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## Factors Influencing the Performance of Blue Economy in Kenya

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### Abstract

The general objective of this study was to assess the factors influencing the performance of blue economy in Kenya. The specific objectives of the study were to establish the influence of maritime transport infrastructure on the performance of Blue Economy in Kenya and to determine the influence of human capital development on the performance of Blue Economy in Kenya. The theoretical framework of the study consists of institutional theory and resource based view theory. This research adopted a cross-sectional survey research design aimed at collecting large number of qualitative and quantitative data at a point in time so as to address the formulated hypotheses. The target population was 14 state parastatal with a population of 362 management staff directly linked to the development and success of blue economy in Kenya. Stratified random sampling technique was used to select 190 respondents from the target population of 362 respondents in the blue economy subsector industry in Kenya. The study collected data from 190 respondents in the rank of C.E.O, senior managers, head of department and maritime administrators in the blue economy sector in Kenya. Primary data was collected by use of self-administered structured questionnaires which was distributed through the drop and pick method. Data analysis was by descriptive statistics and inferential statistics using Statistical Package for Social Sciences (SPSS) version 24. Descriptive statistics analyzed the means, medians and standard deviations while the inferential statistics analyzed the correlation, regression and ANOVA analysis. The Pearson's product moment correlation analysis and standard multiple regression analysis was used for hypotheses testing. The data was presented by the use of tables, and figures for the purpose of giving a pictorial view of the results. The study provided a clear cut mechanism of boosting blue economy performance in Kenya. The study was important since it led to awareness of the blue economy sector. Information from this study was therefore used as a bench mark to lay down institutional structures which ensured the success of blue economy in Kenya.

*Key words: Infrastructure, Maritime, Human Capital, Blue Economy, Kenya*

### 1. Introduction

The fact that oceans and seas matter for sustainable development is undeniable. Oceans and seas cover over two-thirds of Earth's surface, contribute to poverty eradication by creating sustainable livelihoods and decent work, provide food and minerals, generate oxygen, absorb greenhouse gases and mitigate the impacts of climate change. They also determine weather patterns and temperatures, and serve as highways for seaborne international trade. With an estimated 80 percent of the volume of world trade carried by sea, international shipping and ports provide crucial linkages in global supply chains and are essential for the ability of all countries to gain access to global markets (UNCTAD, 2016).

The "blue economy" concept seeks to promote economic growth, social inclusion, and preservation or improvement of livelihoods while at the same time ensuring environmental sustainability. At its core it refers to the decoupling of socio-economic development through oceans-related sectors and activities from environmental and ecosystems degradation (UNCTAD, 2014a; UN DESA, 2014a). The blue economy aims to move beyond business as usual and to consider economic development and ocean health as compatible propositions. It is generally understood to be a long-term strategy aimed at supporting sustainable and equitable economic growth through oceans-related sectors and activities. The blue economy is relevant to all countries and can be applied on various scales, from local to global. In order to become actionable, the blue economy concept must be supported by a trusted and diversified knowledge base, and complemented with management and development resources that help inspire and support innovation (UNCTAD, 2014b).

Blue growth, or environmentally sustainable economic growth based on the oceans, is a strategy of sustaining economic growth and job creation necessary to reduce poverty in the face of worsening resource constraints and climate crisis. The World Bank, for example, defines green growth as "growth that is efficient in its use of natural resources, clean in that it minimizes pollution and environmental impacts, and resilient in that it accounts for natural hazards and the role of environmental management and natural capital in preventing physical disasters" (World Bank, 2012a). The "blue economy" concept seeks to promote economic growth, social inclusion, and preservation or improvement of livelihoods while at the same time ensuring environmental sustainability. At its core it refers to the decoupling of socioeconomic development through oceans-related sectors

and activities from environmental and ecosystems degradation (UNCTAD, 2014a; UN DESA, 2014a). Challenges in the sustainable use of marine resources such as the impacts of climate change in the form of rising sea levels, increased frequency and severity of extreme weather events, and rising temperatures are going to have direct and indirect impacts on oceans-related sectors, such as fisheries, aquaculture, and tourism, and on maritime transport infrastructure, such as ports, with broader implications for international trade and for the development prospects of the most vulnerable nations, in particular coastal least developed countries (LDCs) and small island developing states (SIDS) (UNEP, 2015).

## 2. Research Problem

Oceans and their related resources are the fundamental base upon which the Kenyan economy and culture are built, and they are also central to the delivery of the Vision 2030 Agenda for Sustainable Development, including the Sustainable Development Goals (SDGs). A blue economy provides Kenya with the basis to pursue a low-carbon and resource-efficient path to economic growth and development designed to enhance livelihoods for the poor, create employment opportunities, and reduce poverty. It is also clear that Kenya often lacks the capacity, skills and financial support to better develop its blue economy zones (Patil, Viridin, Diez, Roberts, & Singh, 2016). This research aimed to lay out strategies for Kenya to follow in order to make the blue economy an important vehicle to sustain economic diversification and job creation in the country. In spite of all its promises, the potential to develop a blue economy is limited by a series of challenges.

Many studies have been done on the blue economy concept (Patil, Viridin, Diez, Roberts, & Singh, 2016; World Bank Group, DESA, UNEP, FAO, & IMO, 2017; World Bank & European Union, 2018) but it is clear that the reports of the above authors are mainly reliant on secondary data available and from an economist think tank point of view. Moreover, no primary research was done with respect to getting in touch with key stakeholders relevant to the development of the blue economy and their input on the blue economy concept. These reports are more of a desktop research rather than full blown ground research with data collection through questionnaires and interviews and analysis of the data collected to come up with a scientific back-up of the findings. Thus this research paper aimed to lay out strategies on how all of these activities and industries in Kenya can be coordinated and resources managed so that the Blue Economy concept brings about the maximum benefits to society in an inclusive and sustainable manner.

## 3. Study Objective

The main objective of the study was to assess the factors influencing the performance of Blue Economy in Kenya.

## 4. Review of Literature

### 4.1 Theoretical Framework

The theoretical perspective relevant to this study is based on factors influencing the performance of Blue Economy in Kenya. The theories discussed in this section are institutional theory and resource based view theory.

#### 4.1.1 Institutional Theory

Delmas and Toffel (2013) envisage that institutional theory is concerned with the influence of external forces on organizational decision-making and it emphasizes the role of social and cultural pressures imposed on organizations that influence practices and structures. According to Kraft and Scott (2017) Institutional Theory is "Policymaking that emphasizes the formal and legal aspects of government structures". Krell, Matook and Rodhe (2016) envisage that regulatory pressure occurs when governmental agencies directly or indirectly force firms to change their strategy. Glover, Champion and Daniels (2014) posit that the strength of Institutional Theory is that it offers explanations of why certain practices are chosen without an obvious economic return. Further, the institutional perspective allows for the focus on the role of conformity, regulatory and social pressures in driving organizational actions. Tate, Dooley and Ellram (2011) posit that institutional theory is relevant to the adoption of environmental practices because firms operate in a way that meets social and legal expectations and that not all business choices are as a result of rational economic decisions.

Zailani and Wooi (2010) envisage that certain key drivers motivate firms to adopt blue economy initiatives/strategy, and from a theoretical perspective, the effect of the drivers can be explained in terms of the institutional theory. The drivers studied include regulations and customers' pressures considered as coercive isomorphism, social responsibility considered as normative isomorphism and expected business benefits considered as cultural-cognitive isomorphism. Zhu and Sarkis (2007) utilized institutional theory to evaluate how various green supply chain management practice adoptions influenced operations and manufacturing management. The institutional pressures they studied includes: normative (market) pressure where firms conform to be perceived as more legitimate, coercive (regulatory) pressure which occurs through influence exerted by those in power and mimetic (competitive) pressures which occur when firms mimic the actions of successful competitors in the industry. Thus the institutional theory tries to explain that for blue economy to be successful there must be certain institutional framework in place to

aid in the penetration of the benefits of blue economy. The theory also supports the need for maritime policies and regulations for the success of the blue economy.

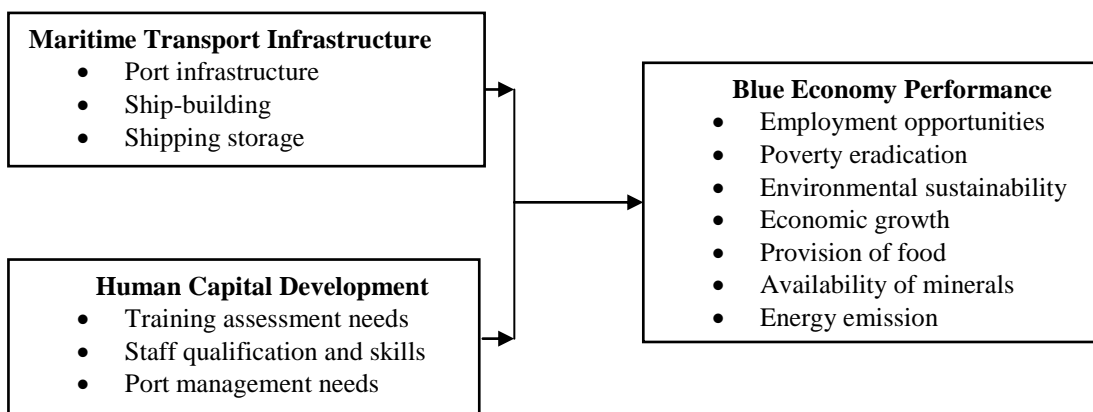
#### 4.1.2 Resource Based View Theory

Penrose (1959) established resource based theory that argues firms possess resources which enable firms to achieve competitive advantage and lead to superior long term performance. Valuable and rare resources can lead to the creation of competitive advantage. That advantage can be sustained over longer time periods to the extent that the firm is able to protect against resource limitation, transfer or substitution (Christine, 2010). Information system resources may take on many of the attributes of dynamic capabilities and may be useful to firms operating in rapidly changing environment. Information resources may not directly lead the firm to a position of superior sustained competitive advantage but they may be critical to the firm's long term competitiveness in unstable environments if they help it develop, add, integrate and release other key resources over time (Wade & Hulland, 2014).

Resources such as adequate finance and competent human resource are crucial for the effectiveness of blue economy and market entry strategy management practices in a rapidly changing environment (Wade & Hulland, 2014). The dynamic capabilities which consist of the activities and mechanisms of managing resources in the creation of value which enables companies manage its activities for improvement in performance. It is expected that a country which has adequate and rare resources would have more influence on the performance of blue economy. This theory is also relevant to the study as it explains how oceanic resources at the country's disposal are a critical factor to consider when implementing blue economy strategies.

#### 4.2 Conceptual Framework

A conceptual framework is a graphical representation of the theorized interrelationships of the variables of a study Kothari and Gang, (2014). The conceptualization of variables in any academic study is important because it forms the basis for testing hypothesis and coming up with generalizations in the findings of the study (Jabareen, 2009). The independent variables of this study were maritime transport infrastructure and human capital development while performance of Blue Economy in Kenya represents the dependent variable. The conceptual framework further explained the sub variables to be tested in each variable which are the measures that will be tested. The operationalization of the variables was as shown in Figure 1.



Independent Variable  
Figure 1 Conceptual Framework

Dependent Variable

#### 4.3 Review of Study Variables

##### 4.3.1 Maritime Transport Infrastructure

Quality infrastructure is a key pillar of international competitiveness. Infrastructure networks reduce the effect of distance, help integrate national markets, and provide the necessary connections to international markets (International Transport Forum[ITF], 2015). Quality infrastructure is trade enhancing especially for exports and has positive impacts on economic growth. Not surprisingly, therefore, most of those countries with high-quality infrastructure also rank high in the world index for overall competitiveness. With approximately 80 percent of world merchandise trade carried by ships, maritime transport remains by far the most common mode of international freight transport (UNCTAD, 2014b). It is the backbone to facilitating international trade, offering the most economical and reliable way to move goods over long distances. Ships can carry large volumes of merchandise and use free highways in the seas, which only require infrastructure investments at the seaports.

Seaport infrastructure provides oceangoing vessels with the necessary facilities to come within reach of the land. It comprises deep-water channels and berths where the ships and other floating craft can tie up alongside, in order to load/unload goods. Harbors require a sufficient depth of water to receive large ships; the size and design of berths vary according to their purpose (United Nations[UN], 2016). For instance, container berths are designed to service containerized cargoes. The hard infrastructure is essential to the overall efficiency of a port, as it ensures access to intermodal transportation through connections to roads, railroads, and inland waterways (International Transport Forum[ITF], 2015). A seaport also needs inside railroad terminals or lines, and road access to the major transport corridors. Seaport superstructure includes all the facilities aimed at loading and unloading ships, and moving goods to and from other modes of transport. As they approach and leave the docks, large ships are usually moved in tight quarters by harbor pilots and tugboats. The superstructure provides ancillary services like fuel, water, cleaning, and repair services.

In 2015, over 80 percent of the volume of international trade in goods was transported by sea, and this share is even higher for most developing countries. In value terms, some observers such as Lloyd's List Intelligence have estimated the share of maritime seaborne trade at 55 percent of all international trade in 2013, while other estimates exceed 70 percent (UNCTAD, 2016). Globally, shipping provides the principal mode of transport for the supply of raw materials, consumer goods, essential foodstuffs, and energy. It is thus a prime facilitator of global trade and contributor to economic growth and employment, both at sea and offshore. Some estimates indicate that international seaborne trade volumes can be expected to double by 2030 (QinetiQ, Lloyd's Register, & Strathclyde University 2013) while, according to the International Transport Forum, port volumes are projected to quadruple by 2050 (ITF 2015).

The impacts of climate change (such as sea-level rise, increasing temperatures, and more frequent and/or intense storms) pose serious threats to vital transport infrastructure, services, and operations, particularly in Kenya, which calls for better understanding of the underlying risks and vulnerabilities and developing adequate adaptation measures (UNEP, 2013). Given the strategic role of ports in the globalized trading system, developing measures for ports to adapt to the impacts of climate and building their resilience is an urgent imperative. While considerable uncertainties and downside risks are currently weighing down on the various outlooks for the sector, Kenya nevertheless need to position it in terms of facilities and capacities to cater for projected seaborne trade growth and in order to optimize their benefits. Benefitting from the economic opportunities arising from the oceans, including trade, tourism, and fisheries requires investment in transport infrastructure and services and transport policy measures in support of shipping. It also requires efforts to address inter-island/domestic/international shipping connectivity requirements, including their incorporation into the broader regional and international maritime transport connectivity and access agenda (UNECA, 2016).

While sea transport provides an essential lifeline to Kenya's Blue Economy, moving the vast majority of people, goods, and resources, shipping also relies on expensive fossil fuel imports which consumes some 70 percent of the total fuel imported regionally (UNCTAD, 2014). Port infrastructure in Kenya is often in poor repair, expensive, difficult to maintain, and vulnerable to extreme weather events. The Pacific Islands Development Forum has highlighted the need for sustainable marine transport transition, noting that development of sustainable sea transport would reduce reliance on imported fuels, and innovative low-carbon technologies in marine transportation are seen as part of the transition to blue/green economies throughout the Kenya and globally (UNDESA, 2014b).

#### **4.3.2 Human Capital Development**

Maritime staff development and skill competency seeks to analyze and improve the performance of work units, departments, and the whole maritime sector. Maritime capacity building in terms of competence is a system-wide, planned effort to increase Blue Economy performance through purposeful reflection, planning, and action. In particular, capacity building looks in depth at where the Blue Economy of the country stands in comparison to where it hopes to be in the future, and develops the requisite skills and resources to get there (Theisohn & Lopes, 2013). There is a major concern on the level of competency on the government side in the conduct of maritime sector activities. There is a shortfall of professional capacity maritime sector especially Kenya. This stems from a shortage of experienced maritime professional staff, inadequate training and low pay. It is clear that the development of maritime sector professionalism is of prime importance in the development of blue economy in Kenya and in the African region (Ramsar, 2015).

The level of professionalism requirements for officials conducting and authorizing maritime functions is not taken seriously. Quite a number of maritime personnel in Kenya and Africa have no maritime qualifications as are requirement for any sector where employment is undertaken. Instead they provide a minimum civil service qualification to serve as a maritime officer. Some countries show that familiarity and on the job training as the standard measure for one to carry out maritime functions. Some argue that there is no need for degree requirement or study background in the field of maritime but rather an approach to on-job training (Omar, 2015). Human capital development is key in maritime sector as it creates experts in port administration who organizes and oversees the movement of ships and goods. When ports have competent staff, it is easy to handle international traffic, customs facilities and do proper port scheduling and management. The administration services include regulation of consignees, import/ export documents and permits, phytosanitary certificates, and administration of taxes. As part of the port administration and management, information and communication technologies contribute to the speed with which goods transit

through ports. This includes information systems, electronic databases, and platform management software. Hence there is clear need for the government to develop excellent and competent human resource in the maritime sector if all the benefits of blue economy are to be fully exploited (Mezher, Fath, Abbas, & Khaled, 2011).

#### 4.3.3 Blue Economy Performance

A blue economy offers Kenya the opportunity to diversify from a narrow production base, invest in and develop growth and employment opportunities in a wide range of both existing and new sectors and industries, and shift away from predominantly land-based industries toward those that integrate and sustainably develop a broader range of land-based, coastal, and ocean-based sectors (UNCTAD, 2014b). The fact that oceans and seas matter for sustainable development is undeniable. Oceans and seas cover over two-thirds of Earth's surface, contribute to poverty eradication by creating sustainable livelihoods and decent work, provide food and minerals, generate oxygen, absorb greenhouse gases and mitigate the impacts of climate change, determine weather patterns and temperatures, and serve as highways for seaborne international trade. With an estimated 80 percent of the volume of world trade carried by sea, international shipping and ports provide crucial linkages in global supply chains and are essential for the ability of all countries to gain access to global markets (UNCTAD, 2016).

The "blue economy" concept seeks to promote economic growth, social inclusion, and preservation or improvement of livelihoods while at the same time ensuring environmental sustainability. At its core it refers to the decoupling of socioeconomic development through oceans-related sectors and activities from environmental and ecosystems degradation. Challenges in the sustainable use of marine resources such as the impacts of climate change in the form of rising sea levels, increased frequency and severity of extreme weather events, and rising temperatures are going to have direct and indirect impacts on oceans-related sectors, such as fisheries, aquaculture, and tourism, and on maritime transport infrastructure, with broader implications for international trade and for the development prospects of the most vulnerable nations (Economic Intelligence Unit, 2015). The blue economy has diverse components, including established traditional ocean industries such as fisheries, tourism, and maritime transport, but also new and emerging activities, such as offshore renewable energy, aquaculture, seabed extractive activities, and marine biotechnology and bioprospecting. A number of services provided by ocean ecosystems, and for which markets do not exist, also contribute significantly to economic and other human activity such as carbon sequestration, coastal protection, waste disposal and the existence of biodiversity (Food and Agriculture Organization[FAO], 2017).

In order to qualify as components of a blue economy, Kenya needs to engage in activities which are understood to: provide social and economic benefits for current and future generations, restore, protect, and maintain the diversity, productivity, resilience, core functions, and intrinsic value of marine ecosystems and be based on clean technologies, renewable energy, and circular material flows that will reduce waste and promote recycling of materials. The blue economy aims to move beyond business as usual and to consider economic development and ocean health as compatible propositions (UNEP, 2013). It is generally understood to be a long-term strategy aimed at supporting sustainable and equitable economic growth through oceans-related sectors and activities. The blue economy is relevant to all countries and can be applied on various scales, from local to global. In order to become actionable, the blue economy concept must be supported by a trusted and diversified knowledge base, and complemented with management and development resources that help inspire and support innovation. A blue economy approach must fully anticipate and incorporate the impacts of climate change on marine and coastal ecosystems impacts both already observed and anticipated. Understanding of these impacts is constantly improving and can be organized around several main "vectors": acidification, sea-level rise, higher water temperatures, and changes in ocean currents (UN-OHRLLS, 2016).

These different vectors, however, are unequally known and hard to model, in terms of both scopes where they will occur, where they will be felt the most and severity. For instance, while not as well understood as the other impacts, and more difficult to measure, the impacts of acidification are likely to be the most severe and most widespread, essentially throughout any carbon-dependent ecological processes (UNESCO, 2016). Likewise, the effects of sea-level change will be felt differently in different parts of the world, depending on the ecosystems around which it occurs. Most importantly, however, and unlike in terrestrial ecosystems, further uncertainty results from the complex interactions within and between these ecosystems. In spite of this uncertainty, the current state of knowledge is sufficient to understand that these impacts will be felt on critical marine and coastal ecosystems throughout the world and that they fundamentally affect any approach to the management of marine resources, including by adding a new and increasing sense of urgency. Healthy oceans and seas can greatly contribute to inclusiveness and poverty reduction, and are essential for a more sustainable future for Kenya. Oceans and their related resources are the fundamental base upon which the economies and culture of Kenya will be built and they are also central to the delivery of the vision 2030 Agenda for Sustainable Development, including the Sustainable Development Goals (SDGs). A blue economy provides Kenya with a basis to pursue a low-carbon and resource-efficient path to economic growth and development designed to enhance livelihoods for the poor, create employment opportunities, and reduce poverty (UNDESA, 2014b).

## 5. Research Methodology

This study adopted survey research design using quantitative approach. Quantitative approach puts emphasis on measurement and data is analyzed in a numerical form to provide brief description. Mugenda and Mugenda (2009) notes that quantitative approach is also called scientific method and has been regarded as the traditional mode of inquiry in evaluation and research.

This study was a cross-sectional research since the research respondents will answer the questionnaire at once, because of the time period the data will be collected and the type of analysis.

The target population comprised of all state entities in the blue economy sector. The study purposely concentrated on only blue economy sector because it was expected that the players would have the relevant and accurate information needed in this study. This study therefore comprised of 14 state entities which play a direct or indirect role in the development and enhancement of the blue economy in Kenya from which the target and accessible population was drawn. The respondents comprised of management and supervisory employees in the state parastatal charged with the implementation of the blue economy industry in Kenya. This study hand-picked top management and middle management employees from state firms given the fact that they were more likely to be involved in activities relevant to the performance of blue economy in there day to day business.

With a study population of 362 respondents and a sample size of 190 respondents, Table 3.2 shows the sample size of study and distribution of questionnaires to various respondents in each sampled state firm. With a confidence interval of 95 percent, the sample size will also be determined using the formula shown below (Saunders, Lewis, & Thornhill, 2007).

$$n = N / 1 + N (\alpha)^2$$

Where:

- n= the sample size,
- N= the sample frame (population)
- α= the margin of error (0.05%).

A sample size of 190 respondents was arrived at as follows:

$$n = 362 / ((1 + 362(0.05)^2) = 190$$

This study, therefore, had a total of 190 respondents selected for this study. Therefore, this study selected 190 respondents who were knowledgeable for every state firm to be sampled. This sample deemed good representation of the populations since the sample size is greater than 10 percent of the target population. Mugenda (2008) argue that for a sample to be a good representative of the population it should be at least 10 percent of the target population.

**Table 1 Target Population and Sample Size**

Category	Target Population	Calculation	Sample Size
Blue Economy Secretariat(Kenya)	15	190/362*15	8
Kenya Ports Authority(KPA)	35	190/362*35	18
Kenya Maritime Authority(KMA)	15	190/362/15	8
Kenya Revenue Authority(KRA)	25	190/362*25	13
Fisheries Development and Promotion Service	21	190/362*21	11
Agricultural, Fisheries and Food Authority	28	190/362*28	15
Kenya Marine and Fisheries Research Institute	32	190/362*32	17
Kenya Coast Guard Service	21	190/362*21	11
Kenya National Shipping Line	32	190/362*32	17
Kenya Railways Corporation	33	190/362*33	17
Kenya Ferry Services Ltd	19	190/362*19	10
Water Resource Management Authority	13	190/362*13	7
LAPSSET Corridor Development Authority	39	190/362*39	20
Mining and Oil Exploration Regulatory Service	34	190/362*34	18
<b>Total</b>	<b>362</b>	<b>362/(1+362*0.05<sup>2</sup>)</b>	<b>190</b>

## 6. Data Analysis and Results

### 6.1 Correlation Analysis

Pearson Bivariate correlation coefficient was used to compute the correlation between the dependent variable (Blue Economy Performance) and the independent variables (Maritime Transport Infrastructure and Human Capital Development). According to Sekaran, (2015), this relationship is assumed to be linear and the correlation coefficient ranges from -1.0 (perfect negative

correlation) to +1.0 (perfect positive relationship). The correlation coefficient was calculated to determine the strength of the relationship between dependent and independent variables (Kothari and Gang, 2014).

In trying to show the relationship between the study variables and their findings, the study used the Karl Pearson's coefficient of correlation (r). This is as shown in Table 4.2 below. According to the findings, it was clear that there was a positive correlation between the independent variables, Maritime Transport Infrastructure and Human Capital Development and the dependent variable Blue Economy Performance. The analysis indicates the coefficient of correlation, r equal to 0.216, 0.193, for Maritime Transport Infrastructure and Human Capital Development respectively. This indicates positive relationship between the independent variable namely Maritime Transport Infrastructure and Human Capital Development and the dependent variable Blue Economy Performance.

**Table 2 Pearson Correlation**

	Blue Economy Performance	Maritime Transport Infrastructure	Human Capital Development
Blue Economy Performance	1		
Maritime Transport Infrastructure	.216*	1	
Human Capital Development	.193*	.065	1
	122	122	122

\*. Correlation is significant at the 0.05 level (2-tailed).

\*\*. Correlation is significant at the 0.01 level (2-tailed).

**6.2 Coefficient of Determination (R<sup>2</sup>)**

To assess the research model, a confirmatory factors analysis was conducted. The two factors were then subjected to linear regression analysis in order to measure the success of the model and predict causal relationship between independent variables Maritime Transport Infrastructure and Human Capital Development and the dependent variable (Blue Economy Performance).

The model explains 21.5% of the variance (Adjusted R Square = 0.188) on Blue Economy Performance. Clearly, there are factors other than the two proposed in this model which can be used to predict Blue Economy Performance. However, this is still a good model as Cooper and Schinder, (2013) pointed out that as much as lower value R square 0.10-0.20 is acceptable in social science research. This means that 21.5% of the relationship is explained by the identified two factors namely Maritime Transport Infrastructure and Human Capital Development. The rest 78.5% is explained by other factors in the Blue Economy Performance not studied in this research. In summary the two factors studied namely Maritime Transport Infrastructure and Human Capital Development determines 21.5% of the relationship while the rest 78.5% is explained or determined by other factors.

**Table 3 Model Summary**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.463 <sup>a</sup>	.215	.188	3.51026

a. Dependent variable: Blues Economy Performance

b. Predictors: (Constant), Human Capital Development and Maritime Transport Infrastructure

**6.3 Analysis of Variance**

The study used ANOVA to establish the significance of the regression model. In testing the significance level, the statistical significance was considered significant if the p-value was less or equal to 0.05. The significance of the regression model is as per Table 4 below with P-value of 0.00 which is less than 0.05. This indicates that the regression model is statistically significant in predicting factors of Blues Economy Performance. Basing the confidence level at 95% the analysis indicates high reliability of the results obtained. The overall Anova results indicates that the model was significant at F = 8.003, p = 0.000.

**Table 4 ANOVA<sup>a</sup>**

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	394.439	4	98.610	8.003	.000 <sup>b</sup>
	Residual	1441.668	117	12.322		
	Total	1836.107	121			

a. Dependent Variable: Blues Economy Performance

b. Predictors: (Constant), Human Capital Development and Maritime Transport Infrastructure

#### 6.4 Regression Analysis

**Table 5 Regression Coefficients**

Model		Unstandardized		Standardized	t	Sig.
		Coefficients		Coefficients		
		B	Std. Error	Beta		
1	(Constant)	3.104	2.640		2.176	.002
	Maritime Transport Infrastructure	.449	.123	.322	3.644	.000
	Human Capital Development	.110	.124	.076	2.888	.003

a. Dependent Variable: Blues Economy Performance

The regression equation was given as:

$$Y = 3.104 + 0.449X_1 + 0.110X_2$$

Where;

Y = the dependent variable (Blues Economy Performance)

X<sub>1</sub> = Maritime Transport Infrastructure

X<sub>2</sub> = Human Capital Development

The regression equation above has established that taking all factors into account (Blues Economy Performance as a result of Maritime Transport Infrastructure and Human Capital Development) constant at zero Blues Economy Performance was 3.104. The findings presented also shows that taking all other independent variables at zero, a unit increase in Maritime Transport Infrastructure will lead to a 0.449 increase in the scores of Blues Economy Performance; a unit increase in Human Capital Development will lead to a 0.110 increase in Blues Economy Performance; This therefore implies that all the two variables have a positive relationship with Maritime Transport Infrastructure contributing most to the dependent variable. From the table we can see that the predictor variables of Blues Economy Performance as a result of Maritime Transport Infrastructure and Human Capital Development got variable coefficients statistically significant since their p-values are less than the common alpha level of 0.05.

## 7. Conclusions and Recommendations

### 7.1 Conclusions

The study concluded that Maritime Transport Infrastructure through port infrastructure, ship-building and shipping storage help in the performance of Blue Economy in Kenya. Further the study concluded that Maritime Transport Infrastructure plays a pivotal role in the performance of Blue Economy by providing a platform for faster clearance of goods into and out of the port. The study results in general concluded that there was a statistically significant effect of Maritime Transport Infrastructure on the performance of Blue Economy in Kenya.

The study concluded that Human Capital Development through training assessment needs, staff qualifications skills and port management needs are key in the performance of Blue Economy in Kenya. Further the study concluded that Human Capital Development plays a key role in the performance of Blue Economy by providing relevant knowledge and competence to the staff thus enhancing their skills and high performance at port functions. The study results in general concluded that there was a statistically significant effect of Human Capital Development on the performance of Blue Economy in Kenya.

### 7.2 Recommendations



The study recommended the following:

- i. That the Kenyan Government should build world class Maritime Transport Infrastructure facilities such as port infrastructure, ship-building and shipping storage so as to enhance the performance of Blue Economy in Kenya.
- ii. That the Kenyan Government should invest heavily in Human Capital Development in the maritime sector by doing training assessment needs, staff qualification and skills and port management needs so as to enhance the performance of Blue Economy in Kenya.

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