



## INTERNATIONAL JOURNAL OF RESEARCH IN COMPUTER APPLICATION AND MANAGEMENT

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**PERFORMANCE MANAGEMENT SYSTEM FOR EMPLOYEES OF IT SECTOR IN CHENNAI**

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**ABSTRACT**

*Performance Measurement Systems (PMS) plays a key role for business organizations. PMS aims to implement a strategy for the organization. Many managers have shown that conventional financially based performance measurement systems have failed to measure and integrate all the factors critical to success of a business. Although performance measurement systems can play a key role in communicating, evaluating, and rewarding the achievement of strategic objectives, many managers feel that their existing measurement systems do not adequately fulfill these functions. The data and information have been collected from 300 employees from IT sector in Chennai by adopting multi-stage random sampling technique through pre-tested, structured interview schedule through direct interview method and pertain to the year 2009-2010. The foregoing analysis indicates that majority of the employees are males and half of them belong to the functional area of production. It is clear that more than half of the employees belong to the age group of 26-30 years and more than one third of employees belong to the income group of Rs. 35001-40000. Nearly one third of employees are M.Tech graduates and more than two-third of employees have the total experience of less than three years. The discriminant analysis shows that unit's business strategy is well understood by employees, performance measurement system has measures that are linked through driver-outcome relationships, business unit understands the potential driver-outcome relationships among individual measures and deviations from expected or planned results causes the business unit's management to question the unit's business strategy discriminate best among four functional areas. To understand value drivers, managers must have in place performance measurement systems designed to capture information on all aspects of the business, not just the financial results. When managers are faced with multiple tasks, their behavior will differ depending on whether the performance measurement system adopts a financial measure or includes mixed measures. Applying the implementation process, the dynamic changes and uncertainty environment are emerged. Some conflicts and complexity environment emerging force the stakeholders to produce some changing decision making or other alternatives ways to ensure the "right" decision.*

**KEYWORDS**

Discriminant Analysis, IT sector, Performance Measurement.

**INTRODUCTION**

Organizations have to be able to manage rapid change. It is necessary to develop managerial navigation and measurement tools that guide and assess organizational performance. With the increasing pressure to achieve performance improvement, the need to implement highly effective efficient and integrated management systems is continuously increasing. There has been an emphasis on understanding how performance is created within the firm. To understand what drives performance, managers must have in place performance measurement systems designed to capture information on all aspects of the business.

Historically, organizations have always measured performance in some way through the financial performance, be this success by profit or failure through liquidation. However, traditional performance measures, based on cost accounting information, provide little to support organizations on their quality journey, because they do not map process performance and improvements seen by the customer. In a successful total quality organization, performance will be measured by the improvements seen by the customer as well as by the results delivered to other stakeholders.

Over the years management accounting has seemingly been reduced to a cost accounting exercise that focuses on measuring cost of goods sold and inventory on hand; financial figures that contribute little to the internal information needs of management particularly at the operational level. Further, it has become increasingly obvious that the performance measures generated by the old stove piped, functional accounting systems have serious flaws and can lead to numerous problems.

Performance Measurement Systems (PMS) plays a key role for business organizations. PMS aims to implement a strategy for the organization. Many managers have shown that conventional financially based performance measurement systems have failed to measure and integrate all the factors critical to success of a business. Although performance measurement systems can play a key role in communicating, evaluating, and rewarding the achievement of strategic objectives, many managers feel that their existing measurement systems do not adequately fulfill these functions.

In recent years, both practitioners and managers have emphasized the need to move beyond financial measures of operations and to incorporate a much wider variety of non financial metrics in an organization's performance reporting and reward systems. In today's complex competitive environment, firms need to be agile and flexible. As a result, availability of the information at the right time for both decision making and performance evaluation has become critical. By combining financial, customer business process and technology perspectives of, the balanced scorecard helps managers understand the interrelationships and tradeoffs between alternative performance dimensions and leads to improved decision making and problem solving.

With this background, the present study was attempted to examine the performance management system for employees of IT sector in Chennai.

**METHODOLOGY**

Among the different IT hubs in Tamil Nadu, the Chennai city has been purposively selected for the present study. The IT firms have been selected randomly followed by the employees from IT firms are again randomly selected for the present study by adopting multi-stage random sampling technique through pre-tested, structured interview schedule through direct interview method. The data and information have been collected from 300 employees from IT sector in Chennai and pertain to the year 2009-2010.

**STATISTICAL TECHNIQUES**

In order to understand the socio economic characteristics of employees of IT sector, the percentage analysis and frequency distribution were worked out. The balanced scorecard was constructed based on the financial, customer, internal process and learning and growth measures.

In order to discriminate the functional area of employees in IT sector based on performance management characteristics, the discriminant analysis has been employed and the functional form of discriminant function is:

$$D = b_1 X_1 + b_2 X_2 + \dots + b_n X_n + c$$

Where,

D = Discriminant (dependent) Variable (Functional Area)

$X_i$  = Discriminating (independent) Variables (Performance Management Characteristics)

$b_i$  = Discriminant coefficients;

c = Constant

## RESULTS AND DISCUSSIONS

### SOCIO-ECONOMIC CHARACTERISTICS OF EMPLOYEES OF IT SECTOR

The socio-economic characteristics of employees of IT sector were analyzed and the results are presented in **Table 1**.

The results indicated that about 54.33 per cent were males while the rest of 45.67 per cent were females and about 51.00 per cent of employees belonged to the functional area of production followed by marketing (38.30 per cent), human resource (7.00 per cent) and finance (3.70 per cent). The results showed that about 34.33 per cent of employees were junior executive followed by programmer (30.68 per cent), senior executive (20.33 per cent), HR executive (7.00 per cent), tester (4.00 per cent), finance executive (2.33 per cent) and accounting (1.33 per cent).

From the table, it was clear that about 58.00 per cent of employees belonged to the age group of 26-30 years followed by 31-35 years (25.67 per cent), 36-40 years (11.00 per cent), less than 25 years (3.00 per cent) and more than 40 years (2.33 per cent). It was apparent that about 42.67 per cent of employees belonged to the income group of Rs. 35001-40000 followed by Rs.30001-35000(24.67 per cent), less than Rs. 25000(18.00 per cent), Rs. 25001-30000(13.33 per cent) and more than Rs. 40000(1.33 per cent).

The results indicated that about 66.30 per cent were married while the rest of 33.70 per cent were unmarried and about 60.67 per cent of employees were permanent while the rest of 39.33 per cent were temporary. It was inferred that about 24.00 per cent of employees were M.Tech followed by B.Tech (21.70 per cent), BE (21.00 per cent), ME (17.00 per cent), MCA (11.00 per cent), CA (2.60 per cent), M.Com (1.70 per cent) and MBA (1.00 per cent). The educational qualification of the rest of employees was varying from Diploma (3.00 per cent) to CA (1.00 per cent).

The results showed that about 72.67 per cent of employees had the total experience of less than three years followed by 6.1-9.0 years (16.00 per cent), 3.1-6.0 years (7.67 per cent) and more than nine years (3.66 per cent). The results showed that about 59.67 per cent of employees had the family size of 3.1- 5.0 followed by less than three (39.33 per cent) and more than five (1.00 per cent).

**TABLE - 1: SOCIO-ECONOMIC CHARACTERISTICS OF EMPLOYEES OF IT SECTOR**

Variables with Category	Respondents(N=300)		Variables with Category	Respondents(N=300)	
	Number	Per Cent		Number	Per Cent
<b>Gender</b>			<b>Designation</b>		
Male	163	54.33	Accounting	4	1.33
Female	137	45.67	Junior Executive	103	34.33
<b>Functional Area</b>			Senior Executive	61	20.33
Finance	11	3.70	Programmer	92	30.68
Human Resource	21	7.00	Tester	12	4.00
Production	153	51.00	Finance Executive	7	2.33
Marketing	115	38.30	HR Executive	21	7.00
<b>Age(Years)</b>			<b>Monthly Income(Rs)</b>		
<25	9	3.00	< 25000	54	18.00
26-30	174	58.00	25001-30000	40	13.33
31-35	77	25.67	30001-35000	74	24.67
36-40	33	11.00	35001-40000	128	42.67
>40	7	2.33	>40000	4	1.33
<b>Marital Status</b>			<b>Nature of Employment</b>		
Married	199	66.30	Permanent	182	60.67
Unmarried	101	33.70	Temporary	118	39.33
<b>Educational Qualifications</b>			<b>Experience(Years)</b>		
B.Tech	65	21.70	<3	218	72.67
B.E.	63	21.00	3.1-6.0	23	7.67
CA	8	2.60	6.1-9.0	48	16.00
M.Com	5	1.70	>9.0	11	3.66
ME	51	17.00	<b>Family Size</b>		
M.Tech	72	24.00	<3	118	39.33
MCA	33	11.00	3.1-5.0	179	59.67
MBA	3	1.00	>5.0	3	1.00

### DISCRIMINANT ANALYSIS FOR PERFORMANCE MANAGEMENT SYSTEM

In order to discriminate the functional area based on performance management system characteristics, the discriminant analysis has been applied and the results are hereunder discussed.

#### SELECTION OF DISCRIMINATING VARIABLES

In order to determine the performance management characteristics which significantly contribute to the differentiation of functional area, F test is used for Wilks' Lambda. The ANOVA results are presented in **Table 2**. The F test is significant for five variables of unit's business strategy is well understood by employees, performance measurement system has measures that are linked through driver-outcome relationships, business unit understands the potential driver-outcome relationships among individual measures, deviations from expected or planned results causes the business unit's management to question the unit's business strategy and business unit's budgeting system is linked to the performance measurement system.

#### ESTIMATION OF DISCRIMINANT FUNCTION

In this study, the discriminant analysis is carried out for four functional and it results three discriminant functions and consequently first three eigen values and the results are presented in **Table 3**.

The highest value (0.45) corresponds to the first discriminant function, which shows that it has the strongest power of discrimination of the two functions. Also, the first function accounts in a ratio of 79.80 per cent for the dispersion of the group means, as compared to the second and third function account 13.30 and 6.90 per cent respectively.

The canonical correlation coefficient, measuring the relation between discriminant factorial coordinates and the grouping variable show that 79.75 i.e.  $(0.893)^2$  of the total variance accounts for the differences among the four functional areas through the first discriminant function.

TABLE - 2: TESTS OF EQUALITY OF GROUP MEANS

Performance Management Characteristics	Wilks' Lambda	F	df1	df2	Sig.
Our unit's business strategy is well defined	.997	.271	3	296	.846
Our unit's business strategy is well understood by employees	.989	1.096	3	296	.011
Our unit's business strategy is not influenced by corporate strategy	.997	.326	3	296	.806
Our business unit's performance measurement system is derived from the unit's business strategy	.998	.204	3	296	.894
We review and reassess the measures used by our performance measurement system whenever our unit's business strategy changes	.995	.504	3	296	.680
Our performance measurement system has measures that are linked through driver-outcome relationships	.985	1.482	3	296	.012
Our business unit understands the potential driver-outcome relationships among individual measures	.983	1.701	3	296	.007
Deviations from expected or planned results causes the business unit's management to question the unit's business strategy	.983	1.668	3	296	.004
Our business unit's senior management team was involved in the development and implementation of the unit's performance measurement system	.987	1.326	3	296	.266
Our business unit's budgeting system is linked to the performance measurement system	.994	.558	3	296	.013

Source: Primary & Computed Data

TABLE - 3: EIGEN VALUES

Function	Eigenvalue	% of Variance	Cumulative %	Canonical Correlation
1	.448	79.80	79.80	.893
2	.075	13.30	93.10	.264
3	.039	6.90	100.00	.193

Source: Primary & Computed Data

#### STANDARDIZED CANONICAL DISCRIMINANT FUNCTION COEFFICIENTS

The standardized coefficients for the discriminant function were calculated and the results are presented in Table 4.

TABLE - 4: STANDARDIZED CANONICAL DISCRIMINANT FUNCTION COEFFICIENTS

Performance Management Characteristics	Function 1	Function 2	Function 3
Our unit's business strategy is well defined	-.005	.107	.016
Our unit's business strategy is well understood by employees	.490	-.326	.526
Our unit's business strategy is not influenced by corporate strategy	.117	.340	-.224
Our business unit's performance measurement system is derived from the unit's business strategy	.122	.223	-.366
We review and reassess the measures used by our performance measurement system whenever our unit's business strategy changes	.135	.392	-.457
Our performance measurement system has measures that are linked through driver-outcome relationships	.492	.298	.636
Our business unit understands the potential driver-outcome relationships among individual measures	.530	.666	.184
Deviations from expected or planned results causes the business unit's management to question the unit's business strategy	.657	.152	-.019
Our business unit's senior management team was involved in the development and implementation of the unit's performance measurement system	-.396	.090	.222
Our business unit's budgeting system is linked to the performance measurement system	-.397	-.020	-.137

Source: Primary & Computed Data

The discriminant function coefficients are used for calculating the discriminant score for each case in particular.

Taking into the account that the first function has the highest discriminating power, the first discriminant function is:

$$Z = -0.005Z_1 + 0.490 Z_2 + 0.117 Z_3 + 0.122Z_4 + 0.135Z_5 + 0.492 Z_6 + 0.530Z_7 + 0.657Z_8 - 0.399Z_9 - 0.397 Z_{10}$$

The  $Z_1$  to  $Z_{10}$  are standardized  $X_1$  to  $X_{10}$  variables.

The size of the coefficients indicates unit's business strategy is well understood by employees, performance measurement system has measures that are linked through driver-outcome relationships, business unit understands the potential driver-outcome relationships among individual measures and deviations from expected or planned results causes the business unit's management to question the unit's business strategy discriminate best among four functional areas.

#### STRUCTURE MATRIX

The structure matrix coefficients are presented in Table 5. From the table, the results indicate the correlation between each predictor measures and the discriminant function.

For the first discriminant function, it can be seen that correlation coefficients have high values for four measures viz., unit's business strategy is well understood by employees, performance measurement system has measures that are linked through driver-outcome relationships, business unit understands the potential driver-outcome relationships among individual measures and deviations from expected or planned results causes the business unit's management to question the unit's business strategy which means that these measures are strongly correlated with the first function. These measures would probably characterize best division of functional areas.

TABLE - 5: STRUCTURE MATRIX

Performance Management Characteristics	Function		
	1	2	3
Our unit's business strategy is well understood by employees	-.471*	.349	.023
Our performance measurement system has measures that are linked through driver-outcome relationships	.442*	.100	.238
Our business unit understands the potential driver-outcome relationships among individual measures	-.350*	.165	.087
Deviations from expected or planned results causes the business unit's management to question the unit's business strategy	.339*	.126	-.022
Our unit's business strategy is well defined	.289	.321*	-.202
Our business unit's senior management team was involved in the development and implementation of the unit's performance measurement system	.232	.286*	.183
Our business unit's budgeting system is linked to the performance measurement system	.202	.283*	-.093
Our unit's business strategy is not influenced by corporate strategy	-.144	.348	.304*
Our business unit's performance measurement system is derived from the unit's business strategy	.127	-.093	.309*
We review and reassess the measures used by our performance measurement system whenever our unit's business strategy changes	.070	.211	-.303*

Note: \* indicates largest absolute correlation between measure and discriminant function

Source: Primary & Computed Data



For the second function, unit's business strategy is well defined, business unit's senior management team was involved in the development and implementation of the unit's performance measurement system and business unit's budgeting system is linked to the performance measurement system are strongly correlated. These measures would also probably characterize best division of functional areas.

For the third function, unit's business strategy is not influenced by corporate strategy, business unit's performance measurement system is derived from the unit's business strategy and they review and reassess the measures used by our performance measurement system whenever our unit's business strategy changes are strongly correlated. These measures would also probably characterize best division of functional areas.

#### EFFICIENCY OF DISCRIMINANT FUNCTION

The efficiency of discriminate function is presented in Table 6. Based on the discriminant function, 89.67 per cent of the measures have been correctly classified.

TABLE – 6: EFFICIENCY OF DISCRIMINANT FUNCTION

Functional Area	Predicted Group Membership				
	Finance	Human Resource	Production	Marketing	Total
Count					
Finance	8	1	1	1	11
Human Resource	2	17	1	1	21
Production	3	4	141	5	153
Marketing	3	5	4	103	115
%					
Finance	72.73	9.09	9.09	9.09	100.00
Human Resource	9.52	80.96	4.76	4.76	100.00
Production	1.96	2.61	92.16	3.27	100.00
Marketing	2.61	4.35	3.48	89.56	100.00

Note: 89.67 % of original grouped cases correctly classified

Source: Primary & Computed Data

#### CONCLUSION AND RECOMMENDATIONS

The foregoing analysis indicates that majority of the employees are males and half of them belong to the functional area of production. It is clear that more than half of the employees belong to the age group of 26-30 years and more than one third of employees belong to the income group of Rs. 35001-40000. Nearly one third of employees are M.Tech graduates and more than two-third of employees have the total experience of less than three years.

The discriminant analysis shows that unit's business strategy is well understood by employees, performance measurement system has measures that are linked through driver-outcome relationships, business unit understands the potential driver-outcome relationships among individual measures and deviations from expected or planned results causes the business unit's management to question the unit's business strategy discriminate best among four functional areas.

To understand value drivers, managers must have in place performance measurement systems designed to capture information on all aspects of the business, not just the financial results. When managers are faced with multiple tasks, their behavior will differ depending on whether the performance measurement system adopts a financial measure or includes mixed measures.

Applying the implementation process, the dynamic changes and uncertainty environment are emerged. Some conflicts and complexity environment emerging force the stakeholders to produce some changing decision making or other alternatives ways to ensure the "right" decision.

The strong leadership is paramount in creating a positive organizational climate for nurturing performance improvements. Senior management leadership is vital throughout the performance measurement and improvement process. Senior management should frequently review progress and the results of improvement efforts and should have frequent formal and informal meetings with employees and managers to show support for improvement efforts and implementation initiatives.

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