Value Chain Management Model for Retailing of Marine Fish

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Abstract

The value chain concept addresses various problems being faced by the fisheries sector and its stakeholders. Value chain management enables the policy makers to analyze and assess the marine fisheries sector in a better way and can make the sector more promising and contribute to the development of the economy. The main aim of this study was to analyze various value added operations performed upon the marine fish at the retail point and to examine whether there was any impact of value added operations on the final retail price of marine fish. The primary data of marine fishery retail value chain was collected from the marine fish retailers existing in coastal Andhra Pradesh, India. Finally, it was concluded that there was a difference in price of the marine fish after performing value chain by the retailer. This paper also proposed a retail value chain model for marine fish.

Keywords: **retail value chain, value chain, fish value chain, fisheries sector**

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The term 'value' refers to something in return to which a customer pays. It is to be delivered by a producer of any organization for its sustainability in the competitive world. Value chain management is a process of creating and managing value at each phase right from processing of raw material to production, marketing, distribution, and retailing to customer. Michael Porter and the term "value chain" are inseparable. Michael Porter (1980) authored a book titled *Competitive Strategy*. In his book, Porter (1980) described that the value chain defines all operations necessary from the conceptual design of a product or service to its delivery to the end consumer. According to Porter, the value chain is a tool used for departmentalizing the company into different activities strategically linked to one another in order to understand the current and potential sources of costs and differentiations of a company.

The fisheries sector is a sunrise sector of Indian economy as well as for the economy of Andhra Pradesh. Its role in increasing food supply, generating job opportunities, raising nutritional level, and earning foreign exchange has been important since a long time. Growing urbanization, globalization, and rapidly changing social structures have had a major impact on the fisheries structure in the country. The marine fisheries sector has emerged as an important commercial activity from its traditional role as subsistence to supplementary activity.

Significance of the Study

The state of Andhra Pradesh is naturally blessed with a long coastal line of 974 km stretching from Srikakulam to Nellore districts owning rich marine fishery resources. Yet, the state occupies the 11th rank in marine fisheries production per kilometer of coastline. According to the AP Fisheries Policy (2010), the Andhra Pradesh fisheries sector is facing problems like lack of : production of quality fish, cold storages, transportation facilities,

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institutional credit facilities, shortage of skilled manpower, etc. Above all, getting fewer prices for fish produce is the major problem that the sector is facing. It is a clear indication that the marine fisheries sector in Andhra Pradesh is underperforming due to various reasons.

The value chain concept addresses various problems being faced by the fisheries sector and its stakeholders. Value chain management enables the policy makers to analyze and assess the marine fisheries sector in a better way and can make the sector more promising and contribute to the development of the economy. Effective value chain management of marine fisheries can result in socioeconomic development of the fishermen community, fish product development, market development, skill development, employment development, sustainable development , etc.

Review of Previous Studies in Value Chain Management

There are researchers who performed research on value chain earlier in some of the sectors, industries, and even in some of the functions. While performing the review of literature, the following studies are identified and analyzed as mentioned in the Table 1.

Table 1. Previous Value Chain Studies

S.No.	Value Chain Researchers	Value Chain Model
1	Lee & Yang (2000)	Knowledge value chain
2	Vorster (2001)	Mining value chain
3	Van der Merwe & Cronje (2004)	Educational value chain
4	Gabriel (2005)	Higher education value chain
5	Ilyas, Banwet, & Shankar (2005)	Information technology value chain
6	Reddy (2005)	Competitive advantage and supply chain
7	Gabriel (2006)	Value chain framework customized for services.
8	Ilyas, Banwet, & Shankar (2006)	Value chain model for decision making.
9	Landry, Amara, Pablos - Mendes, Shademani, & Gold (2006)	Value chain for health organizations.
10	Ilyas, Shankar, & Banwet (2007)	Value chain for Indian steel Industry.
11	Ramesh (2007)	Globalization and value chain
12	Ruskov & Ruskov (2007)	Value chain modelling for educational processes.
13	Ilyas, Shankar, & Banwet (2008)	Outsourcing the value chain activities effectively.
14	Makkar, Gabriel, & Tripathi (2008)	Modified value chain for higher education sector.
15	Almarabeh, Abuali, Alsharrab, & Lasassmeh (2009)	Knowledge value chain (KVC) model
16	Pathak & Pathak (2010)	Higher education value chain
17	Antoniou, Levitt, & Schreihans (2011)	Illustrated a model with certain attributes for evaluating the value chains.
18	Aimin & Shunxi (2011)	Value chain for customer relationship management (CRM).
19	Hutaibat (2011)	Higher education value chain
20	Kuo, Lin, & Wu (2011)	Value chain framework for service trade mode selection.
21	Kotni (2012a)	Fish value chain
22	Kotni (2012b)	Dry fish value chain

23	Soosay, Fearne, & Dent (2012)	Sustainable value chain analysis (SVCA)
24	Castillo & Salem (2012)	Technical efficiency of value chains.
25	Kahkonen & Lintukangas (2012)	Supply chain management role in value thinking of a firm.
26	Karvonen, Karvonen, & Kraslawski (2012)	A tuned value chain model for a research institute.
27	Sultan & Saurabh (2013)	Various sources along with the value chain of an organization for achieving sustainable development.
28	Manjunatha, Gana Shruthy, & Ramachandra (2013)	Dairy sector
29	Rapceviciene (2014)	Value chain for public sector service.
30	Kotni (2014)	Fresh fish value chain
31	Kotni (2015)	Value chain for retail market
32	Kotni (2016)	Marine fisheries value chain

After making a thorough desk review, a research gap was identified with respect to the current research topic. There were few studies available in the area of marine fisheries sector. Some studies were identified in fresh fish, dry fish, but not in retailing of fish. Hence, it was proposed to undertake a detailed study of the seafood sector, specifically value chain management in retailing of marine fisheries in the state of Andhra Pradesh.

Objectives of the Study

- To analyze various value added operations performed upon the marine fish at the retail point.
- To study and evaluate marine fishery value chain management in retailing in coastal Andhra Pradesh.
- To find out the most significant value added processes in the retail fishery value chain.

Methodology

The study is a descriptive research and is conducted based on both primary and secondary data. The secondary data were collected from various issues of *Statistical Abstracts of Government of Andhra Pradesh* and *Bureau of Economics and Statistics*, Government of India and various seasons and crop reports. The primary data was collected from various value chain actors in the marine fishery value chain in Andhra Pradesh. The value chain actors include fishermen and retailers. The respondents for this study were retailers of marine fish who perform in the value chain. The study was conducted during 2017-2018 according to preferential sampling. The selection of the study area was on the basis of importance of the marine fish landing centers/villages from all nine coastal districts of Andhra Pradesh, that is, Srikakulam, Vizianagaram, Visakhapatnam, East Godavari, West Godavari, Krishna, Guntur, Prakasam, and Nellore.

(1) Sampling : The retailer sample (27) was also selected on the basis of snowball sampling (where either the middleman directed me towards the retailer or the fisherman directed me towards the retailer with whom the trade is made).

(2) Data Sources : The study is based on both primary data and secondary data.

(i) Primary Data : Primary data were collected through six different questionnaires served to six different types of

respondents of this study. A structured questionnaire was distributed to the retailers in the study area.

(ii) Secondary Data : Secondary data were collected from various sources like MPEDA ; FSI ; CMFRI ; CIFRI ; CIFT ; Department of Fisheries, Government of India ; and Department of Fisheries, Government of Andhra Pradesh.

(3) Model Specification : Multiple regression is a technique that allows additional factors to enter into the analysis separately so that the effect of each can be estimated. It is variable for quantifying the impact of various simultaneous influences upon a single dependent variable. Further, because of omitted variables bias with simple regression, multiple regression is often essential even when the investigator is only interested in the effects of one of the independent variables. The multiple correlation coefficients are the correlation between the observed and predicted values of the dependent variable.

The final profit of retailer from selling fish is considered as the dependent variable and the independent variables are costs of all value addition processes to map cost effective value chain and observe the correlations between cost of value addition process and the profit. This regression analysis also helps to analyze the contribution of each value addition process in increasing or decreasing the profit from the fish.

PROFIT *(P)* $\Leftarrow$ {VCM Operation 1 + VCM Operation 2 + VCM Operation 3 + VCM Operation 4 + VCM Operation 5 + VCM Operations 6 .....VCM Operation *N*} ..…… [Model I]

$$Y = \alpha + \beta 1\, X1 + \beta 2\, X2 + \beta 3\, X3 + \beta 4\, X4 + \beta 5\, X5 + \beta 6\, X6 + \ldots\ldots + \beta\, n\, Xn + u1 \quad \text{.....Eq [1]}$$

where, Y is selling price, $X1 \ldots Xn$ are value added operations, α is constant, $u1$ is error term.

The model is proposed to execute on retailer value chain.

(4) Formulation of Hypotheses: Basing on the research questions and objectives of the study, the following hypotheses were framed to be tested as part of the study :

- **H_0 :** There is no significant difference in value of fish before processing and after processing by the retailer.
- **H_1 :** There is a significant difference in value of fish before processing and after processing by the retailer.

Analysis and Results

(1) Retailer Value Chain : After processing the data collected from the respondents through the questionnaire, the following analysis is made.

In the Table 2, various value added activities of retailers are analyzed along with their contribution in the selling price. The average selling price of the retailer is found to be ₹ 222.52/- per kg. Average cost of fish (price paid by retailer to fishermen/agent) is found to be ₹ 181.44/- per kilogram (kg) and contribution to the average selling price is 81.54%. Average price paid to the labour/ porter by retailer is ₹ 1.66/- per kg and contribution to the selling price is 0.74%. Average transportation cost is found to be ₹ 1.85/- and its contribution to the final price is 0.83%. The value added operations observed are deheading (price increase ₹ 1.34/- per kg and its contribution to the selling price is 0.60%), removal of slime (price increase ₹ 1.91/- per kg and its contribution to the selling price is 0.86%), cutting fins (price increase ₹ 1.18/- per kg and its contribution to the selling price is 0.53%), meat bone separation (price increase ₹ 2.42/- per kg and its contribution to the selling price is 1.09%), weighing (price

Table 2. Retailer Value Chain

Value Chain Activities	Cost Activity / Value Added Activity	Avg. Price / Kg (in ₹)	Contribution to Selling Price
Support	Price paid to fishermen/agent (CF) (Cost of Fish)	181.44	81.54%
Activities	Price paid to labour/porter (HR) (Cost of HR)	1.66	0.74%
	Price paid to truck/vehicle (TC)(Cost of Transportation)	1.85	0.83%
Primary	Deheading (DE)	1.34	0.60%
Activities	Removal of Slime (RM)	1.91	0.86%
	Cutting Fins (CF)	1.18	0.53%
Retail Centre	Meat Bone Separation (MB)	2.42	1.09%
(Value Added	Weighing (W)	1.17	0.53%
Operations)	Packaging (P)	1.07	0.48%
Market Centre	Profit	28.47	12.79%
Average Selling Price		222.52	100.00%

increase ₹ 1.17/- per kg and its contribution to the selling price is 0.53%), and packaging (price increase ₹ 1.07/- per kg and its contribution to the selling price is 0.48%). Average profit to the retailer is found to be ₹ 28.47/- (12.79%) per kg. The fish retailer value chain model is proposed in the Figure 1.

(2) Analysis of Regression Results of Retailer Value Chain : The objective of this analysis is to study the influence of value chain management activities on profit of retailer value chain. The sample of 27 retailers' value chain activities were considered for this evaluation. As is shown in the Table 2, the value chain activities for retailer were identified to be six and they are : deheading, removal of slims, cutting fins, meat bone separation, weighing, and packing.

In this section, an attempt has been made to find out the influence of retail value chain activities on the final profit of the retailer. Recalling the Model I specified in the model specification section, the regression model specified for final profit is proposed as shown below :

Model I …..

PROFIT $\Leftarrow$ {VCM Operation 1 + VCM Operation 2 + VCM Operation 3 + VCM Operation 4 + VCM Operation 5 ……VCM Operation N}

$$Y = \alpha + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \beta_6 X_6 + \ldots\ldots + \beta_n X_n + u_1 \qquad \ldots\ldots \text{ Eq [1]}$$

In this section, an attempt has been made to find out the influence of value chain activities of the retailer on the profit.

Retailer Profit (RP) $\Leftarrow$ {Deheading (DE), Removal of Slime (RM), Cutting Fins (CF), Meat Bone Separation (MB), Weighing (W), and Packing (P) } …….. Eq [2]

$$RP = \alpha + \beta_1 DE + \beta_2 RM + \beta_3 CF + \beta_4 MB + \beta_5 G + \beta_6 P + u_1 \qquad \ldots\ldots\ldots\text{Eq [3]}$$

where, RP is retailer profit and DE, RM, CF, MB, G, P are VCM operations as specified in the model equation [3], α is constant, u_1 is error term.

Table 3. Model Summary - Retailer Profit After Performing Value Chain (RSP)

Model	*R*	*R* Square	Adjusted *R* Square	Std. Error of the Estimate
[3] RP	.579[a]	.335	.136	7.43135

[a.] Predictors: (Constant), cleaning, sorting, grading, weighing, salt mixing, preservatives mixing, drying, weighing, packaging, and branding

Table 4. ANOVA[a] Results - Retailer Profit After Performing Value Chain (RSP)

Model		Sum of Squares	*Df*	Mean Square	*F*	Sig.
[3] RP	Regression	557.353	6	92.892	1.682	.177[b]
	Residual	1104.498	20	55.225		
	Total	1661.851	26			

[a.] Dependent Variable: PROFIT

[b.] Predictors: (Constant), cleaning, sorting, grading, weighing, salt mixing, preservatives mixing, drying, weighing, packaging, and branding

Table 5. Coefficients[a] - Retailer Profit After Performing Value Chain (RSP)

Model		Unstandardized Coefficients		Standardized Coefficients	*t*	Sig.
		B	Std. Error	Beta		
7.3.1						
RP	(Constant)	24.885	15.044		1.654	.114
	DEHEADING_PRICE	-1.337	6.616	-.082	-.202	.842
	REMOVAL_SLIME	-5.815	5.318	-.343	-1.093	.287
	CUTTING_FINS	-8.030	8.021	-.310	-1.001	.329
	MEAT_BONE_SEPARATION	11.199	6.730	.860	1.664	.112
	WEIGHING	2.627	10.462	.092	.251	.804
	PACKAGING	-3.915	17.659	-.066	-.222	.827

[a.] Dependent Variable: PROFIT

$$\text{Retailer Profit } (RP) = 24.885 - 1.337\,DE - 5.815\,RS - 8.030\,CF + 11.199\,MB + 2.627\,WG - 3.915\,P + \nu_1 \quad \text{.....Eq [4]}$$

It can be noted from the Table 3 (Model Summary - RP) that the six independent variables (retailer value chain management activities) explain 13.6% of the variation of retailer profit. From the Table 4 (ANOVA Results - RP), it is noted that the exploratory power is not statistically significant. From the Table 5 (Coefficients - RP), it can be seen that no retail value chain activity is statistically significant. So, the proposed model of retail value chain management for retailer profit is statistically rejected. It should be noticed that the sample size of this study is 27 respondents. Only due to high multicollinearity among the variables, the model may be rejected.

(3) Testing of Hypotheses : Retailer Value Chain

- **H_0 :** There is no significant difference in value of fish before processing and after processing by the retailer.
- **H_1 :** There is a significant difference in value of fish before processing and after processing by the retailer.

Table 6. Paired Samples Statistics - Retailer Value Chain

	Variables	Mean	*N*	Std. Deviation	Std. Error Mean
Pair 1	COST_OF_FISH (Before Processing)	181.4444	27	30.65106	5.89880
	FINAL_SELLING_PRICE (After Processing)	222.52	27	37.301	7.179

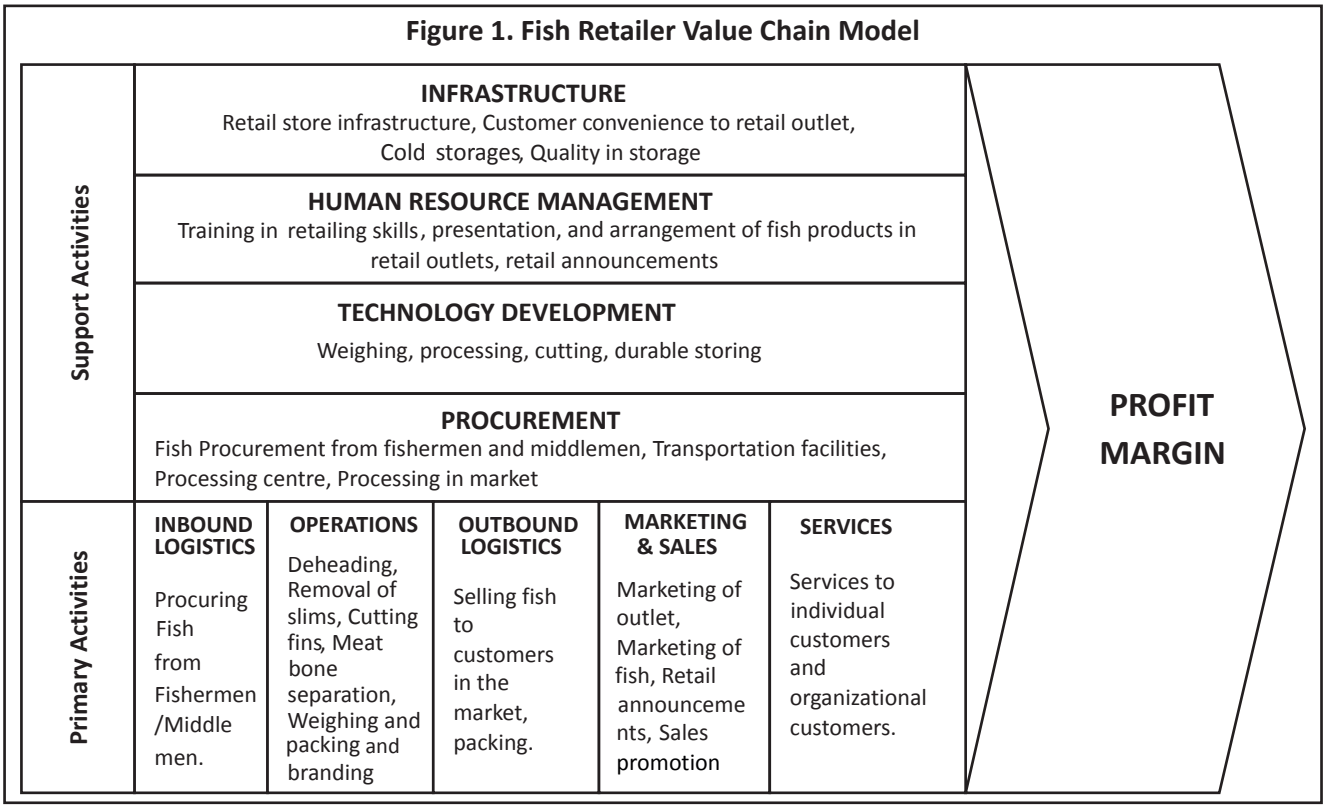
Table 7. Paired Samples Correlations - Retailer Value Chain

	Variables	*N*	Correlation	Sig.
Pair 1	COST_OF_FISH & FINAL_SELLING_PRICE	27	.983	.000

Table 8. Paired Samples Test - Retailer Value Chain

	Variables	Paired Differences					*T*	*df*	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower	Upper			
Pair 1	(FINAL_SELLING_PRICE) - (COST_OF_FISH)	41.07	9.08899	1.74918	44.66956	37.47859	23.4	26	.000

Figure 1. Fish Retailer Value Chain Model



The objective behind this analysis is to determine whether there is any increase in the value of the fish in terms of profit to the retailer. The outcome of this analysis will show the difference between value added product and non-value added product. In order to test the hypotheses, paired *t* - test has been used. The value of fish before processing (cost of fish) and final selling price of the fish (after processing) by the retailer was considered as a pair of variables for testing of the hypotheses as shown in the Table 6.

The mean of the first variable cost-of-fish is found to be ₹ 181.44/- (with *SD* = 30.65 and standard error mean = 5.89) and the mean of second variable final-selling-price is found to be ₹ 225.52/- (with *SD* = 37.30 and standard error mean = 7.179). The correlation between these two variables is found to be .983 and is significant at the 0.05 level as shown in the Table 7.

From the Table 8, it can be inferred that the paired variables are statistically associated with each other at 0.05 level (2-tailed). The difference of means is found to be 41.07, which means that there is an average of value addition of ₹ 41.07/-, which is added to the fish after processing. Hence, the null hypothesis (H_0) can be rejected and it can be concluded that there is a significant difference in the value of fish before processing and after processing by the retailer.

In retailer value chain, the cost components like cost of fish and transportation cost are major influencing factors of selling price. The value added activity : meat bone separation is found to be a significant value adding factor. From retailer value chain, average profit to the retailer is found to be ₹ 28.47/- (12.79 %) per kg. Through testing of the hypothesis, it can be concluded that there is a significant difference in value of fish before processing and after processing by the retailer (accept H_1).

The results of this study are somewhat similar to the study of Vorster (2001), where the difference between value added output and non- value added output was compared and it is concluded that value added processes give more price. Similar to the study of Ilyas et al. (2007), it is proven that value chain management in the manufacturing process gives better results than non - value addition processes. Similar propositions were also made in the study of Manjunatha et al. (2013), which showed the importance of value delivery systems in the dairy sector.

Managerial Implications

From this study, as shown in the Figure 1, it can be proposed to the retail managers and retailers of marine fish that they should perform the following support activities of fish value chain in order to deliver more value to the customers :

- **Infrastructure :** The fish retail stores must have proper infrastructure attributes like store ambience, customer convenience to retail outlet, cold storage, quality in storage, etc. in order to deliver more value.

- **Human Resource Management :** The fish retail outlet should have effective human resource management processes in place like training in retailing skills, presentation and arrangement of fish products in retail outlets, retail announcements, etc. to offer quality value added fish to the consumers.

- **Technology :** The retail outlets must implement advanced technology facilities for weighing, processing, cutting, durable storing of marine fish, etc. to add more value to the fish.

- **Procurement :** The retailers should perform fish procurement from fishermen and middlemen and the outlet must have transportation facilities, processing facilities, and related equipment for better value addition.

The retail managers and retailers of marine fish should perform the following primary activities of fish value chain in order to deliver superior value to the customers :

- **Inbound Logistics :** The fish retail stores must have in place inbound logistics like safe procurement of fish from middlemen and fishermen to ensure fish quality.

- **Operations :** The fish retail outlets should perform operations like deheading, removal of slims, cutting fins, meat bone separation, weighing, packing, and branding of fish to offer quality value added fish to the consumers.

- **Outbound Logistics :** The retail outlets must have in place outbound logistics like delivery of the processed fish to the customers without any errors and with appropriate packing etc., to add more value to the fish.

- **Marketing and Sales :** The retailers should perform marketing and sales activities like marketing of outlets, marketing of fish, retail announcements, sales promotion, etc., for better value addition.

- **Services :** The fish retail stores must offer retail services like services to individual customers and organizational customers to ensure customer satisfaction.

Conclusion

From this study, it can be concluded that the retailers can earn more profits if they put in place value chain operations while selling the fish produce to their consumers. The consumers now a days are looking forward for ready-to-cook or ready-to-consume products. Keeping this requirement in view, the fish retailers must sell the value added products in order to meet the changing tastes and preferences of the consumers.

Limitations of the Study and Scope for Further Research

The study has the following limitations : Since the sample size is small when compared to the universe, the conclusions cannot be fully generalized. The study is limited to marine fish only, and the findings are not applicable to other marine products. The prices of fish may change from one area to another ; hence, the prices determined in the study may vary from other areas.

This study can be extended to other marine products like crabs, prawns, etc. A similar study can also be organized with respect to inland fish, cultivated fish, etc. The value chain analysis can also be conducted in agricultural products, dairy products, and in other unorganized sectors. The value chain studies can also be conducted in service sectors like banking, insurance, investment, and financial services, etc.

References

Aimin, W., & Shunxi, L. (2011). A model of value chain management based on customer relationship management. *Journal on Innovation and Sustainability, 2* (3), 17 - 21.

Almarabeh, T., Abuali, A., Alsharrab, S., & Lasassmeh, A. A. (2009). Value chain model in knowledge management. *International Journal of Recent Trends in Engineering, 2* (2), 196 - 198.

Antoniou, P. H., Levitt, C. E., & Schreihans, C. (2011). Managing value chain strategy. *Journal of Management and Marketing Research, 9,* 1-11.

Castillo, L. L., & Salem, D. S. (2012). Value chain and technical efficiency: An empirical analysis in the Eastern European industrial firms. *International Journal of Value Chain Management, 6* (3), 187 - 215.

Gabriel, E. (2005). An assessment of value co-creation and delivery systems in the higher education sector of Tanzania: A case of CBE, TIA & IFM. *The African Journal of Finance and Management, 13* (2), 60 - 79.

Gabriel, E., (2006). Value chain for services - A new dimension of Porter's value chain. *The IMS International Journal, 34,* 1 -30.

Hutaibat, K. A. (2011). Value chain for strategic management accounting in higher education. *International Journal of Business and Management, 6* (11), 206 - 218.

Ilyas, R.M., Banwet, D. K., & Shankar, R. (2005). Interventional roadmap for digital enablement leading to effective value-chain management in the manufacturing sector. *Global Business Review, 6* (2), 207 - 229.

Ilyas, R.M., Banwet, D. K., & Shankar, R. (2006). Value chain relationship - A strategy matrix. *Supply Chain Forum: An International Journal, 7* (2), 56 - 72.

Ilyas, R.M., Shankar, R., & Banwet, D. K. (2007). A study of the relative efficiency of value chain relationships in the Indian steel industry using DEA. *International Journal of Value Chain Management, 1* (3), 239 - 265.

Ilyas, R.M., Shankar, R., & Banwet, D. K. (2008). Creating flex-lean-agile value chain by outsourcing - An ISM based interventional roadmap. *Business Process Management Journal, 14* (3), 338 - 389.

Kahkonen, A. K., & Lintukangas, K. (2012). Supply management as a value creating element in a firm. *International Journal of Value Chain Management, 6* (4), 358 - 374.

Karvonen, V., Karvonen, M., & Kraslawski, A. (2012). A tuned value chain model for university based public research organization. Case Lut Cst. *Journal of Technology Management & Innovation, 7* (4), 164 - 175.

Kotni, V. V. D. P. (2012a). Value chain management practices in marine fisheries: A special reference to coastal Andhra Pradesh. *PES Business Review, 6* (1), 59 - 70.

Kotni, V. V. D. P. (2012b). A study on dry fish value chain management practices in Indian marine fisheries. *South Asian Journal of Social and Political Studies (SAJOSPS), 13* (1), 78 - 83.

Kotni, V. V. D. P. (2014). A study on value chain management practices of fresh fish: An empirical study of coastal Andhra Pradesh Marine Fisheries. *IOSR Journal of Business and Management, 16,* 80 - 90.

Kotni, V. V. D. P. (2015). Impact of value chain management practices on customer satisfaction in retailing: An empirical study of Visakhapatnam retail market. *International Journal of Multidisciplinary Research, 4* (7), 177 - 181.

Kotni, V. V. D. P. (2016). A study on value chain management in marine fisheries: A case study of Andhra Pradesh. *International Journal of Managing Value and Supply Chains, 7* (2), 9 - 19.

Kuo, C. - L., Lin, F. - R., & Wu, M. - Y. (2011). A proposed framework for service trade mode selection: The value chain and value co-creation perspectives. In P. Pachura (eds.), *The economic geography of globalization*. UK : InTech Press.

Landry, R., Amara, N., Pablos - Mendes, A., & Shademani, R., & Gold, I. (2006). The knowledge - value chain : A conceptual framework for knowledge translation in health. *Bulletin of the World Health Organization, 84* (8), 597 - 602.

Lee, C. C., & Yang, J. (2000). Knowledge value chain. *Journal of Management Development, 19* (9), 783 - 794.

Makkar, U., Gabriel, E., & Tripathi, S.K. (2008). Value chain for higher education sector case studies of India and Tanzania. *Journal of Services Research, 20* (1), 183 - 200.

Manjunatha, A. V., Gana Shruthy, M. K., & Ramachandra, V. A., (2013). Global Marketing systems in the dairy sector: A comparison of selected countries. *Indian Journal of Marketing, 43*(10), 5 - 15. doi:10.17010/ijom/2013/v43/i10/38354

Pathak, V., & Pathak, K. (2010). Reconfiguring the higher education value chain. *Management in Education, 24* (4), 166 - 171.

Porter, M. E. (1980). *Competitive strategy.* New York : The Free Press.

Ramesh, H. N. (2007). Globalization and value chain analysis. *Indian Journal of Marketing, 37* (9), 15 - 25.

Rapceviciene, D. (2014). Modelling a value chain in public sector. *Social Transformations in Contemporary Society, 2,* 42 - 49.

Reddy, J. S. (2005). Gaining competitive advantage through supply chain management. *Indian Journal of Marketing, 35* (6), 5 - 25.

Ruskov, P., & Ruskov, A., (2007). Academic education chain operation model. *Proceedings of the TEN Competence Open Workshop,* 122 - 129.

Soosay, C., Fearne, A., & Dent, B. (2012). Sustainable value chain analysis – A case study of Oxford Landing from "vine to dine". *Supply Chain Management: An International Journal, 17* (1), 68 - 77.

Sultan, A., & Saurabh. (2013). Achieving sustainable development through value chains. *International Journal of Managing Value and Supply Chains (IJMVSC), 4* (2), 39 - 46.

Van der Merwe, A., & Cronje, J., (2004). The educational value chain as a modelling tool in reengineering efforts. *Proceedings of the 2004 international Symposium on information and Communication Technologies, ACM International Conference Proceedings Series, 90* (1), 122 - 127.

Vorster, A. (2001). Planning for value in the mining value chain. *The Journal of the South African Institute of Mining and Metallurgy, 6* (2), 61 - 68.

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