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Use-of-Dashboard: A Vital Moderator of Sales Force Competence Management and Marketing Performance Relationship

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Abstract

Prior research has not been clear on the role the use-of-dashboard plays in moderating the relationship between competence management and a firm's corporate performance, notwithstanding that such a moderating effect is conceptually quite plausible. This study, empirically examined the role of use-of-dashboard as a moderator in the sales force competence management – marketing performance relationship. By using Pearson partial correlation test, the study found evidence that supports the moderating effect of use-of-dashboard on the strength of the relationship between sales force competence management and marketing performance. The paper therefore, recommends that firms wishing to fully harness the positive influence of sales force competence management on marketing performance should consider the use-of-dashboard as a veritable contextual option.

Key Words: Marketing Performance, Moderator, Sales force Competence Management, Use-of-Dashboard,

1. Introduction

The most important asset of any organization is the knowledge and competences of the employees. Effective and strategic management of the human resources is crucial to successful business management. It is essential to have qualified employees in the right place at the right time to cope with the needs of the business to quickly respond to the dynamics of the business environment. Therefore, management must pay adequate attention to skill levels and training needs of the employees to ensure that the appropriate skills are available for the organization to achieve its objectives. An organization needs to keep track of its activities with a view to ascertaining the extent its strategies are meeting its objectives. Firms use various forms of information systems (IS) to monitor, report, and analyze their activities, and to detect when these activities deviate from the set objectives and then institute necessary corrections. Information systems for monitoring organizational activities may be utilized to support sales force management processes. Locally and globally (Baladi, 1999; Niederman, 1995; Hustad *et al*, 2002) information systems, can be used strategically to ensure that the competence development of the employees is adjusted to the strategic and critical competence goals of the organization. The use of information systems, which supports the competence management process, to increase knowledge and competences among the employees is a process for stimulating knowledge transfer mechanisms between knowledge workers (Hustad et al, 2002). But strategic management holds that firms are fundamentally heterogeneous in their possession of resources and capabilities (Peteraf, 1993).

A good number of previous competence management research has been directed on its performance implications (Dixon *et al*, 2005; Avlonitis and Panagopolous, 2006, Defloor *et al*, 2006; Zeb-Obipi, 2007; Asiegbu, 2009). Although it has been established that competence management is, in general, positively related to several corporate performance measures (Defloor *et al*, 2006; Zeb-Obipi, 2007; Asiegbu, 2009), the question whether the competence management - corporate performance relationship is monotonic across different levels of adoption and use-of-dashboard in monitoring, analyzing, and reporting firm's activities, has not be fully investigated. A closer look at the literature suggests the equivocal nature of its corporate performance impact. Since evidence of the positive business performance has accumulated but with some equivocality, it is important to investigate more closely the potential moderator of the sales force competence management – marketing performance relationship. Thus, the focus of this study is specifically to determine the extent to which the use-of-dashboard in monitoring, analyzing, and

reporting internal activities of the organization moderates the influence of sales force competence management on marketing performance. Our research question is: Does the influence of sales force competence management on marketing performance depend on a firm's capability in the use of Information Technology (IT)-based systems? This paper views the use-of-dashboard as strategically appropriate in this regard.

No doubt a number of scholars have written on dashboard (Few, 2006, Wind, 2005; Pauwel, et al, 2009; DeBusk et al, 2011; Yigitbasioglu and Velcu, 2012, Paine, 2004; O'Sullivan and Abela 2007). However, none of these was specifically on the use-of-dashboard as a moderator in the nexus between sales force competence management and marketing performance. As a result of dearth of knowledge in the design, use, and importance of performance dashboard, many authors have called for more research in the area (Rogers, 2003; Srivastava and Reibstein, 2005; O'Sullivan and Abela, 2007; Pauwels et al 2009), hence our interest in this study.

2. Theoretical Foundation and Hypothesis

2.1. Sales Force Competence Management

Sales force competence management is the process of analyzing, developing, and evaluating the knowledge, skills, and behavior of an organization's sales force members for superior performance in sales job (Asiegbu, 2009). The primary purpose of competence management is to define and continuously maintain competences, according to the objective of the company (Berio and Harzalla, 2005). The three main prevalent objectives for competence interventions in order to importance include: enhancement of performance expectation, provision of an Integrated Human Resource Process, and alignment of behaviors with core values of the firms.

2.2 Marketing Performance

Marketing performance is a measure of the contributions of an organization's marketing functions to its corporate goals (Jackson, et al, 1995). This views marketing performance measures as the means of a respondent's rating for his or her firm's sales growth, sales volume, and profitability performance relative to its past years' and competitors' as used in previous studies (Kohli and Jaworski 1994, O'Sullivan and Abela, 2007; Asiegbu, 2009).

2.3. Sales Force Competence Management – Marketing Performance Relationship

The resource-based theory clearly emphasizes that specialized resources and capabilities which are durable, scarce, not easily traded, and difficult to imitate may enable a firm to earn economic rents (Amit and Schoemaker, 1993). The outcomes of effective marketing depend mainly on whether firms have competitive advantages that are unique, exclusive and difficult to imitate. It has been that people provide organizations with an important source of sustainable competitive advantages (Pfeffer, 1994, Wright et al, 1994). Human capital not physical capital, may be the ultimate determinant of firm performance (Adler, 1998). This, perhaps, has led to the call for adequate management of human competence at work as a veritable means of achieving unique and exclusive competitive advantage (deGens, 1999), superior productivity performance (Zeb-Obipi, 2007). Competence is the driving force behind the success of any business, especially in knowledge based firms (Walter, 2003). In this regard sales force is critical in business-to-business marketing because it creates and sustains competitive advantage (Avlonitis and Panagopolous, 2006). With the notion that sales force performance positively correlates with marketing performance, organizations view sales force ineffectiveness and incompetence with grave seriousness and concern (Mallin and Mayo, 2006). Sales force competence management is viewed as the foundation of managing and developing sales people (Avilar, 2005). Some studies found that performance is linked to competence management (Avlonitis and Panagopolous, 2006; Dixon *et al*, 2005; Zhu and Nakata, 2007). Nursing competence management correlates with the performance of nurses in patient care (Defloor *et al*, 2006)

It has also been established that worker competence management positively affects the organization's productivity performance (Zeb-Obipi, 2007). Specifically, sales force competence management is found to positively influence

marketing performance of the industrial and domestic product firms in Nigeria (Asiegbu, 2009). It has been established that competence management activities – sales force competence analysis, sales force competence development, and sales force competence evaluation significantly affect marketing performance measures – sales growth, sales volume, and profitability (Asiegbu, 2009). However, the question of whether the positive influence of sales force competence management on marketing performance is dependent on the firm's capability in monitoring, analyzing, and reporting its activities has not be fully investigated, especially with the use-of-dashboard. Hence, the focus of this study is to investigate the use-of-dashboard as a moderator.

2. 3. Use-of-dashboard as a Moderator in Sales Force Competence Management and Marketing Performance Relationship.

A dashboard provide a visual display of the most important information needed to achieve one or more objectives; consolidated and arranged on a single screen so that the information can be monitored at a glance (Few, 2006). It is a full-fledged business information system designed to help organizations optimize marketing performance and achieve strategic objectives.

Two important elements of dashboard are that they provide automated or (Close to) real time reporting (Lyer, et al, 2006; Wind, 2005), and that they enable users to "drill down" to programme level details (Miller and Cioffi, 2004). Dashboards can provide a way to visually monitor one's metrics and provide him/her with a feedback system to track progress or failure, and connect to business outcomes. Dashboards provide insight into performance, foster decision-making and align strategy with implementation (Patterson, 2007).

Marketing dashboards connect data points in a way that enables users to see how any one marketing action affects the entire enterprise. For example, during a promotion campaign, dashboard shows the outcomes for the enterprise, which include sales volume, customer satisfaction, and brand awareness, all of which help to determine the nature, frequency, and timing of future promotions and marketing efforts. A marketing performance dashboard communicates strategic objectives and enables businesses measure, monitor, and manage the key activities and process needed to achieve their goals.

There are three major types or applications of dashboards: operational, tactical, and strategic. Each type of performance dashboard emphasizes three layers of information and applications to different degrees. These are the top layer, middle layer, and bottom layer. The top layer graphically displays excepted conditions, the middle layer lets users explore or "slice and dice" data from multiple dimensions; and the bottom layer lets users examine individual transactions and operational reports. Operational dashboards carry out core operational processes. They are used primarily by contact employees and their supervisors who have direct interactions with customers or manage the creation and/or delivery of the products. Operational dashboards primarily deliver detailed information that is only lightly summarized. An operational dashboard, thus, emphasizes monitoring more than analysis and management. Tactical dashboards track departmental processes and projects that are of interest to a section of the organization or sub-unit. Managers and business analysts use tactical dashboards to compare actual performance of their section to expected performance or last period's results. Tactical dashboards which are usually updated daily or weekly, tend to emphasize analysis more than monitoring or management. Strategic dashboards which monitor the execution of strategic objectives, are usually updated weekly or monthly, providing executives a powerful tool to communicate strategy, gain visibility into operations, and identify the key drivers of performance and business value. Strategic dashboards, thus, emphasize management more than monitoring and analysis.

Dashboards are viewed as a means by which information can be summarized and readily communicated to senior decision-makers (Paine 2004; Wind 2005; Srivastava and Reibstein, 2005) and general workforce (Chiang, 2011). It is argued that this distilling of data increases the perceived value and managerial use of information (Peyrot *et al* 2002), which in turn creates a closer link between marketing activities and firm's goals (McGovern *et al*, 2004; Miller and Cioffi, 2004). A good dashboard maps out the relationships between business outcomes and marketing performance

(Patterson, 2007). The organization can use their metrics as a key tool to help drive their performance management strategy (Lyndsay, 2012).

Therefore, this paper views the use-of-dashboard to have the tendency to make the salesperson tilt to more result-oriented behavior in sales job. It is possible that the behavior of a salesperson is likely to be positively influenced if there is a dashboard that monitors and reports the outcomes of his or her performance in sales job. Being fully aware of the timely reporting of the outcomes of his or her selling activities, a salesperson, who has developed the required competence through its management, would want to utilize them in a way that results in greater productivity, which in turn, impacts positively on marketing performance. This view is reflected in our conceptual model in Figure 2.1

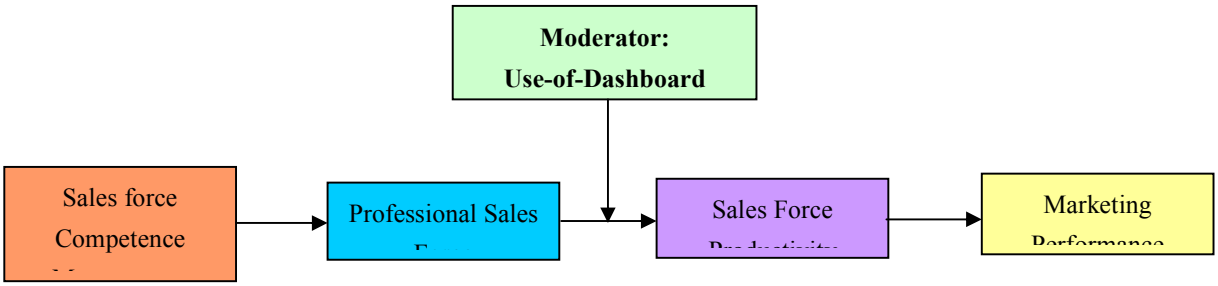

Figure 2.1: Moderator of Sales Force Competence Management – Marketing Performance Relationship.

According to Gillis and Beauchemin (2000), an expert salesperson consistently demonstrates among others things, interest in learning how his or her actions contribute to overall company goals. Dashboard as an automated internal activity control system can be used in an organization to achieve this interest. With these, we are inclined to believe that the use-of-dashboard can indirectly affect marketing performance. This leads us to the hypothesis in this study.

H_A: The use-of-dashboard positively affects the influence of sales force competence management on marketing performance.

3. Research Methodology

Our database was registered members of the Port Harcourt branch of Manufacturer's Association of Nigeria (MAN). A total of 40 registered and operating members this Association was found in the register at the time of data collection. Thus, we had a total of 144 copies of questionnaire distributed to 36 participating firms, which constitute sample size randomly selected from the sampling frame of 40 firms. The copies of questionnaire and cover letters were hand-delivered to the 144 marketing executives of the 36 companies. These copies of questionnaire were retrieved after a period of six weeks and 135 copies were found usable, representing 93.75% response rate.

3.1. Data Collection

The moderator: use-of-dashboard was measured with the firms' capabilities in using information technology (IT) to monitor, analyze, and report their business activities. Capability in the use-of-dashboard is captured using three measurement items – capability in using informational technology (IT) to monitor internal company activities, capability in using IT to report company marketing performance resulting from marketing efforts, and capability in using IT to analyze individual company activities to determine sources of variations from the objectives. Sales force competence management is dimensioned as: sales force competence analysis with three tasks, sales force competence development with four tasks, and sales force competence evaluation with five tasks as used in Asiegbu (2009). Marketing performance is measured with sales growth, sales volume, and profitability (O'Sullivan and Abela, 2007; Kohli and Jaworski, 1994). Marketing performance responses were captured on a five-point Likert scale anchored by "much lower" and much higher", which is in line with the scale used in similar studies conducted by O'Sullivan and Abela (2007), Deshpande et al (1993), Deshpande and Farley (1998).

3.2 Validity and Reliability

The questionnaire used as the data collection instrument was pretested for comprehension, relevance, and completeness, using a pilot survey that involved ten marketing executives from the industrial and domestic products firms in Port Harcourt, and some marketing scholars. Participants in the pilot phase were asked to evaluate the content, clarity, and format of the preliminary questionnaire and make their inputs. Based on their inputs, the original questionnaire was adjusted accordingly.

The validity of the measures was already confirmed in previous studies relating to marketing performance (Kohli and Jaworski, 1994; O'Sullivan and Abela, 2007; Rogers, 2003; Srivastan and Reibstein, 2005; Miller and Cioffi, 2004; Wang *et al*, 2005) and competence management activities (Baladi, 1999; Lindgren and Hendfrisson, 2002; Hiermanna and Hofferer, 2005; Zeb-Obipi, 2007; Asiegbu 2009). However, we still needed to reconfirm the applicability of the measures in the industrial and domestic products firms in Port Harcourt, hence the pilot study.

To measure the reliability of the concepts under investigation, we applied the Cronbach's Alpha. Table 3.1 indicates how the items for each factor were internally related. These values are well above the rule of the thumb cut-off mark of 0.70 (Nunnally, 1978; Hatcher, 1994). We are, therefore, permitted to regard the measurement items in the instrument as being internally related to the factors they are expected to measure.

Table 3.1: Reliability Coefficients of Variable Measures

S/No	Dimensions/Measures of the study Variables	Number of Items	Number of Cases	Cronbach's Alpha
1.	Sales force Competence Analysis	4	135	0.858
2.	Sales force Competence Development	5	135	0.908
3.	Sales force Competence Evaluation	6	135	0.906
4.	Sales force Competence Management	4	135	0.949
5.	Sales Growth	7	135	0.914
6.	Sales Volume	6	135	0.919
7.	Profitability	7	135	0.921
8.	Marketing Performance	3	135	0.964
9.	Use-of-dashboard Capability	4	135	0.901

Source: SPSS Output

Pearson Correlation test was used to obtain zero-order partial correlation coefficients in our inferential statistical analysis.

4. Analyses and Finding

4.1 Correlation Test

Table 4.1 shows that use-of-dashboard measurement items correlated highly with marketing performance.

Table 4.1. Correlation of the Use Marketing Dashboard Measurement Items and Marketing Performance

S/N	Use of Dashboard	Pearson R	P-Value	Mean	Std. Dev
M1	Monitoring Company Activities	0.765	0.000	3.07	1.097
M2	Automated Reporting of Marketing Performance Resulting from Company Activities	0.765	0.000	2.85	1.062
M3	Analyzing Individual Company Activities	0.706	0.000	2.98	1.175
M4	Use of dashboard General Question	0.764	0.000	3.39	1.139

Source: SPSS Output On Research Data Collected, September, 2011

The elements that constitute use-of-dashboard were correlated against the three constructs that were developed to measure marketing performance – sales growth, sales volume and profitability (Table 4.2). The use-of-dashboard general question correlated highly with sales growth showing a Pearson's r of 0.758 and p-value of 0.000, followed by profitability (0.731) and then sales volume (0.727). Specifically monitoring company activities and automated reporting of marketing performance resulting from company activities correlated most highly with sales growth, (0.759 and 0.750 respectively), followed by profitability (0.731 and 0.746 respectively). Analyzing individual company activities correlated most highly with profitability, (0.762), followed by sales volume (0.691) and then sales growth (0.683). In summary, all the elements of use-of-dashboard correlated with all the marketing performance measures.

Table 4.2 Strong Positive Correlation of the Use of Marketing Dashboard Measurement Items and Marketing Performance

S/N	Use of Dashboard	Statistics	Sales Growth	Sales Volume	Profitability
M1	Monitoring company activities	Pearson r 2-tailed	0.759** 0.000	0.727** 0.000	0.731** 0.000
M2	Automated reporting of marketing performance resulting from company activities	Pearson r 2-tailed	0.750** 0.000	0.723** 0.000	0.746** 0.000
M3	Analyzing individual company activities	Pearson r Sig	0.683** 0.000	0.691** 0.000	0.762** 0.000
M4	Use of dashboard general question	Pearson r Sig	0.758** 0.000	0.727** 0.000	0.731** 0.000

Source: SPSS Output On Research Data Collected, September, 2011

4.2 Hypothesis Testing

Bryman and Crammer (2001) and Zeb-Obipi (2007) suggest that moderated relationships are better examined by compute Pearson's *r* for each category of the test variables and then comparing the *r*s. First, we computed the Pearson's *r* for each pair of variables: sales force competence management, use-of-dashboard, and marketing performance. This is referred to as Zero-order partial correlation in which the three variables – sales force competence management, use-of-dashboard, and marketing performance are correlated, which in this study gave $r = 0.604$. Second, controlling for the moderating variable, which is use-of-dashboard, first-order Pearson *r* was then computed between only the sales force competence management and marketing performance, which in this study gave $r = 0884$. Third, the Pearson's *r* of the sales force competence management and marketing performance in the two sets of computations are compared to determine the magnitude of difference between the uncontrolled and controlled correlation coefficients, which in this study gave $0.884 – 0.604 = 0.220$. Accepting or rejecting our hypothesis in this regard was based on the magnitude of this difference in the Pearson's *r*s.

According to the SPSS mode of explanation (Bryman and Crammer, 2001; Zeb-Obipi, 2007), if the difference in the Pearson's *r*s of the zero-order and first-order correlation computations is significant, (equal to or greater than 0.1) then the hypothesized relationship between sales force competence management and marketing performance is affected by the contextual factor. But if the difference in Pearson's *r*s is not significant (less than 0.1), it indicates that the hypothesized relationship between sales force competence management and marketing performance is not affected by the presence of the earlier speculated moderating factor: the use-of-dashboard. That is, accept the null hypothesis if the Pearson *rs* difference is not significant (less than 0.1), otherwise accept H_A.

Table 4.3: Partial Correlation of Sales Force Competence Management and Marketing Performance, controlling for Use of Dashboard

Correlations

Control Variables	Variables	Statistics	SALES FORCE COMPETENCE MANAGEMENT	MARKETING PERFORMANCE	USE-OF-DASHBOARD
-none-[a]	SALES FORCE COMPETENCE MANAGEMENT	Correlation	1.000	.884	.832
		Significance (2-tailed)	.	.000	.000
		df	0	133	133
	MARKETING PERFORMANCE	Correlation	.884	1.000	.853
		Significance (2-tailed)	.000	.	.000
		df	133	0	133
	USE-OF-DASHBOARD	Correlation	.832	.853	1.000
		Significance (2-tailed)	.000	.000	.
		df	133	133	0
USE-OF-DASHBOARD	SALES FORCE COMPETENCE MANAGEMENT	Correlation	1.000	.604	
		Significance (2-tailed)	.	.000	
		df	0	132	
	MARKETING PERFORMANCE	Correlation	.604	1.000	
		Significance (2-tailed)	.000	.	
		df	132	0	

a. Cells contain zero-order (Pearson) correlations.

Source: Research Data, September, 2011, SPSS Outputs on stepwise Regression Analysis

In our study, the SPSS output on Pearson's correlation computations are shown in Table 4.3. The zero-order coefficient between sales force competence management and marketing performance is 0.884, while the first-order Pearson's *r* is 0.604. This shows a difference of 0.220 (i.e., 0.884 – 0.604 = 0.220), which we consider very significant because it is greater than 0.1 benchmark. (Bryman and Crammer, 2001; Zeb-Obipi, 2007). We therefore, reject our null hypothesis and accept the alternative that the use-of-dashboard, positively and significantly affects the influence of sales force competence management on marketing performance. Use-of-dashboard magnifies the influence of sales force competence management on marketing performance.

5. Discussion of Findings

The research concern seeks to determine the extent to which the moderator – use-of-dashboard, affects the relationship between sales force competence management and marketing performance. Our quantitative analyses reveal a significant positive moderating effect of use-of-dashboard on sales force competence management and marketing performance relationship. This does not confirm the hypothesis drawn from O'Sullivan and Abela's (2007) work that reports a non-definitive moderating effect of the "dashboard" on the relationship between marketing performance measurement ability and firm performance. According to them the reason for non-definitive finding could be because the study was one of the first studies to explore the impact of performance dashboards in marketing given that their adoption and functionality continue to evolve. However, our finding is supported by the work of Srivastava and Reibstein (2005) who found dashboard to significantly and positively affect the influence of marketing activities on corporate financial performance. Also, Wind (2005) found dashboard to affect the influence of marketing activities on

business growth. Furthermore, Miller and Cioffi (2004) found marketing dashboard to significantly affect measurement of marketing effectiveness and value relationship.

Pauwels, et al (2009) posit that dashboards can be used to achieve four objectives: monitoring, consistency, planning, and communication. However, many organizations lack focus. They may devise strategies but not communicate them well to employees, who often work at cross-purposes without clear guidance from above. For firm's to become both efficient and effective, they need to implement a performance management system into objectives, metrics, initiatives, and tasks customized to each group and individual in the organization. The system can then provide businesses with the information they need to measure, monitor, and manage the key activities and processes they need to achieve their goals. A performance dashboard consists of such applications that monitor, analyze and manage performance. A marketing dashboard is a process of succinctly and simply reporting on the progress marketing activities are making towards achievement of business objectives (Patterson, 2007). It maps out the relationships between business outcomes and marketing performance. Dashboards are used to share information, measure key performance indicators (KPIs), and effectively manage performance of employees, such as sales force (Lyndsay, 2012).

6. Conclusions, Implications, and Recommendations

There is an extensive range of literature on competence management systems as well as on corporate performance, but none yet is specifically on relationship between sales force competence management and marketing performance. This research was inspired by the desire to fill this void. The industrial and domestic products firms in Nigeria being the bedrock of the nation's economic growth make use of the services of sales force to market their products, and as such were selected to investigate how to achieve superior marketing performance through sales force competence management.

The use-of-dashboard moderates the influence of sales force competence management on marketing performance of the industrial or domestic products firms in Nigeria. This implies that the greater their capability in monitoring, reporting, and analyzing their marketing activities, the greater is the influence of use-of-dashboard on their sales growth, sales volume, and profitability. And the capability of these firms to monitor, report, and analyze their marketing activities using dashboard, largely depends on their financial strength.

The industrial and domestic products firms in Nigeria are constantly confronted with the challenge of achieving better marketing performance. The Nigerian business environment offers opportunities for better and optimal marketing performance, which only firms with sound sales force competence management systems can take advantage of. A firm's capability in the use-of-dashboard is found rewarding in this regard. A firm could use dashboard to substantially boost the influence of sales force competence management on marketing performance.

We recommend that the industrial and domestic product firm's in Nigeria should use dashboard which monitors, reports, and analyzes firms' activities, to optimize the positive effect of sales force competence management on marketing performance. We suggest that further research, involving the use of dashboard as moderator, can be carried out in other business areas, such as food and beverage, pharmaceutical, and service industries.

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