
Integrated Supply Chain and Firm Effectiveness of Digital TV Firms in Rivers State

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Abstract:

The digital T.V industry is one filled with stiff competition and survival depends on how much competitive advantage a firm has. This competitive advantage can be achieved through an integrated supply chain structure. This study examined the relationship between an integrated supply chain structure- information sharing, and firm success metrics such as cost effectiveness and operational flexibility. This study adopted a cross- sectional survey research design. A population of 36 was adopted, comprising of sales representative, dealer supports and customer care representatives. 36 copies of structured questionnaire was issued out and retrieved. Analysis of data was carried out using descriptive tables, charts, and kendall-Tau-b correlation coefficient of the SPSS version 22.0 package. The study concluded that information sharing, influences cost effectiveness and operational flexibility in varying degrees. This study recommends that digital T.V firms should imbibe information sharing, in order to achieve increased cost effectiveness and operational flexibility.

Keywords: Supply chain, Effectiveness, Digital TV, Competition, Integration

INTRODUCTION

The approval of digital switch over in Nigeria, from analogue TV to digital T.V holds a lot of benefits to viewers, citizens, associated firms, government, etc (Maduka, 2014). Digital T.V industry comprises of the

upstream and downstream players. The upstream players include multiple system operators (M.S.O), content providers, set-up box producers, signal distributors, etc., while the downstream involves Local cable operators, major dealers and vendors (Maduka, 2014). In creating customer value a lot of institutions are involved, and if this institutions fail to see the strategic benefits of collaboration, joint success will not be achieved (Fawcett and Magnan, 2008). When two or more independent firms cooperate, by planning and executing supply chain processes to achieve joint objectives, based on some predetermined rules and regulations, we refer to such a supply chain as integrated (Cao and Zhang, 2011; Ramanathan, 2012). For a supply chain to be integrated, software's like SAP supply chain management, ERP, Oracle E-business suite SCM, Epicor SCM, Infor supply chain management, Manhattan scope, OMP plus, Elementum supply chain management suite, etc (www.selecthub.com) can be used. Also less complex social media applications like Whatsapp, facebook, twitter, etc platforms can also be used to foster collaboration among supply chain members (Asad, 2013).

Studies (Ndubuisi, 2004; Simatupang and Sridharan, 2004; Marcos et al 2011) examined the relationship between integrative tendencies on organizational performance, they all concluded that information sharing, incentive alignment and decision synchronization have positive influence on cost effectiveness and operational flexibility (Mathuramaytha, 2011; Asad, 2003).

This study adopted information sharing as a measure of integrated supply chain based on its continuous validation by various scholars (Simaptung and Sridharan, 2008; Mathuramaytha, 2011; Zacharia et al., 2009; Cao and Zhang, 2011 and Hudnukar et al., 2014) and the peculiarities of digital TV industry in Nigeria, with various players in and out of the country. Cost effectiveness, operational flexibility were used as measures of firm success because of their measurability and validity in literature (Sheeth and Parvatyar, 2002; Gauray, 2008). This study also examined the moderating effect of the technological environment on the relationship between information sharing, incentive alignments, decision synchronization and cost effectiveness, operational flexibility and customer patronage.

Information sharing is the level at which one member of a supply chain relates critical and essential information to other members of the supply chain, with the aim of maximizing the benefits

of the entire supply chain (Premus and Sanders, 2008). It involves communicating price changes to chain members, stock level information, customer feedbacks, perceived risk factors, etc.

Cost effectiveness is getting things done at minimal cost with optimal result. It examines the relationship between monetary inputs and the desired outcome, such as between expenditure and sales. Operational flexibility is the capability of responding to uncertainty either proactively or reactively. It is the ability of institutions, processes and procedures to adapt to the changes from the business environment (Yu and Luo, 2015). Customer patronage is the rate at which customers are willing to make purchases from an organization, are retained and are willing to repeat purchase (Kotler, 2013).

Technological environment can be seen as the use of technology enabled devices in achieving more efficient and effective results. The internet, SCC software's, applications, etc., are important enablers that support in the successful achievement of effective supply chain collaboration (Asad, 2013).

The struggle for survival by many digital TV firms in Nigeria, which transcends into fluctuation in prices charged to final customers has been a source of worry to the current researcher, perhaps this might be as a result of not properly adopting information sharing as an integrative strategy.

The sales of Digital TV firms most especially pay as you go Digital TV firmsought to be incredibly high, with the benefits inherent in digital TV, which includes clearer television pictures, variety of channels and more content specialization to meet viewer's choice, etc. which is expected to transcend into higher demand for digital television by most homes(Maduka, 2014).

The current researcher is curious to know why new promising, pay as you go cable network are not able to survive, perhaps this might be as a result of not adopting proper integrated supply chain strategies?

Hence, this study hopes to examine the effect of information sharing, on cost effectiveness and operational flexibility of digital T.V firms in Rivers state.

LITERATURE REVIEW:

Information sharing and Cost effectiveness

Information sharing, can be said to be the level at which one member of the supply chain relates critical and essential information to other members of the supply chain, with the aim of maximizing the benefits of the entire supply chain (Premus and Sanders, 2008).

Tactical collaboration has been observed to reduce uncertainty in a relationship, thereby reducing transactional costs that are associated with it (Muckstadt, Murray, Rappold and Collins, 2001). Sharing information (e.g. Electronic Data Interchange - EDI) contributes to improvement of information processing capabilities and thereby reduces uncertainty and transaction costs, which translates into high marketing performance (Tan, Kannan, & Hsu, 2010).

The strategic importance of information sharing cannot be over emphasized, scholars has referred to it as the lifeblood (Stuart and McCutcheon, 1996), major ingredient (Min et al., 2005), foundation (Lee and Whang, 2000) and essential requirement (Sheu et al., 2006) of supply chain collaboration.

Supply chain collaboration minimizes the cost of transaction (Cao & Zhang, 2011) because specific assets increase with contract frequency and higher levels of interdependence (Bunduchi, 2008). Negotiated volumes are greater, information exchange is more intense, and contract renegotiation is facilitated.

On the contrary, another school of thought are of the opinion that the availability of modern information systems, as well as the practice of managing supply chain players is a waste of resources and drags performance backwards rather than promoting continuous improvement (Macbeth & Fergusson, 1994and Kern & Willcocks, 2002). Based on the above arguments the hypothesis below was generated.

H₀₁: There is no significant relationship between information sharing and cost effectiveness of Digital TV firms in Rivers State.

Information sharing and Operational flexibility

This flow of information is multi-faceted and can flow top down or down up may include product manufacturing, the exchange of transactional

data, customer feedbacks to products research and development matters (Wee, et al. 2016).

A study on Tanzania's SMMs showed that collaboration with supply chain partners is able to provide local SMMs the chance to make collective agreements in quantity planning, demand and delivery time to customers (Katunzi and Zheng, 2010).

Cooper et al (1997) believe that achieving true Supply Chain integration is 'a lofty and difficult goal' and research indicates that companies continue to struggle to operationalize SCM principles such that they support dynamically changing business influences (Braithwaite, 1998).

The case of asymmetric information happens as a result of participating firms generally lacking the knowledge required about each other's plans and intentions to adequately harmonize their services and activities (Narasimhan and Jayaram, 1998). Supply chain members usually find it difficult to share their private information with other chain members due to the economic value of that information (actual or perceived). As a result, the supply chain suffers from sub-optimal decisions and opportunistic behavior (Narasimhan and Jayaram, 1998).

Sharing information about the performance of members of a supply chain provides a dynamic communication, which helps in evaluating if actual performance compares with expected performance. By making use of a web based performance system, for example, it shows the real time track records of stocking levels at various locations that can be used to trace and solve delivery problems, thereby making the operations of an organizations flexible, suiting market demands and other environmental forces (Simatupang and Sridharan, 2002).

When independent firms collaborate and share information, they can achieve more than working in isolation. Experiences and challenges are shared and these can minimize the level of uncertainty experienced by members of the supply chain (Crook et al., 2008).

The flat organizational structure that SMMs adopts, makes information to get to relevant parties more efficiently than highly structured organizations (Grant et al., 2010; Papastathopoulos and Beneki, 2010).

Big retail enterprises like Wal-Mart, makes use of checkout scanners to send up-to-date sales and inventory information through the satellite to its suppliers' systems in order to enhance their

operational flexibility by minimizing order cycle time and enable informed stocking decisions (Crook et al. 2008).

Collaborative relationships provides more advantages than transactional relationships; they offer improved logistical performance (e.g. fill rate, order cycle time, lead-time, on-time delivery) due to better information visibility and higher service levels (Whipple et al., 2010).

Sharing information acts as a ‘glue’, and this strengthens the business structure of the supply chain, hence making it more responsive to direct and indirect competition, as well as building a formidable competitive advantage to members (Hudnukar et al., 2014).

Eyaa et al. (2010) opined that a highly collaborative information sharing exists in SMMs in Uganda as supply chain partners share useful information through emails to enhance their operational flexibility, their leading to improved response to customer demands. Based on the above review of literature the hypothesis formed:

H₀₂: There is no significant relationship between information sharing and operational Flexibility of Digital TV firms in Rivers State.

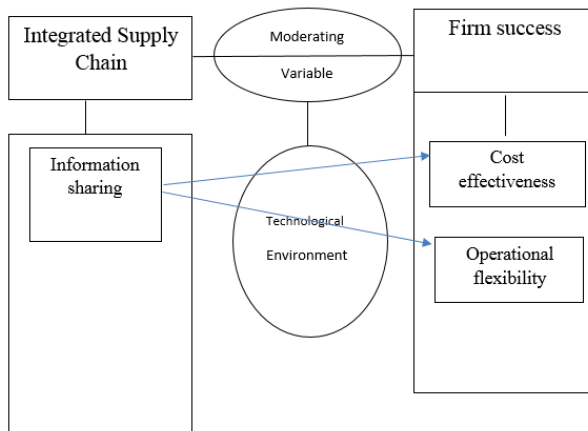


Figure 1: Operational Framework on Integrated Supply Chain and Firm Success of Digital TV firms in Port Harcourt

RESEARCH METHODOLOGY

This study made use of the explanatory and cross- sectional survey approach. The explanatory survey measures the antecedent factors

that cause firm success (cause-and-effect); thereby leading to building and /or validating theories as predicting and controlling the phenomena of interest. On the other hand cross sectional survey measures the opinions of staffs digital T.V firms, with different cadres and sex.

Population for the Study

Population of the study is the entire set of cases, from where sample units are drawn. In this study our population of the study comprises of the sales representative, dealer support units and customer care managers of Digital TV firms who have offices in Rivers state. Preliminary investigation on digital T.V firms showed that most Digital T.V firms have offices in Rivers state. This study focuses on sales managers, dealer support and customer care managers because of their direct involvement with dealers and customer issues.

Table 3.1: Number of respondents in the accessible Population

	Digital T.V firm	Sales representative	Dealer support	Customer care representative	Population
1	Multichoice	2	6	3	11
2	CAN T.V	1	2	2	5
3	Startimes	3	5	2	10
4	CTL	1	2	2	5
5	Metro digital	1	3	1	5
	Total	8	18	10	36

Source: Field Survey.

The total number of sales representatives, dealer support and customer representative are 36. Therefore since a population of 36 (see table 3.1) is not too large for this kind of study, and in order to increase the power of prediction we targeted all.

A structured questionnaire will be used to get primary data from managers and sales representatives of Digital TV firms in Port Harcourt. To seek further clarifications amidst the subjective man's opinion, documentary instrument will be used to observe and record events first hand.

Method of Data collection/Instrumentation.

The method of data collection will be basically a structured questionnaire, which was designed based on the review of related literature, which also informed our research hypotheses and research questions. The instrument will be designed in three segments

respectively. Section A: will focus on demographic data, Section B: will generate data on the scopes of supply chain collaboration, and Section C: is designed to illicit responses on Corporate Wellness. The 5 point Likert-scale question approach was adopted, with five rating scale from end points ‘very great extent to very low extent.

Operational measures of Variables

The constructs used in this study were operationalized based on previously validated instruments. Information sharing (IS) was measured using the ten (10) scales developed by Lee and whang, (2000). Cost effectiveness was measured using the seven items used by li and lin (2006). Operational flexibility was measured using six (6) items developed by li and lin (2006).

All items were measured using a five point likert scale which ranges from “very low extent to very great extent”. The measurement item for each construct are presented in table 3.2.

For information sharing, among the 10 items entered in the communality analysis, 8 items shared more than 0.5 of their consistency while only 2 items shared less than 0.5. The implication is that items in B4 (sharing information with business partners on current inventory level) and B9 (share information on perceived risk factors) were not consistent and hence were dropped (see appendix). For cost effectiveness all the 7 items entered in the communality analysis shared more than 0.5 of their consistency. The implication is that all the items were consistent. For operational flexibility, all the 6 items entered in the communality analysis shared more than 0.5 of their consistency. The implication is that all the items were consistent.

METHOD OF DATA ANALYSIS

The analyses were made up of descriptive and inferential statistics with the aid of statistical package for social sciences (SPSS version 22). In the area of descriptive statistics, this study will employ the use of frequency and percentages, pie and bar chart in answering research questions and demographic data of the respondents.

For the inferential statistics, the Kendall’s Tau-b correlation coefficient will be used in testing the hypotheses formulated for the study, at 0.05 level of significance. This technique (Kendall- Tau-b) will be utilized because it is more effective in determining whether two non-

parametric data samples with ties are correlated. Also, it is used in analyzing ordinal data, such as this. The moderating variable will be analyzed using partial correlation. The SPSS (version 22) will be used in computing the data.

Validity/ Reliability of instrument

Validity deals with the accuracy of measurement power of instruments or the extent to which conclusions are true. The validity of this study measurement scales has already been confirmed by previous studies (see Ndubuisi, 2004; Simatupang and Sridharan, 2004; Marcos et al, 2011; Gauray, 2008; Mathuramaytha, 2011) but due to change and differences in application of variables, will be reconfirmed in two-fold. First the instruments were subjected to face validity involving the scrutiny of supervisor(s), colleagues, and other informed persons in order to ensure that the batteries of statement raised properly represented the phenomenon under review. Secondly a pilot survey to pre-test the scale measurement on selected sample units in order to permit corrections of inconsistencies and/or ambiguities before the actual survey.

DATA ANALYSIS AND INTERPRETATION

Table 1: Kendall Correction between information sharing and cost effectiveness of Digital TV firms in Rivers State

Correlations

		Information Sharing	Cost Effectiveness
Kendall's tau_b	Information	Correlation Coefficient	1.000
	Sharing	Sig. (2-tailed)	.616**
		N	.
			.000
	Cost	Correlation Coefficient	1.000
	Effectiveness	Sig. (2-tailed)	.616**
N		.000	
		.000	

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

From the result of the above table, the correlation coefficient ($r = 0.616$) between information sharing and cost effectiveness of Digital TV firms is strong and positive. The coefficient of determination ($r^2 = 0.38$) indicates that 38% change in cost effectiveness of Digital TV firms can be explained by information sharing. The significant value of 0.000 ($p < 0.01$) reveals a significant relationship. Based on that, the null

hypothesis was rejected and the alternate hypothesis accepted. Therefore, there is a significant relationship between information sharing and cost effectiveness of Digital TV firms in Rivers State.

Table 2: Kendall Correction between information sharing and operational flexibility of Digital TV firms in Rivers State

Correlations

		Information Sharing	Operational Flexibility
Kendall's tau_b	Information Sharing	1.000	.717**
	Correlation Coefficient	.	.000
	Sig. (2-tailed)	36	36
	N	.717**	1.000
	Operational Flexibility	.000	.
	Sig. (2-tailed)	36	36

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

From the result of the above table, the correlation coefficient ($r = 0.717$) between information sharing and operational flexibility of Digital TV firms is strong and positive. The coefficient of determination ($r^2 = 0.51$) indicates that 51% change in operational flexibility of Digital TV firms can be explained by information sharing. The significant value of 0.000 ($p < 0.01$) reveals a significant relationship. Based on that, the null hypothesis was rejected and the alternate hypothesis accepted. Therefore, there is a significant relationship between information sharing and operational flexibility of Digital TV firms in Rivers State. HO₂: There is no significant relationship between information sharing and customer patronage of Digital TV firms in Rivers State.

Reliability on the other hand, measures empiricism of results. In other words, it measures the extent to which the same set of items to be measured generates same results when replicated in similar setting. Scientifically, Crobach Alpha was used to measure reliability of instruments described the factors/constructs.

The measurement was tested with respect to internal consistency and discriminant validity. Table2 reports the item loadings and α value for the measurement of integrated supply chain (ISC) – information sharing(IS), as well as the two dimensions of firm success-cost reduction(CR) and operational flexibility(OF)

Our AVE result ranged from 0.529 to 0.685 (see appendix ii), which are above the recommended threshold of 0.5. Moreover for reliability all α values are above 0.809 (see table 3.2) which are also

above acceptable value of 0.7 (Nunnally, 1978). Thus, confirming the convergent. We verified the discriminant validity by checking the square roots of the AVE as shown in appendix ii, the square root of the AVE of each construct is larger than the inter construct correlations and thus discriminant validity is confirmed.

DISCUSSION OF FINDINGS AND IMPLICATIONS

The findings revealed that there is a significant positive relationship between information sharing and cost effectiveness of digital TV firms in Rivers State. Hence digital TV supply chain partners who share information with business partners on promotional events, demand forecast, price changes, current inventory level, supply disruptions, order status or order tracking, delivery schedules, inventory policy, perceived risk factor and point of sale data, will enhance comparatively lower pricing, minimizes cost of ordering products, minimizes holding costs. This findings agrees with earlier studies (Premus and Sanders, 2008; Tan, kannan & Hsu, 2010; Stuart and McCutcheon, 1996; Lee and Whang, 2000 and Cao & Zhang, 2011).

The findings of this study also reveals that there is a significant relationship between information sharing and Operational flexibility of digital TV firms in Rivers state. Hence information sharing amongst digital TV supply chain members, enhances their ability to respond to changing demands of customers, provide customized products, and improve dependability. This revalidates the findings of previous studies (Wee, et al. 2016; Katunzi and Zheng, 2010; Crook et al, 2008; and Simatupang and Sridharan, 2002).

Research Limitations and suggestions for further studies

There are a few limitations to the interpretation of the current results and implications of this study. The scope of this study was limited to information sharing and measures of firms success limited to operational flexibility and cost effectiveness, we believe that if other variables like decision synchronization, incentive alignment, etc were added, interpretation might be Secondly, the study population were all from Rivers State, though from different organizations and with different designations, we believe that a selection of sample from two or more states or countries might lead to a better representation.. Thirdly in order to further examine the effect of collabartion within a

supply chain and corporate wellness, it might be fruitful to replicate the study in other cultural setting I,e the Western or Northern part of Nigeria or other parts of Africa and Europe. Finally, it might be productive to further apply the research to other product categories such as banking, oil sector, etc.

Further research should be designed in this area, such that the limitations highlighted will be eliminated.

CONCLUSION

This current study highlights the importance of collaboration within a supply chain and corporate wellness. Decision synchronization and incentive alignment were identified to have a positive impact on customer patronage though in varying degrees. Digital TV firms are advised to pay rapt attention to decision synchronization and incentive alignment strategies in order to optimize customer patronage.

RECOMMENDATIONS

- i. TV firms should embrace the trend in the entertainment industry and seek better production rather than being comfortable with old fashioned ways
- ii. Government should enact policies that would make all stations migrate to digital stations and leading by example with government owned stations
- iii. Studio personnel should be trained and retrained on digital production so that these infrastructure can be maintained

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