Impact of Computer Based Information Systems on Organisation Performance in Videocon Ltd.

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ABSTRACT

Business has moved beyond national boundaries towards globalization, business expert throughout the world agree that the business competitions and management practices are undergoing profound transformations due to the greater use of Information Technology, which has made possible a better communication and coordination across organisational boundaries. Computer Based Information Systems (CBIS) are enabling the organisations to increase their capability by creating information partnerships and electronic integration. This is enabling the creation of electronic markets and electronic hierarchy. This paper compares the actual and the expected impact of CBIS on organizational performance from the point of view of the employees of Videocon Ltd. through a specifically designed questionnaire based upon five Likert scale.

Key Words: Computer Based Information Systems, Information Technology, Organisation Performance, Information Computer Technology.

Introduction

In the changing scenario, when the business is rapidly moving towards globalization, experts are of the view that the roles of CBIS have become very important in integrating the activities within an organization as well as to support communication and coordination across organizational boundaries. Information technology concepts such as electronic data interchange application services and value-added networks have improved communication and coordination within an organization. Computer Based Information Systems (CBIS) have made possible for an organization to increase its capability by creating information partnerships and electronic integration. This is enabling the creation of electronic markets and electronic hierarchy (**Malone, Yates, Banjamin, 1987**). CBIS have made possible for an organization to get best out of its resources and to achieve its goals, so that the organization can live up to the expectations in this era of competition. Because of globalization and liberalization of economies there has been an increasing competition among organizations. Computer Based Information Systems (CBIS) are the backbone of an organization. In other

words, we can say that an organization's Information System can be viewed as a federation of Information Systems- one information system for each major organizational function. Managers are dependent upon the Information Systems for management's planning as well as for control purposes. This brings forward the need for management's involvement in the design and development of the Information Systems. During the last few decades, organizations have made immense investments in Computer Based Information Systems (CBIS). Investment in CBIS for improvement in work performance has been widely discussed in business and academic communities. From the organizational point of view the relationship between the organizational performances and organizational effectiveness is important because these terms are often used interchangeably (**Rojas, 2000; Herman and Renz, 1998).** A definition of organizational effectiveness is provided by **Robbins (1998)** "the degree to which an organization attains its short-term (ends) and long-term (means) goals, the selection of which reflects strategic constituencies, the self-interest of the evaluator, and the life stage of the organization". Effectiveness by that definition is therefore rating of performance.

Review of Literature

CBIS and Organizational performance have been a focus for many studies till date. **Slack (1997)** indicated that the advantage of strategic constituents approach is the recognition of the complexity of multiple dimensions of an organization. The problems associated with this approach include the difficulty in identifying the constituents, the difficulty in establishing their expectations, the importance of constituents changing over time, and the measurement of constituent criteria. **Robbins (1998)** suggested that the goal attainment theory approach is intuitively sound and is the most commonly used approach for measuring performance and effectiveness. Some assumptions are necessary to validate the goal attainment approach as a measure; goals must be identifiable, understandable, have general agreement or consensus, and progress must be measurable. **Rojas (2000)** proposed the Competing Values Framework (CVF) and described the model in terms of quadrants: human relations; open systems; rational goal; and internal processes.

Studies conducted till now have shown an increasing interest in understanding the impact of Computer based Information Systems on organizations performance. These studies have resulted in different views. Some assert a positive impact **(Bama, 1995; Stratopoulos, 2000),** while others hold the contradictory views **(Brynjolfsson, 1995; Holland, 1997; Setzekorn, 1998).** Despite this, it is of pressing importance to find the significance of Information Systems for an organization. Several researchers are of an opinion that productivity is a measure of results achieved through investment in Information System. **Strassmann (1990 and 1997)** have highlighted the so called "Productivity Paradox", and observed that the productivity and competitive advantage of information and communication systems emerges from strategic use of ICT and not from the investment in ICT as such.

Data Collection

Both primary and secondary sources have been used for collection of the data for this research paper. The primary data has been collected from 110 employees of the organisation through questionnaire. The primary data was collected through a specifically developed questionnaire on the basis of the available literature (Malone, Yates, Banjamin,

1987, Rojas, 2000; Herman and Renz, 1998, Bama, 1995; Stratopoulos, 2000) and discussions with the experts on the related subject. It comprised demographics and 38 items based on 5 point Likert scale (5 < ----- > 1) ranging from (strongly agree) to (strongly disagree). The respondents were asked to give their perceived and actual opinion regarding the implementation of CBIS on organizational performance. The secondary data was extracted from several Journals, books and website of the organization.

Analysis

Table and Fig.1 given below depicts expected and actual impact of CBIS on various factors for employees of different age groups in Videocon.

Age Wise Performance in VIDEOCON

***Shared Vision*:** The given table and the fig. 1 depicts the mean scores of Age wise perception about the impact of Information System on the actual performance in VIDEOCON. The table reveals that the mean score of the factor *Shared Vision* is maximum in case of Age>30&<=50 (4.31), and lowest in case of Age>50 (3.73).

***Strategic Development*:** The given table and the fig. 1 depicts the mean scores of Age wise perception about the impact of Information systems on the actual performance in VIDEOCON. Also it has been seen that the factor *Strategic Development* has maximum mean score in case of Age>30&<=50 (4.06), and lowest in case of Age>50 (3.93).

*C**ooperative Effectiveness*:** The given table and the fig. 1 depicts the mean scores of Age wise perception about the impact of Information Systems on the actual performance in VIDEOCON. In case of the factor *Cooperative Effectiveness* the maximum mean score has been found in Age>30&<=50 (4.41), and lowest in case of Age>50 (3.97).

***Business Ownership*:** The given table and the fig. 1 depicts the mean scores of Age wise perception about the impact of Information Systems on the actual performance in VIDEOCON. Also, the table reveals that the factor *Business ownership* has maximum mean score in the Age<=30 (4.15), and minimum in case of Age>50 (3.59).

***Best Practices*:** The given table and the fig. 1 depicts the mean scores of Age wise perception about the impact of Information Systems actual performance in VIDEOCON. In case of the factor *Best practices*, the maximum mean score is in case of the Age<=30 (4.07), and lowest in case of Age>50 (3.77).

TABLE 1: Age Wise Performance in VIDEOCON

AGE	Shared Vision		Strategic Development		Co-operative Effectiveness		Business Ownership		Best Practices		Grand Mean	
	Exp	Act	Exp	Act	Exp	Act	Exp	Act	Exp	Act	Exp	Act
<=30	3.97	4.21	3.98	4.05	4.09	4.32	4.02	4.15	3.74	4.07	3.960	4.160
>30&<=50	4.17	4.31	3.97	4.06	4.04	4.41	4.09	4.14	3.90	3.98	4.142	4.180
>50	4.00	3.73	4.00	3.93	4.06	3.79	4.09	3.59	4.14	3.77	4.058	3.798

(Mean Scores)

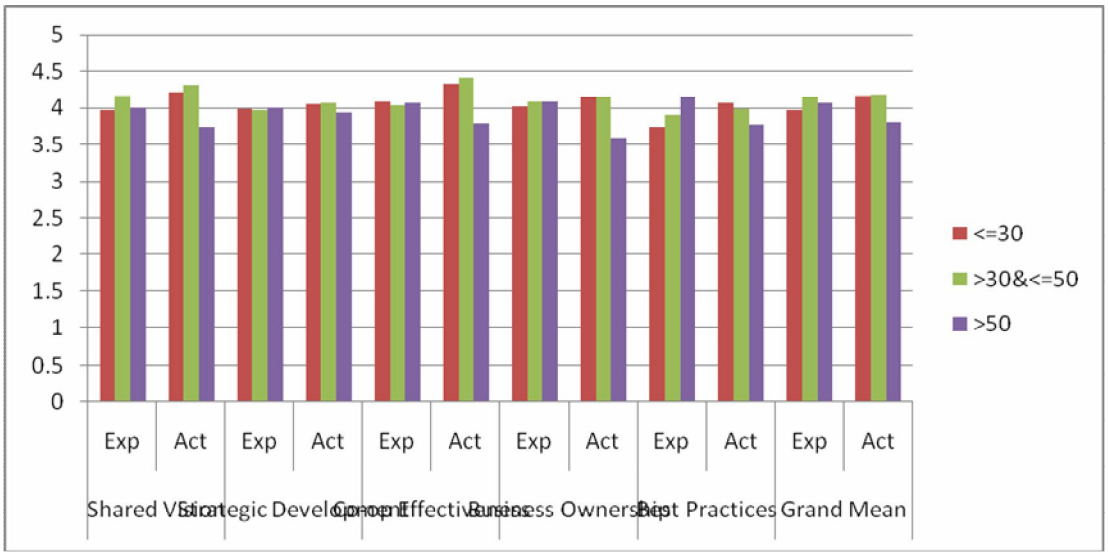

Fig. 1: (Age Wise Performance in VIDEOCON)

Thus, the table and the fig. 1 reveals that the factors *Shared Vision, Strategic Development* and *Cooperative Effectiveness* have contributed maximum towards the Age>30&<=50 (4.31, 4.06 and 4.41 respectively), *Business Ownership and Best Practices* have made maximum contribution in the Age<=30 (4.15 and 4.07). Hence, the higher age group has more expectations from Computer Based Information Systems performance in VIDEOCON.

They also depicts that the overall *grand mean* is meeting the needs as expected i.e. in the age group <=30 the *expected grand mean* is 3.960 and it is found that the *actual grand mean* is 4.160, which is better than the expected. In the age group of >=30 & <=50 it seems that the results are on the positive side as the *expected grand mean* of 4.142 against the *actual grand mean* of 4.180. It shows that the results are almost equal. Whereas in the age group of >50 the results are on the negative side with the *expected grand mean* value of 4.058 against the *actual grand mean* value of 3.798. This shows if the age is higher than the expectations are higher.

Performances in VIDEOCON

The results collected from the Videocon are shown in the table and the fig. 2. It shows that the implementation of CBIS has improved various factors of Organizational Performance. As depicted in the table and the fig. 2 the *actual* mean value of 4.21 for the factor Shared vision is more than what they have expected i.e., 4.02. The difference between the actual and the expected impact is positive i.e., 0.19. *Strategic Development* shows an improvement as indicated by the

TABLE 2: Performances in VIDEOCON

Factors	Exp	Act	Impact
Shared Vision	4.02	4.21	(+)0.19
Strategic Development	4.06	4.06	0
Co-operative Effectiveness	4.08	4.33	(+)0.25
Business Ownership	3.91	3.97	(+)0.06
Best Practices	3.58	3.62	(+)0.04

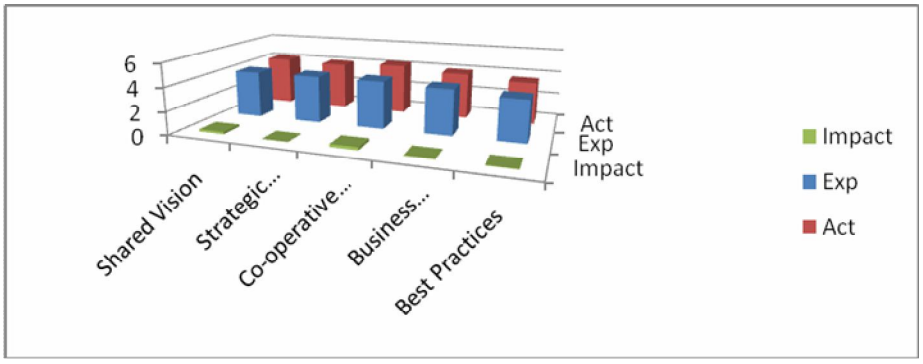

Fig. 2: (Performances in VIDEOCON)

impact between the *expected* mean values of 4.06 which is equal to the *actual* mean value of 4.06. The difference between expected and actual is neutral i.e., 0.00. Again *Cooperative Effectiveness* shows an improvement from *expected* mean value of 4.08 to the actual impact at a mean value of 4.33. The difference between the actual and the expected values is very less i.e., 0.25. Similar results have been obtained for the *Business ownership* factor in which the *expected* mean value is 3.91, which is lesser than the *actual Impact* found at a mean value of 3.97. The difference between expected and actual value is neutral i.e., 0.06. On the last factor regarding improvement in *Best Practices* the results are again on the positive side in which the *expected* value 3.58 is again less than the *actual* mean value of 3.62. On analyzing this data, it can be seen that CBIS is having a desirable effect on various factors, as per or more than the expectation of the employees of Videocon.

Department Wise Performance in VIDEOCON

Shared Vision (SV): the table and the fig. 3 depicts the department wise responses for the Impact of Information System on *Shared Vision*. It can be seen from the table that the perceived impact on SV has been maximum in the Research & Development department (4.60), followed by Finance/Accounts department (4.55). Whereas in case of Marketing &

Sales department the impact has been found to be minimal (3.75). In all other departments the impact has been satisfactory (mean score ranging from 4.10 to 4.31).

TABLE 3: Department Wise Perceptions in VIDEOCON

(Mean Scores)

Departments	Shared Vision		Strategic Development		Co-operative Effectiveness		Business Ownership		Best Practices	
	Exp	Act	Exp	Act	Exp	Act	Exp	Act	Exp	Act
Technology management Department	3.84	4.25	3.83	4.03	4.04	4.50	3.84	4.09	3.75	3.94
HRM Department	4.09	4.24	4.06	3.69	4.22	4.48	3.67	3.83	3.67	3.22
Infrastructure Activity Department	4.14	4.22	4.20	3.98	3.93	4.43	4.25	4.10	3.40	3.85
Outbound Logistic Department	4.13	4.10	4.13	4.21	3.72	4.22	3.83	3.83	2.75	2.83
Inbound Logistic Department	4.80	4.20	4.38	4.50	4.83	4.50	4.00	4.75	3.75	4.75
Operations Department	3.95	4.31	3.98	4.04	4.10	4.64	3.73	4.12	4.15	3.58
Marketing and Sales Department	3.80	3.75	3.88	3.94	3.58	3.92	3.63	3.88	3.63	4.00
Service Department	4.02	4.20	3.86	4.36	4.22	3.89	4.06	4.00	3.72	3.22
Research and Development Department	4.73	4.60	4.17	3.75	4.78	3.56	4.33	3.67	4.33	3.17
Finance/Accounts Department	4.35	4.55	4.00	4.56	3.83	4.92	4.00	4.38	2.88	3.63
Any other	3.92	4.11	4.25	4.06	4.13	4.19	3.94	3.73	3.35	3.73

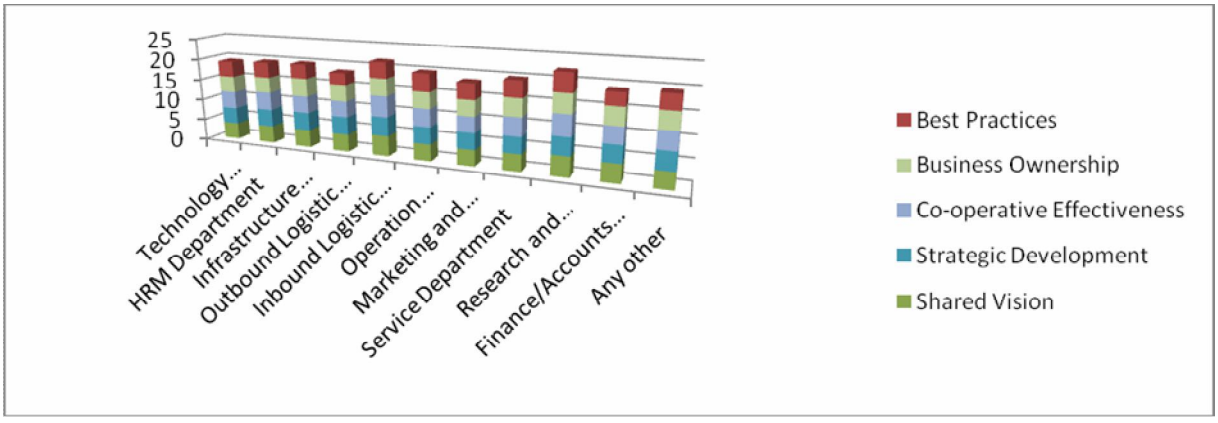

Fig. 3: (Department Wise Performance in VIDEOCON)

Strategic Development (SD): the table and the fig. 3 depicts the department wise responses for the Impact of Information System on *Strategic Development*. It can be seen from the table that the perceived impact on SD has been maximum in the Finance/Accounts department (4.56), followed by Inbound Logistic department (4.50), followed by Service Department (4.36), and followed by Outbound Logistic department (4.21). Whereas in case of Research & Development department the impact has been found to be minimal (3.75). In all other departments the impact has been satisfactory (mean score ranging from 3.94 to 4.04).

Co-operative Effectiveness (CE): the table and the fig.3 depicts the department wise responses for Impact of Information System on Co-*operative Effectiveness*. It can be seen from the table that the perceived impact on *CE* has been maximum in the Finance/Accounts department (4.92), followed by Operation department (4.64), Technology Management and Inbound Logistic department (4.50). Whereas in case of Research & Development department the impact has been found to be minimal (3.56). In all other departments the impact has been satisfactory (mean score ranging from 3.89 to 4.48).

Business Ownership (BO): the table and the fig. 3 depicts the department wise responses for the Impact of Information System on *Business Ownership*. It can be seen from the table that the perceived impact on *BO* has been maximum in the Inbound Logistic department (4.75), followed by Finance/Accounts (4.38). Whereas, in case of Research & Development department the impact has been found to be minimal (3.67). In all other departments the impact has been satisfactory (mean score ranging from 3.83 to 4.12).

Best Practices (BP): the table 4.14 and the fig.3 depicts the department wise responses for the Impact of Information System on *Best Practices*. It can be seen from the table that the perceived impact on *BP* has been maximum in the Inbound Logistic department (4.75). Whereas in case of Outbound Logistic department the impact has been found to be minimal (2.83). In all other departments the impact has been satisfactory (mean score ranging from 3.17 to 4.00).

Conclusions

Although Computer Based Information Systems have made a positive contribution towards the overall performance of the Videocon, but combining the complementary investment in work practices along with Computer Based Information Systems investment is essential to stabilize and support its positive contribution in future. The performance factors after implementing Computer Based Information System have been evaluated by the employees of Videocon and were compared with their expectations. After detailed analysis, a significant difference between the expected and the actual impact on various performance factors has been seen. There has been an improvement in work performance with the use of Computer Based Information Systems, which has been more than their expectations.

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