauxite (34.0%), alumine (9.0%)

Guinea-Bissau — Cashew nuts (83.9%)

Kenya — Black tea (20.0%), fresh cut flowers (12.1%), unroasted coffee (5.9%)

Lesotho — Diamonds (45.5%), men's/boys' cotton trousers & shorts (13.4%), women's/girls' synthetic trousers & shorts (6.1%)

Liberia — Iron ores & concentrates (21.1%), natural rubber (19.3%), tankers (12.3%)

Libya — Petroleum & other oils, crude (88.4%), natural gas in gaseous state (5.6%)

Madagascar — Cloves (15.8%), shrimps & prawns (7.2%), titanium ores & concentrates (5.5%)

Malawi — Tobacco (50.1%), natural uranium & its compounds (10.4%), raw sugar cane (8.0%)

Mali — Cotton (72.7%), sesamum seeds (8.8%)

Mauritania — Iron ores and concentrates (46.7%), copper ores and concentrates (15.6%), octopus (10.5%)

Mauritius — Tunas, skipjack & bonito (15.3%), solid cane or beet sugar (10.5%), cotton t-shirts & the like (7.4%)

Morocco — Phosphoric acid and polyphosphoric (8.2%), ignition wiring sets and other wiring sets of a type used for vehicles, aircrafts, ships (6.1%), diammonium hydrogenorthosphosphate (4.5%)

Mozambique — Aluminium, not alloyed (28.8%), light oils & preparations (12.1%), liquefied natural gas (5.4%)

Namibia — Unworked diamonds (30.1%), unrefined copper (13.4%), natural uranium & its compounds (13.2%)

Niger — Natural uranium & its compounds (62.2%), light oils & preparations (12.1%), live animals (6.0%)

Nigeria — Petroleum & other oils, crude (84.0%), liquefied natural gas (10.8%)

Rwanda — Niobium, tantalum, vanadium ores & concentrates (23.7%), unroasted coffee (23.5%), tin ores & concentrates (19.2%)

Sao Tome & Principe — Cocoa beans (47.6%), wristwatches (9.2%), jewellery (6.4%)

Senegal — Petroleum & other oils (20.8%), inorganic chemical elements, oxides & halogen salts (12.0%), fresh & frozen fish (9.0%)

Seychelles — Tunas, skipjack & bonito (52.5%), bigeye tunas (13.2%), yellowfin tunas (7.1%)

Sierra Leone — Iron ores & concentrates (45.2%), titanium ores & concentrates (16.4%), unworked diamonds (12.1%)

Somalia — Sheep (29.4%), goats (28.2%), live bovine animals (17.3%)

South Africa — Gold (11.6%), iron ores & concentrates (7.6%), platinum (6.6%)

South Sudan — Petroleum & other oils, crude (99.6%)

Sudan — Petroleum & other oils, crude (65.6%), Sheep (10.6%), sesamum seeds (4.2%)

Swaziland — Raw sugar cane (17.4%), odoriferous substances used in food & beverages (14.8%), iron ores & concentrates (10.9%)

Tanzania — Precious metal ores & concentrates (11.7%), tobacco (11.5%), unroasted, not decaffeinated coffee (6.6)

Togo — Gold (12.1%), natural calcium phosphates, phosphatic chalk (11.7%), light oils & preparations (10.3%)

Tunisia — Petroleum & other oils, crude (11.2%), ignition wiring sets and other wiring sets of a type used for vehicles, aircrafts, ships (6.2%); men's/boys' cotton trousers and shorts (4.3%)

Uganda — Unroasted, not decaffeinated coffee (30.6%), cotton (5.6%), tobacco (5.5%)

Zambia — Cathodes (47.6%), unrefined copper (26.1%), maize, exd. seed (5.0%)

Zimbabwe — Tobacco (30.8%), ferro-chromium (11.6%), cotton (9.6%)



Note: Data for Ghana are for 2013.

Source: ADB et al. (2014), Table 18.7; for Ghana: calculated for 2013 from ISSER (2014)



Import and Export Statistics of Selected African Countries

| Countries | Intra-Africa Trade | |
|--------------------------|--------------------|---------|
| | Exports | Imports |
| WEST AFRICA | | |
| Burkina Faso | 12% | 26% |
| Cape Verde | 1% | 2% |
| Ivory Coast | 23% | 23% |
| Nigeria | 20% | 7% |
| Benin | 21% | 25% |
| Senegal | 43% | 13% |
| Togo | 72% | 20% |
| CENTRAL AND SOUTH AFRICA | | |
| Malawi | 36% | 27% |
| Mauritius | 24% | 13% |
| Seychelles | 3% | 9% |
| Zambia | 23% | 46% |
| Zimbabwe | 62% | 48% |
| Madagascar | 8% | 12% |
| Botswana | 14% | 69% |
| Eswatini | 92% | 77% |
| Comoros | 12% | 10% |
| Namibia | 37% | 66% |
| Burundi | 27% | 27% |
| Kenya | 37% | 13% |
| Congo | 5% | 26% |
| NORTH AFRICA | | |
| Egypt | 8% | 4% |

Nature of the African Supply Chain

- Intra-Africa trade is very low compared to the volume and value of imports and exports of goods and services to and from African countries.
- Transport Infrastructure are weak across many nations.
- Warehouse capacity is generally low, and utilization is sub-optimal.
- The level of deployment of technology in the supply chain across most African countries is still below the world's average.
- Customer service in many supply chains across different industries is very poor.
- Africa has existing Regional Trade Agreements (RTAs) but there is not much evidence of gain from these RTAs given that intra-African trade is just 13% of the total, compared with intra-regional trade in Europe (60%), North America (40%) and Asia (30%).

Nature of the African Supply Chain Cont'd

- Africa has the richest concentration of natural resources.
- Africa has 65% of the world's arable land, it accounts for 10% of the planet's freshwater source and agricultural products.
- Africa also holds the world's largest reserve of bauxite, cobalt, gold, diamonds, manganese, phosphate, and uranium, and produces 12% of the world's oil.
- ***ALL THESE HAVE SUPPLY CHAINS THAT MUST BE EFFECTIVELY MANAGED FOR AFRICA TO ACHIEVE ITS DEVELOPMENT OBJECTIVES.***

Nature of the African Supply Chain Cont'd

- Indeed, the **World Bank's Logistics Performance Index (LPI)**, which measures the competency of a country's supply chain system, showed that most African countries score poorly on the most recent LPI in 2018.
- Only one African country (**South Africa at 29th position**) is in the top 50 in the global rank.
- The implication of all these is that Africa's supply chain systems remains extremely underdeveloped relative to other developing world.

Nature of the African Supply Chain Cont'd

- A literature review by Baz et al. (2018) shows that poor coordination between suppliers and customers, delays in sourcing and excessive costs of supplies are among the key challenges confronting supply chains on the continent.
- These challenges are driven by several factors including;
 - *Infrastructural*
 - *political*
 - *industry forces*

Challenges with Infrastructure

- Transport networks
- Telecommunication Technology and Energy
- Significant idle time

Dealing with Challenges with Infrastructure

The most effective way to deal with these challenges is to adopt strategies that minimize the inefficiencies created by the system.

- Locating in areas with good transport infrastructure
- Appropriate lead times
- Using strong delivery vehicles
- Using IT gadgets that have very strong receptions
- Engaging indigenous organizations wherever possible
- Ensuring effective supervision

Policy Challenges

- Policy challenges for supply chains on the continent stem from ***trade agreements*** with respect to movement of goods, services and people; and ***customs and border processes***.
- The efficiency of moving goods, services and people across supply chains is greatly reduced by the existence of policy differences across African countries.
- ***Dealing with policy challenges***
 - Knowing about their existence and accommodating them in business planning.
 - Negotiate directly with state actors
 - Work through state government diplomacy.

Industrial Challenges

- These are challenges within the existing logistics and supply chain industry itself.
- Due to the cumbersome nature of regulations from port to port across the continent, the use of Third-Party Logistics (3PL) firms, is often required to assist traders.
- Unfortunately, the 3PL industry in Africa is yet to be fully developed and for those available, the number of services available are limited and offered at prohibitive costs.
- Due to lack of competition in the transportation sector, firms pay high costs for transportation of items on the continent

What can Africa do to maximize the benefits of AfCFTA?

- AfCFTA provides a golden opportunity for Africa to achieve food security, reduce abject poverty and create opportunities for Africans.
- Though ambitious, the AfCFTA is modeled after the European Union (EU), making a borderless Africa obtainable.
- For AfCFTA to work, it will require enormous effort, and that cues must be taken from a supply chain perspective because it's not possible to look into African trade without addressing the supply chain that underpins it (Adeleke, 2022)

What can Africa do to maximize the benefits of AfCFTA cont'd

- The AfCFTA secretariate must push African leaders to:
- Remove trade barriers and border restrictions
- Invest in more transportation networks. Transport infrastructure and other logistics in Africa must be improved and the network should be enhanced (Adeleke, 2022),
.
- Ensure that supply chain and logistical corridors by land, water, rail and air are synchronized.
- Invest in emerging technologies that enhance transport planning, route synchronization and product tracking.

Critical linkages in the Supply Chain Maturity

- The UNICEF Supply Chain Maturity Model provides a good tool for critically examining the linkages in the African supply chain.
- A supply chain involves linkages between procurement, manufacturing/service provision, warehousing, transportation, technology, etc. and how these contribute to customer service.
- For a supply chain to be regarded as mature, it ought to meet about 13 performance metrics as identified in the UNICEF model.
- The UNICEF model is a participatory, qualitative and government-led supply chain assessment that allows to determine whether supply chain management is a barrier to access.

The 13 Performance Metrics to the UNICEF Supply Chain Maturity Model

1. Definition of need
2. Budgeting and planning
3. Procurement
4. Delivery and clearance
5. Inspection

6. Warehousing, distribution and reorder
7. Utilization by end-user
8. Monitoring and Evaluation

9. People Practices
10. Data Analytics
11. Systems design
12. Financing and domestic resource mobilization
13. Policies and regulatory frameworks

So what is the situation in Ghana?

The value of **merchandise exports** from Ghana totaled **\$ 16.7 billion** in 2019.

Overall commodity exports from Ghana **decreased by 1.93%** compared to 2018.

Merchandise exports decreased by \$ 331 million (the value of merchandise exports from Ghana amounted to \$17 billion in 2018)

The value of **merchandise imports** to Ghana totaled **\$ 10.4 billion** in 2019.

Overall commodity imports to Ghana **decreased by 12.1%** compared to 2018.

Merchandise imports decreased by \$ 1.44 billion (the value of merchandise imports to Ghana was equal to \$11.8 billion in 2018)

What did Ghana Export in 2019

- 36% (\$6.19 billion): 7108 - Gold (including gold plated with platinum) unwrought or in semi-manufactured forms, or in powder form.
- 31% (\$5.25 billion): 2709 - Petroleum oils and oils obtained from bituminous minerals, crude.
- 11% (\$1.85 billion): 1801 - Cocoa beans, whole or broken, raw or roasted.
- 2.44% (\$409 million): 1803 - Cocoa paste, whether or not defatted.
- 2.08% (\$349 million): 2602 - Manganese ores and concentrates, including ferruginous manganese ores and concentrates with a manganese content of 20 % or more, calculated on the dry weight.
- 2.01% (\$337 million): 1804 - Cocoa butter, fat and oil.
- 1.46% (\$246 million): 0801 - Coconuts, Brazil nuts and cashew nuts, fresh or dried, whether or not shelled or peeled.
- 0.872% (\$146 million): 1604 - Prepared or preserved fish; caviar and caviar substitutes prepared from fish eggs.
- 0.722% (\$121 million): 2843 - Colloidal precious metals; inorganic or organic compounds of precious metals, whether or not chemically defined; amalgams of precious metals.
- 0.648% (\$108 million): 1511 - Palm oil and its fractions, whether or not refined, but not chemically modified

What did Ghana Import in 2019

- 8.44% (\$881 million): 8703 - Motor cars and other motor vehicles principally designed for the transport of persons (other than those of heading 87.02), including station wagons and racing cars.
- 4.23% (\$441 million): 8704 - Motor vehicles for the transport of goods.
- 3.59% (\$374 million): 1006 - Rice.
- 3.06% (\$319 million): 2523 - Portland cement, aluminous cement, slag cement, supersulphate cement and similar hydraulic cements, whether or not coloured or in the form of clinkers.
- 2.26% (\$236 million): 2710 - Petroleum oils and oils obtained from bituminous minerals, other than crude; preparations not elsewhere specified or included, containing by weight 70 % or more of petroleum oils or of oils obtained from bituminous minerals, these oils being the basic constituents of the preparations;

Ghana's Health Supply Chain

- The sector is very formal, and the supply chain is highly regulated even though there are some leakages that allow some medicines to find its way to the market.
- The Food and Drugs Authority is generally responsible for monitoring and evaluating activities within this sector.
- The Sector has major actors namely: Manufacturers, Importers, Exporters, Health Institutions, end users, etc.

Ghana's Health Supply Chain cont'd

- The supply chain is made up of Health Commodity Suppliers, Hospitals, Clinics, Health Centres, CHPS compounds, medical stores, pharmaceutical shops, chemical sellers, on the street drug sellers, etc.
- The distribution of medicines is from Central Medical stores – Regional Medical stores – District Medical stores – Health facility – End user (patient)
- Major challenges in this sector include; Supply Chain Financing, poor procurement system, semi-efficient storage and distribution system.

Maturity of Ghana's Health Supply Chain

| Performance Metric | Level of Maturity | |
|--|---------------------------|----------------|
| | Lead Agent | Level |
| Definition of need | MoH/ Ghana Health Service | High |
| Budgeting and planning | Ministry of Health (MoH) | High |
| Procurement | MoH through CMS/RMS/HF | Somewhat |
| Delivery and clearance | GHS through CMS | Low |
| Inspection | Food and Drugs Board | Somewhat |
| Warehousing, distribution and reorder | CMS/EMS/Drones | Somewhat |
| Utilization by end-user | Health Facilities | Somewhat |
| Monitoring and Evaluation | MoH/GHS | Somewhat |
| People Practices | MoH/GHS | Low |
| Data Analytics | MoH/GHS | Very Low |
| Systems design | MoH/GHS/HF | Low |
| Financing and domestic resource mobilization | MoH | Low |
| Policies and regulatory frameworks | MoH through GHS | Somewhat |
| OVERALL MATURITY ASSESSMENT | | Average |

GSCMP – Ghana Supply Chain Master Plan
 MoH – Ministry of Health
 CMS – Central Medical Stores
 RMS – Regional Medical Stores
 HF – Health Facilities

Thank You!!!!!!

