

Strategic Management Determinants of Value Addition in the Sea Food Processing Sub-Chain: A Survey of Industrial Fish Processors in Kenya

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Abstract: *The purpose of the study was to assess the strategic management determinants of value addition in the sea food processing sub chain. The study adopted a descriptive research design, the study targeted 127 respondents for the study and 93 questionnaires were returned which indicates a 73.22% response rate. To test reliability, Cronbach alpha was used to test the reliability of the instrument. The results were highly reliable and all the items appeared worthy of retention. Questionnaires were administered with the help of data collectors. Data was collected; questionnaires were coded and checked for completeness before data collected was entered in SPSS 20.0 for analysis.*

The study found out that there was 68.2% of corresponding change in value addition of IFPs in every change in all the four predictor variables jointly. Test of overall significance of all the four variables jointly using ANOVA at 0.05 level of significance and found the model to be significant. Policy and managerial recommendations were made among them; the study recommends that the fisheries management bill of 2014 should be adopted so as to create an enabling marine fishing environment for local fisher men.

The study also recommends that the government needs to consider licensing foreign fishing company so as to invest in Kenya and necessary legal framework to enable the government invest and develop the marine sub-sector is needed. On technological advancement, there is need to create fishing ports in Mombasa, Kilifi and Lamu and these ports should be fitted with modern cooling equipment to avoid post harvest losses by building cold chain facilities and value addition.

Keywords: *Value addition, strategic management determinants, sea food*

1. INTRODUCTION

The agriculture sector is the single largest sector of the economy accounting for about one quarter of GDP. About 18 per cent of growth in GDP in 2012 was from the sector, up from 7.5 per cent recorded in 2011 (RoK, 2013). Agriculture also provides employment and livelihood to a large percentage of the population with an estimated 75% of the population depending on the sector either directly or indirectly (RoK, 2012). Kenya exports 6 billion worth of fish products to Europe, mainly Tilapia, and contributes to about 0.5 percent of the economy (FAO, 2012).

2. STATEMENT OF THE PROBLEM

Kenya's fisheries sector plays an important role in the national economy. For instance, the sub-sector total earnings from fish landed rose from KSh 11.5 billion in 2008 to KSh 12.0 billion in 2009 attributed to increased fish landings and favorable domestic and export market prices (FAO, 2012). The value of freshwater fish increased from KSh 10.72 billion in 2008 to KSh 11.2 billion in 2009, accounting for 93.5 % of the total revenue generated from the fisheries sub-sector in 2009 (RoK, 2010).

This figure could have been higher if value addition at the various stages of the supply chain are considered and post harvest losses minimized. Additional statistics indicate that the sector contributes significantly to many coastal economies in generating income, employment, and foreign exchange earnings to the fishing communities, fish traders, fish processors and fish farmers. The sector supports about 80,000 Kenyans directly and about 800,000 indirectly (RoK, 2008). In addition, the fishery sector is one of the key contributors to food security and poverty alleviation in many developing nations (FAO, 2012). The developing world is also more dependent on fish as their source of protein, having a 20 % contribution of fish to total animal

proteins, compared with the developed world's 12.3 % (Laureti, 1999). It is, therefore, clear that expanding the fishery sector has contributed to economic growth in the developing world.

The vision 2030 has three pillars; political, economic and social pillars. The economic pillar focuses on moving the economy up the value chain (RoK, 2010). One of the ways of achieving this is through the agriculture sector that requires a strong focus on increasing market access through value addition and by processing, packaging and branding the bulk of agricultural produce. This entails proactively exporting value-added goods to regional and global markets.

However, it is evident that a lot more growth can be achieved in this sector. For instance statistics show a disconnect between value addition and production of fish. The production of fish in the year 2010 was 158,000 tones, whereas the fish traded was 78,000 tones (FAO, 2012). This is indicative of the amount of wastage that is occurring in the value chain of fish where a lot of fish is sold unprocessed. For instance in spite of the fact that Kenya produced 158,000 tons of fish as indicated above during period 2010, there only exist one Tuna factory that produces cooked frozen Tuna loins, its note worthy that even after this process the tuna has to be taken to EU for further processing. This is possible if key players in the industry can identify deficient value addition points in the sea food supply chain and step up value addition. Most sea food in Kenya is handled, processed, transported and stored without proper equipment and through fairly unhygienic and un standardized processes, which makes it very difficult for Kenya's sea food products to easily access the outside market. Even in the face of these challenges, very little in the way of enhancing the entire fish processing and marketing value chain has happened in the last decade.

The Kenyan seafood industry presents a complexity of interwoven value chains which cut across fresh and processed fish, industrial and artisanal processing, domestic and export markets and food and feed products. The sea food sector would have probably grown further if value addition at the various stages of the supply chain are considered and post harvest losses minimized. This study sought to identify and assess strategic management determinants of value addition in the sea food processing sub chain and to explain how they affect the industry, in terms of value addition. Information gathered and the recommendations thereof will help to create a more complete and efficient sub-chain and, therefore, optimize the economic as well as social benefits of the fishing industry to the country.

3. THE PURPOSE OF THE PAPER

The purpose of the paper is to identify strategic management determinants of value addition in the sea food processing sub-chain.

3.1. Specific objectives

This study was guided by the following specific objectives:-

- i. To evaluate existing strategic planning practices and to evaluate their effects on value addition in the sea food processing sub chain.
- ii. To evaluate the effect of technological competitiveness on value addition in the sea food processing sub chain.
- iii. To identify the level of market competition in the sector and evaluate its effects on value addition in the sea food processing sub chain.
- iv. To find out the effect of corporate policies on value addition in the sea food processing sub chain.

4. LITERATURE REVIEW

4.1. Strategic Planning Practices

Strategic planning remains the most popular and widely analyzed tool of strategic management (Rigby, 1999). Corporate leaders embraced strategic planning as the one best way to devise and implement strategies that would enhance the competition of each business unit.(Mintzberg 1994c:107). Literature suggests that planning is a good management practice, and may be beneficial to business (Gibson et al 2002; Schwenk and Shrader, 1993). According to Berman,

Gordon and Sussman (1997:14) “firms that plan produce better financial results than firms that do not plan”. Bracker et al (1986; 1988) found that firms that undertook strategic planning performed better financially. Lerner and Almor (2002) contend that planning lays the groundwork for developing the strategic capabilities needed for high performance.

Strategic planning has been studied by various scholars including (Mintzberg, 1973, 1994; Brush and Bird, 1996; Bracker and Pearson, 1986; Braker, Keats and Pearson, 1988). The process of strategy formulation is called strategic planning. It’s a top management function, which is concerned with making decisions with regard to the determination of the organizations’ mission, vision, philosophy, objectives, strategies and functional policies. Mead identified three characteristics of strategic planning as follows, strategic planning is deliberate in that management takes a conscious decision to make a radical change, the organization has a specific objective, which it can no longer achieve by the old strategy such that a new strategy becomes necessary and the organization formulates a new goal, which can only be achieved by a new strategy (Mead, 1998).

4.2. Technological Competiveness

According to the resource-based perspective, venture resources in the form of capabilities, assets, technology and skills provide competitive advantage and underpin the organization’s performance (Barney 1991; Grant 1991; and Peteraf 1993). In other words, resource-based theory hinges on the resources and capabilities of the firm as an underlying factor of performance. Currently most fish farmers and traders use, if anything self made basket with a liner in which the ice lasts for about six hours. These containers pose a challenge then since the farmers and traders have to clean them to meet the safety standards and regulations. Thus posing a risk in the sector since the technology being used is not competitive enough as compared to other international markets.

The seafood processing industry needs new technologies to enhance quality, detect decomposition and extend product shelf life while adding minimal cost. New software will be needed to collect and manage data to allow a reliable prediction of remaining quality shelf life under controlled conditions.

The productivity and competitiveness of seafood processing depends not only on the sources and costs of raw materials, but also on the influence of other costly resources: energy, water and labor. Large amounts of energy are required for refrigeration. There are opportunities for conservation through energy audits and demonstrating new technologies at processing plants. Primary processors are located in the same coastal areas facing increased population density and tourism, all of which place high demands on limited supplies of fresh water. As just one example, it takes about 40 gallons of water to process one pound of Pacific shrimp. Improved management, education and technology-transfer programs could achieve significant reduction in water use, resulting in financial and environmental benefits (Grant, 2005).

4.3. Level of Market Competition

A company’s position in a market channel is dependent on the following key decisions (adapted from Stern et al. 1996): one, which products or services will be delivered to which market. Secondly, what are the required intrinsic characteristics of the product or service and the required extrinsic characteristics of the production process and whether the company will adopt a single or multi-channel strategy? One company can deliver to more than one market (in terms of market requirements like quality level, delivery conditions, pricing). Lastly, the number of stages in the channel. For example a producer can deliver directly to customers further downstream the channel or through intermediary partners (such as traders, distributors or processors). The markets include both the export as well as domestic markets.

4.4. Corporate Policies

Fishery resources in Kenya are managed by the Department of Fisheries through the Fisheries Act (Cap 378) and Maritime Act (Cap 250) of the Laws of Kenya, the Kenya Marine Fisheries Research Institute (KMFRI), established as a state corporation through the Science and Technology Act (Cap 250), undertakes fisheries research. Other public institutions involved with fishery activities include regional development authorities under the Ministry of Regional

Development, Ministry of Environment and Natural Resources, universities and public laboratories.

The Kenya fisheries sector has operated without a comprehensive fisheries policy since independence (ROK, 2005). Fisheries production and management measures were, from time to time however, mentioned in various policy documents. Key among these include the various national Development Plans in which the government emphasized fish production from natural waters; National Food Policy (1981 and 1994) in which the importance of fish as a nutritious food commodity was emphasized; District Focus for Rural Development policy (1995) that required all districts to have fisheries presence irrespective of their fisheries potential; Poverty Reduction Strategy Paper (PRSP) of 2001 that introduced a social responsibility and poverty reduction element into the fisheries agenda; Economic Recovery Strategy for Wealth and Employment Creation 2003-2007 (ERS), into which the PRSP evolved, and that recognizes the contribution made by fisheries to local incomes, subsistence and nutrition (RoK, 2005).

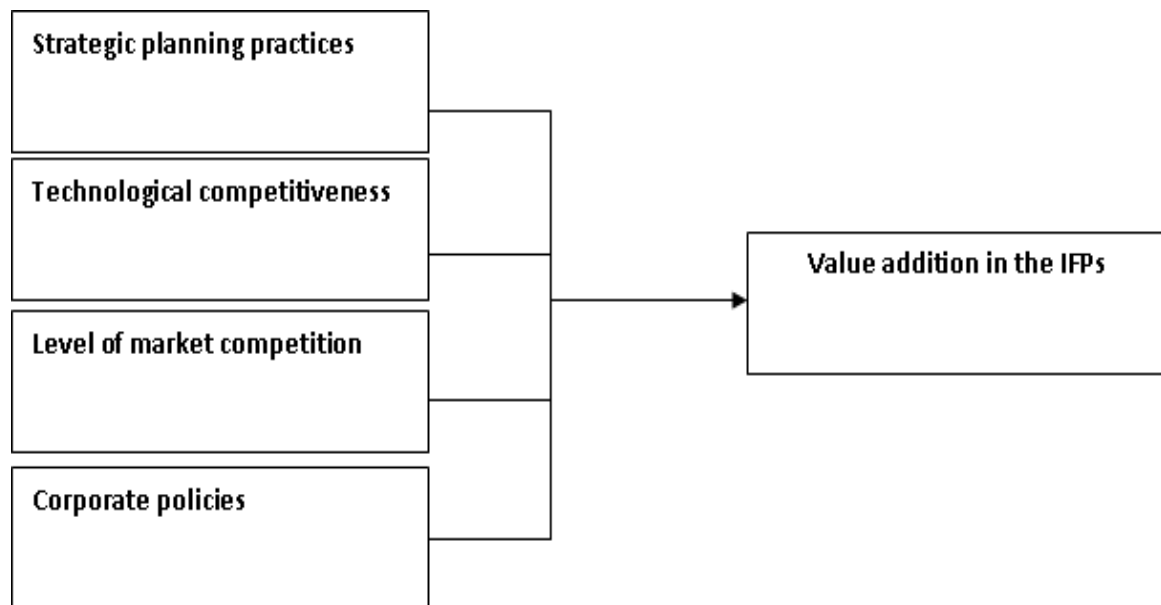


Fig1.1. conceptual framework

5. METHODOLOGY

This study adopted a descriptive research design. There are 17 industrial fish processing firms in Kenya (EPZA, 2005 & Afipek, 2012). The target population of this study was all the 17 industrial fish processing firms in Kenya as the list availed by AFIPEK. Responses were given by officers that were involved in value addition, for example those that were involved in the process of filleting, skinning, trimming, packaging as well as freezing and storage. In addition, decision makers in the regulatory organizations such as those working under the Ministry of Fisheries, Kenya Marine Fisheries Research Institute, with specific bias to value addition were also targeted in this study to give a comprehensive picture of the whole chain.

Therefore, a proportionate sample size of approximate 127 respondents which is a 10% of the population was selected using stratified random sampling technique. The table below shows the target population and the sample size for the three organizations namely, IFPs, Ministry of fisheries and KMFRI.

Table 1.1 Sampling frame

Organization	Target population	Sample size	Percentage
IFPs	850	85	10%
Ministry of Fisheries	300	30	10%
KMFRI	120	12	10%
Total	1270	127	10%

Data was collected, coded and analyzed using SPSS version 20.0. The findings were presented in form of tables and pie charts and discussions and interpretation of the same given.

6. RESULTS AND DISCUSSIONS

6.1. Response Rate

From the data collected, out of the 127 questionnaires administered, 93 were filled and returned, which represent 73.22 % response rate. This response rate is considered satisfactory to make conclusions for the study. Mugenda and Mugenda (2003) observed that a 50% response rate is adequate, 60% is good, while 70% rated very good. This implies that based on this assertion, the response rate in this case of 73.22% is therefore very good.

6.2. Reliability Analysis

Cronbach's Alpha was used to verify the reliability of the proposed instrument. The findings indicated that strategic planning practices had a coefficient of 0.775, technological competitiveness had a coefficient of 0.718, level of market competition had a coefficient of 0.765, corporate policies had a coefficient of 0.762 and value addition obtained a coefficient of 0.734. All the constructs depicted that the value of Cronbach's Alpha were above the suggested value of 0.6 thus the study was reliable and all the items were worthy retention (Malhotra, 2002; Cronbach, 1951).

Table1.2. Reliability statistics

Variables	Cronbach's Alpha	Comments
Strategic planning practices	0.775	Accepted
Technological competitiveness	0.718	Accepted
Level of market competition	0.765	Accepted
Corporate policies	0.762	Accepted

6.3. Descriptive Statistics

The descriptive statistics of the study indicated that 78 (83.9%) of the respondents were men while the remaining 15 (16.1%) were women as indicated in the table below.

Table1.3. Gender analysis

	Frequency	Percentage
Male	78	83.9
Female	15	16.1
	93	100.0

7. MULTIPLE REGRESSION ANALYSIS

A multiple regression analysis was conducted for the dependent variable which is value addition on the independent variables which are strategic planning practices, technological competitiveness, level of market competition and corporate policies. This is represented by the overall model $Y = \beta_0 + \beta_1X_1 + \beta_2X_2 + \beta_3X_3 + \beta_4X_4 + \epsilon$.

The coefficient of determination R^2 and correlation coefficient (r) shows that the degree of association between the independent variables and value addition. The results of the multiple regression indicate $R^2 = .465$ and $R = .682$ as shown in table 1.4. This is an indication that there is a strong relationship between independent variables; strategic planning practices, technological competitiveness, level of market competition and corporate policies and the dependent variable value addition.

From the model summary table below adjusted R^2 was .441; this indicates that strategic management determinants explain 44.1 % of variations in value addition. Therefore further research should be conducted to investigate these other factors that affect value addition in the IFPs.

Table1.4. model summary

Model	R	R^2	Adjusted R^2
1	.682	.465	.441

The analysis of variance presented in Table 1.5 shows the F value of the entire of the regression model was 19.114 (4,88) $P < 0.05$. The significance value generated by the model was 0.000 this

shows that the overall model is significant. It further implies that independent variables; strategic planning practices, technological competitiveness, level of market competition and corporate policies have a significant influence on value addition.

Table1.5 ANOVA

Model	Sum of squares	ANOVA df	Mean square	F	Sig.
Regression	12.899	4	3.225	19.114	.000
Residual	14.847	88	.169		
Total	27.474	92			

8. CONCLUSIONS

The crux of this study was to identify and assess the strategic management determinants of value addition in the sea food processing sub chain and try to explain how they affect the industry, in terms of value addition. The strategic management determinants studied included; strategic planning practices, technological competitiveness, level of market competition and corporate policies. Based on the previous studies, strategic management determinants were expected to have a positive relation with value addition in the IFPs. The output given from the findings indicate that there is a significant positive relationship between strategic management determinants and value addition in the IFPs. The study concludes that IFPs didn't engage in any strategic planning activities and as a result most of them failed to identify the key strategies of adding value.

From the findings, the IFPs embraced use of technology but most of them did not make use of cutting edge technologies that would make them be competitive in the market as a result most of them could not fit to sell their products into the European market. The findings are in agreement with the resource-based perspectives who argue that venture resources in the form of capabilities, assets, technology and skills provide competitive advantage and underpin the organization's performance (Barney 1991; Grant 1991; and Peteraf 1993). In other words, resource-based theory hinges on the resources and capabilities of the firm as an underlying factor of performance.

The study established that level of market competition played a crucial role in determining how much value addition the IFP's would engage in. From the literature review, it's evident that various markets, whether local or international require different value added products. These findings are in agreement with (Stern et al. 1996); who argued that a company's position in a market channel is dependent on which products or services will be delivered to which market. After visits made to the IFPs, the study concludes that majority of them operate in an open/ free market where there are no controls. The prices also keep on fluctuating depending on if it's a tourist season or not. E.g. the price of Octopus ranges from Kshs 100- 220 per kg, lobsters at ksh 800-2500 per kg and fin fish at ksh 150-350 per kg. It's the role of the IFP's then to adjust so at to compete competitively in all these markets. It's also worth noting that the IFP's need to study the various markets so that there are able to analyze their different needs and produce value added products for those markets.

Lastly, the study established that corporate policies played a crucial role especially in regulating the industry. The study concludes that there were no clear policies on value addition and this affected how the IFP's operated. Literature review suggests that the Kenya fisheries sector has operated without a comprehensive fisheries policy since independence (ROK, 2005). Fisheries production and management measures were, from time to time however, mentioned in various policy documents. From the findings it is evident that clear policies in the industry determine how much value addition the IFP's can engage in. From the literature review, lack of a comprehensive national fisheries policy has reduced management and research effectiveness, discouraged investment in the sector, and thus constrained production growth. The government needs to develop these polices to encourage value addition, marketing and fair trade in Kenya's fishery products worldwide.

9. RECOMMENDATIONS

Based on the findings and the conclusions drawn, this study recommends the following

9.1. Managerial Recommendations

1. Value addition within the seafood value chain should be given priority in government planning. Private investors should be encouraged to invest in seafood value addition. The government can do this by, for instance, zero-rating imported value addition machinery. This would ensure the industry embraces cutting edge technology that will make them produce value added products that makes them compete competitively in the market.
2. Sea food farmers need to be equipped with the skills and knowledge that's they need to function at various stages of the value chain. Training initiatives would be important in this regard especially on entrepreneurship and the need to more creative and innovative as they run their businesses. Trainings on financial management and importance of saving are paramount in the industry.
3. Training on strategic planning and the importance of strategic management should be given key priority in the sector. Each and every IFP should develop a strategic plan clearly showing their vision, mission, strategic objectives, key strategies and goals so as to define the organization's strategic direction with in the specified period. In the same plan, key strategies relating to value addition should be included clearly elaborating how they were to achieve them and what resources they needed for each. This would serve as an adequate platform for planning in the IFPs.
4. There is need for governments in developing economies to mainstream the seafood sector in its planning and in the process enhance regulation of the seafood sector to harness the benefits of formal operations. They could begin by encouraging the establishment of more fishing cooperatives in the coast and other fishing regions, giving them clear and beneficial operational guidelines and facilitating them in the areas of value addition and marketing.
5. There is need to continuously study and if necessary redefine the chain in order to rid it of unnecessary bottlenecks and operational challenges. This is because there exists numerous bottlenecks that slow down operations within the chain hence increasing the overall costs of the chain.
6. Market development is critical to the growth and development of the chain. It is necessary that new and diverse markets be opened up urgently in various part of the world to grow the sector and avail more benefits to the operators in the chain. The government through their respective ministries should be able to market the sector in various part of the world besides linking the local IFPs to international markets.
7. Information centers should be established to furnish various operators at various chain nodes with necessary information for purposes of planning investment decision making. Centers can be created in the counties that engage in fishing farming and this would provide adequate information that is paramount for planning and decision making.
8. Inter-sector relationships need to be developed and nurtured. For instance, there exist a lot of relationships between seafood farming and tourism. These relationships would help to tap into the synergies that exist and this would lead to growth of not only the two sectors but also the country at large.

9.2. Policy Recommendations

1. The government needs to develop very clear and elaborate regulatory framework and policies so as to guide the operations of the IFPs in value addition. These policies should be documented and should be put under custody of the Ministry of fisheries. For example, with the EU market, they control the overall quality aspect from branding, packaging, presentation, the quantity and recipe hence it's very difficult for an IFP to engage in finished products for export. Clear policies are needed saying the role of each stakeholders.
2. A policy should be issued to ensure that each IFP has a strategic plan that clearly documents theirs strategies for value addition in the sector. This should be a mandatory document in the running of the IFPs.

3. The fisheries management bill of 2014 should be adopted to create an enabling marine fishing environment for local fisher men in the region.
4. The government needs to consider licensing foreign fishing companies to invest in Kenya so that we can more value addition activities and encouraging the success of the industry.
5. The necessary legal framework to enable the government invest and develop the marine sub sector is needed. For example, Kenya does not have the capacity for deep sea fishing and local fishermen need to provided with modern fishing gears.
6. There is need to create fishing ports in Mombasa, Kilifi and Lamu counties that are fitted with modern cooling equipment to avoid post harvest losses by building cold chain facilities and value addition.

10. AREAS FOR FURTHER STUDY

This study sought to bring to light the determinants of value addition in the sea food industry. These determinants are not exhaustive hence further research can be carried out to unearth other determinants of value addition in the industry. Further studies need to be carried out to identify industry based challenges that these IFPs face and how best these challenges can be addressed to enhance growth and performance of the sector.

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