

Impact of Enterprise Resource Planning (ERP) in Accounting Systems: A Case Study

¹Kgomotso Matengu, ²Dr. B.N. Swami

^{1,2}Faculty of Business, University of Botswana, Gaborone, Botswana

Abstract

ERP assists with centralized data bases, quick access to information and easy management of data in terms of backing up of data and restoration of data as required by the organization. The main aim of this paper is to locate the impact of ERP and its implementation in accounting practices. The allied objectives of this research are to locate the problems and prospects of ERP taking the local bank as a case study. The users of ERP have good faith in the programme having taken into account of the programme's reliability, accuracy and response to time. The main worry is the limitation of budget where the implementation of the programme requires heavy budget for hard and soft ware and training the personal for sending the staff for exposure in ERP.

Keywords

ERP, Functions, benefits, problems & prospects)

I. Background Information

Companies are slowly moving from individual system modules to more integrated systems. This has on one hand provided lots of opportunities and cost savings and on the other hand created few challenges and complications for the management at different levels in an organization. It is estimated that between 1.5 and 6.0 percent of annual revenues are spent on ERP implementation [18].

The top five ERP vendors, SAP, Oracle Corporation, PeopleSoft, Inc. (now Oracle Corp.), JD Edwards & Company, and Baan International, account for 64 percent of total ERP market revenue. These vendors continue to play a major role in shaping the landscape of new target markets, with expanded product functionality, and higher penetration rates. SAP dominates the \$6.7 billion ERP applications market in Europe with 39% market share. Oracle and PeopleSoft come second and third respectively, followed by SAGE Group and Microsoft Business Solutions [26].

ERP's major objective is to integrate all departments and functions across a company into a single computer system that can serve all the enterprise needs [25]. According to Deloitte Consulting (1999) [6], an Enterprise Resource Planning (ERP) system is a packaged business software system that allows a company to;

- Automate and integrate the majority of its business process
- Share common data and practices across the enterprise
- Produce and access information in real-time environment

Organizations invest on Enterprise Resource system software's from vendors such as SAP, Oracle, PeopleSoft, Siebel to gain powerful computer-based information systems more cheaply than through custom built software development.

National Development Bank (NDB) (a Bank in Botswana) uses Oracle ERP for their financials suite with the following modules: General Ledger, Fixed Assets, Purchasing, Account Payables, Accounts Receivables, Cash Management, Human Resources and Payroll. NDB's Oracle ERP was implemented in 2001 by a

company called RPC data. Before implementation of Oracle, NDB was using different software to manage loans, financials and Human Resources and Payroll.

II. Problem Statement

Enterprise Resource Planning (ERP) systems assist the companies very well with centralized data bases, quick access to information and easy management of data in terms of backing up of data and restoration of data as required by the organization. The main problem lies in system usage. This is to say whether employee users are trained enough to perform the different tasks with less or no errors. IT personnel also play an important role in making sure that the systems are functioning well, this also call for functional and technical training for IT personnel. The organization cannot benefit enough from a system that is not properly managed. This could also mean spending more money on consultants who will be called to assist in the operations of the ERP system. In addition the system modifications, there should be proper change management as this will assist the organization in going forward on what changes caused errors should there be any.

III. Objectives

The main aim of this research is to locate the impact of ERP implementation as a new system on accounting practices, precisely the implications of changes on reporting system within accounting into ERP system. The allied objectives are to identify the problems and prospects from adoption of an ERP system (e.g. SAP, Oracle, JR Edwards, and PeopleSoft etc.) from a global point of view in general and ERP impact on National Development Bank.

In other words this research aims at finding how well the ERP system itself performs that is system accuracy, reliability and response time and also how well people in National Development Bank (NDB) are able to use, maintain and upgrade the ERP system – Oracle and to identify the current system deficiencies in the case of National Development Bank – Oracle.

Hypotheses

H1: User capability by adequate training [2] smoothen communication between the users and IT personnel.

H2: ERP requires complex hardware, software and communication technologies and hence IT infrastructure and competent human assets are required.

H3: ERP needs change management with dedicated staff for user's satisfaction

IV. Scope of the Study

The study covers a brief study of usage of ERP in general across the world and pin pointing on National Development Bank ERP system. The study will identify the impact of ERP on NDB and the challenges that the users or organization are suffering from implementing the system. Users are located in Head Office (Gaborone) and a few in Maun are subject for this research.

Conceptual Clarification

ERP stands for Enterprise Resource Planning.

A. Oracle Application

is a suite of more than 55 integrated software modules for financial management, supply chain management, manufacturing, project systems, human resources, Payables, Receivables and sales force automation.

B. Hardware

Hardware is a general term for the physical artifacts of a technology. It may also mean the physical components of a computer system, in the form of computer hardware [29].

C. Oracle Functional training

training that provides an overview of each of the functional areas within Oracle collections e.g. training on Oracle Receivables, Payables etc.

D. Oracle Technical training

the course is designed for practicing Systems Engineers with basic familiarity with database management who seek to understand Oracle technical history and evolution, Oracle technical architecture, Oracle performance tuning concepts and Oracle best practices and understand how to employ Oracle best practices for configuration and management of very large Oracle databases.

V. Literature Review

Enterprise resource planning software solutions have been implemented by many companies in their efforts to integrate and control their order management, purchasing, supply and logistics function [13]. Even though ERP solutions have been popular in Europe for some time, North American companies have been using them for only five to six years. There are many benefits associated with ERP, such as integrated application in cross functionality, accommodate business growth; improve business processes etc [19].

ERP creates a framework for integrating and improving a company's internal business processes that result in significant improvements in the quality and efficiency of customer service, production, and distribution. Recent study of ERP systems concludes that the way to maximize benefits from enterprise systems over the long term is to set process involvement teams, led by highly motivated process owners, whose job is to understand both the evolving capabilities of software and needs of the organization and to strive to maintain a reasonable on-going level of fit between the software and changing organizational needs [24].

Many companies report significant reductions in transaction processing costs and hardware, software, and IT support staff compared to the non-integrated legacy systems that were replaced by their new ERP systems. Needleman (1998) [20] is of opinion that sometimes it costs less for companies to replace their dinosaur systems than to fix them. In this connection, various cases were given from California-based turbocharger manufacturer.

ERP provides vital cross-functional information on business performance quickly to managers to significantly improve their ability to make better decisions in a timely manner across the entire business enterprise. According to Davenport (2000) [5], managers will be able to monitor the doings of the company without having to wait for monthly reports. ERP can be used in breaking down many former departmental and functional

walls, which results in more flexible organizational structures, managerial responsibility, and work roles. IT specialists often promise that technology will serve as a catalyst for change. They agree that shared databases will allow employees to interact with other departments, creating heretofore unheard synergies [4].

Chinese ERP software companies and government continue to support the ERP systems development. Up to 2003, more than 3000 industrial enterprises have applied ERP systems [9]. In Kenya's sugar industry the SAP software solutions provider and ALTTAB are working to bring their global experience to bear on the local sugar industry and recruited many specialists. Many other sister African countries adopted ERP systems such as Ghana.

In Botswana for the institutions that have implemented ERP systems are National Development Bank (NDB), Citizenship Entrepreneurship Development Agency (CEDA), Debswana, Water Utilities Corporation, Local Authority Enterprise (LEA), Botswana Meat Commission, Botswana International University of Science, Botswana Life Insurance Limited, and Government of Botswana: Ministry of Finance etc. Some of the challenges of ERP are the shortage of competent ERP consultants, the success or failure of projects depends on how well one meets this challenge [23].

VI. Methodology**A. Research Design**

This research is more of a pure research than an applied research. The pure research or basic research is conducted to verify acceptability of a given theory or to know more about a certain concept [30]. In order to test the proposed hypotheses, scientific method was also used to make inferences and conclusions. This research required collecting relevant data from the specified documents and compiling databases in order to analyze the material and arrive at a more complete understanding on the impact of implementing ERP in an organization.

Causal research was also conducted to identify cause and affect relationship among variables such as impact of user training on ERP system. This research utilized both quantitative and qualitative data collection tools, but is more rooted in a qualitative epistemological position that recognized the importance of locating the research within a particular context.

B. Sampling

A survey of 60 oracle users located (50) in Gaborone and (10) in Maun provided the database for this study. The random sampling system was applied to select the representative sample from various types of users who answered the questionnaires. Wide spectrum of users of Oracle was selected such as information systems officers who are the Oracle technical support officers and system administrators; Oracle end users who are either clerical, supervisory, super users or managerial level. Only National Development Bank employees who are Oracle users were selected at random for answering the questionnaire since they are directly involved in using the Oracle system and the case study is NDB.

C. Source of Information

The study used both primary and secondary sources of

information. The secondary data was collected through reading books and peer reviewed journal articles containing data related to the study. The primary data was collected through the use of structured self administered questionnaires.

D. Procedure of Data Collection

Data collection consisted of surveys using self administered structured questionnaires with National Development Bank Oracle users who are located Head Office – Gaborone and some users in Maun. The respondents were requested to complete the questionnaires in their own time. The questionnaire was emailed to the respondents who are located in Maun region. Persons located in Gaborone were given hard copy of the questionnaire personally and collected answered questionnaire after due date. The questionnaires were analyzed using Microsoft excel as it made it easy to analyze data especially data from a structured questionnaire. The analyzed is presented in meaningful Tables, highlighting a few with figures and charts.

E. Limitation of the research

The study was limited to research on Oracle ERP as it is focused at the case of National Development Bank and other ERPs like SAP were not researched on. Self administered questionnaires were used instead of oral interviews. It is felt that the respondents were not willing to fill the questionnaires or are not telling the complete truth in answering the questions and this phenomenon might misguide the conclusions.

VII. Analysis of Data, Discussion and Findings

Part 1 - Demographic Information

The demographic information is the portion in the questionnaires where general questions were asked to all the participants. It consists of information on the respondent’s job positions, the applications / responsibilities that they use, the length of experience with the different applications and where the users are located, whether in Head Office or Maun Branch. All participants were expected to complete this section.

Table 1 : Respondents

Position	Total Respondents	Expected Response	% Respondents Received
Manager	9	10	16%
Information Technology Officer	8	10	15%
Accountant/ Officer	27	29	49%
Purchasing Officer	6	6	11%
Payroll and HR Officer	5	5	9%
Total	55	60	100%

The sample size was 60 employees of National Development Bank who are Oracle users. Only 55 employees responded which can be converted to 92% of the participants. Oracle is heavily used by accountants whose response is at 49% (Table 1 and Fig. 1). The population of managers and Information Technology officers can be distributed on the different departments since they are also users of different oracle applications e.g. Payroll or

General Ledger. Fig. 1 is a visual display showing percentages of the different job positions / officers who are users of Oracle ERP.

Of the 55 respondents, 49 officers are located in Head office Gaborone while 6 officers are located in Maun which is more than 1000 kilometers away from Gaborone. They connect to the Oracle servers that reside in Head Office over a leased Telecommunication line.

Table 2 is a summary of respondents showing their length of Oracle ERP experience with the different Oracle responsibilities.

Table 2 : Length in years of Oracle ERP Usage

Experience in Length	IT	Managers	Accountants	Purchasing	HR & Payroll	Totals
Below 6 months	0	0	0	0	0	0
7-12 months	1	0	2	1	1	5
13-24 months	1	1	4	1	1	8
25-48 months	1	0	8	3	1	13
More than 48 months	5	8	13	1	2	29
Total Respondents	8	9	27	6	5	55

Most of the users who responded have used oracle for more than 1 year. Of the 55 respondents, 50 users have used the ERP system for more than 1 year. One can therefore conclude that the users who have responded have had enough exposure to the Oracle ERP system enough for them to conclude the way they have. It is important to note that the Accountants who happen to be the highest ERP users are in the longest experienced users with 25/51 users as shown in the Table 2.

Twenty nine respondents have used Oracle for more than 48 months, 13 have used it for more than 24 months but less than 48months, 8 respondents have used the system for more than 13 months but less than 24 months and lastly 5 respondents have less than 1 year of experience i.e. 7-12 months of ERP experience.

Application / Responsibility Users

Table 3 is a matrix showing the number of participants using different oracle Responsibilities. Oracle Applications is designed such that modules are integrated and different responsibilities can be assigned to different users. Example, purchasing module users can be given access to the General ledger responsibility, payables and vice versa. This therefore means one user can have more responsibilities as long as approved by the manager.

Table 3: Application Users

Application	IT	Managers	Accountants	Purchasing Off	HR & Payroll	Totals	Totals
General Ledger	4	7	15	1	1	28	51%
Payables	5	8	21	1	1	36	65%
Receivables	5	7	18	1	1	32	58%
Purchasing & Inventory	4	2	2	6	0	14	25%
Cash management	4	7	17	0	1	29	53%
HR and Payroll	6	2	2	0	5	15	27%
System Administration	7	1	0	0	0	8	15%
Fixed Assets	4	2	3	0	0	9	16%
Budgeting	1	1	0	0	0	2	4%

Table 3 shows that the modules that are heavily used are Payables at 65%, Receivables at 58%, Cash management at 53% and finally General Ledger at 51%. It is important to note

that most Oracle ERP users in NDB uses Oracle General Ledger as it is a central repository for all accounting information in the Oracle Applications [1].

15% of respondents have been assigned the System Administration responsibility as it is restricted to Information Technology officers whose responsibilities are among others are defining menus, responsibilities, users, oracle printer's etc.

27% of the participant's uses HR and Payroll responsibility as it are used only by Human Resources and a few accountants who do the Payroll costing, 16% of the respondents have access to fixed assets responsibility and lastly 4% uses the budgeting module and it is used by managers only.

Part 2

Reasons for NDB Adopting Oracle ERP

Many reasons have been cited by different people in different organization as to why they have implemented Oracle ERP, Table 4 shows information received from NDB management who are users of Oracle ERP. The group consists of Managers and Directors. The managers were restricted to giving answers as per the questionnaires. This section was only answered by managers and directors from different departments. Below is the tabular presentation of their responses

Table 4: Managers reasons for adopting ERP

Variables	Reasons	SA	%	A	%	N	%	D	%	SDA	%
V1	Replacing legacy systems	5	56%	2	22%	1	11%	1	11%	0	0%
V2	Efficiency	5	56%	3	33%	0	0%	1	11%	0	0%
V3	Better Management tools	0	0%	6	67%	1	11%	1	11%	0	0%
V4	Increase Customer Satisfaction	3	33%	4	44%	1	11%	1	11%	0	0%
V5	Flexibility	5	56%	2	22%	0	0%	2	22%	0	0%
V6	Reports easily & Readily available	2	22%	5	56%	1	11%	1	11%	0	0%
V7	Value for money	1	11%	6	67%	1	11%	1	11%	1	11%
V8	Expensive to engage ERP Companies	3	33%	4	44%	1	11%	0	0%	1	11%

Managers have responded to the questionnaires as follows: 78% of managers agree with variables V1, V5, V6, and V7. 89% responded positively to Variable V2, 67% agree with variable V3, 77% agree to V4 and V8. 11% are not in agreement with the stated reasons of implementing Oracle ERP as shown in Table 5. Variables that rated 11% are V1, V2, V3, V4, V6, V7, and 22% for variable V5 and V8. In conclusion NDB management shares the same views as they mostly agree to the reasons given by companies for implementing the Oracle / ERP systems.

Part 3: ERP System Quality

System quality is defined by how well a product or service meets the needs of its users. Quality in information systems is based on the quality of the data within a system. Factors such as system reliability, processing speed of data, flexibility of a system etc are considered. Table No. 5 shows a summary of the response from the participants.

Table 5: Response on issues of system Quality

Attribute	N=55											
	SA	%	A	%	N	%	D	%	SDA	%	NA	%
AT1	21	38%	14	25%	6	11%	11	20%	3	5%	0	0%
AT2	8	15%	24	44%	11	20%	8	15%	4	7%	0	0%
AT3	12	22%	25	45%	8	15%	9	16%	1	2%	0	0%
AT4	9	16%	32	58%	6	11%	6	11%	1	2%	1	2%
AT5	15	27%	12	22%	18	33%	9	16%	1	2%	0	0%
AT6	5	9%	19	35%	23	42%	6	11%	2	4%	0	0%
AT7	10	18%	14	25%	14	25%	14	25%	2	4%	1	2%
AT8	6	11%	10	18%	14	25%	19	35%	6	11%	0	0%
AT9	10	18%	28	51%	9	16%	7	13%	1	2%	0	0%
AT10	6	11%	22	40%	13	24%	8	15%	2	4%	4	7%

The attributes were denoted as follows; AT1 (System Availability), AT2 (Frequent system downtime), AT3 (System is user friendly), AT4 (Easy to follow steps), AT5 (Interphase with non oracle systems), AT6 (Effective application workflow), AT7 (Data visibility across departments), AT8 (ERP training), AT9 (IT support satisfactory), AT10 (Prompt assistance by supervisor/IT). The attributes that were rated above 50% in the agree/strongly agree fields are AT1 (63%), AT2 (59%), AT3 (67%), AT4 (73%), AT9 (69%) and AT10 (51%). Other attributes were rated below 50% with AT5 (49%), AT7 (43%) and AT8 (29%).

Training is one area that has been emphasized before and after ERP implementation. Figures reveal that users are not trained enough on Oracle. This is shown by AT8 that shows only 29% of the population has been trained enough and 46% have not been trained to their satisfaction.

AT9 (Satisfactory IT support) is also an important contributor to the success and smooth running of ERP systems. As shown in the Table No.7, 69% agree to satisfactory support and 15% are not satisfied with the support they get from IT. It is also important to look at AT10 as it goes hand in hand with AT9 and see that the percentage agree and disagree are in the same ranges with AT10 rated 51% and disagree at 17%. This could mean that even though the users are happy with support, promptness might be an issue. The disagree / strongly disagree rating has most of the attributes rated below 50%.

ERP - Information Quality

This section of the questionnaire investigates the quality of information coming from an Oracle ERP system. Information system quality may be measured by how well the information system delivers the desired information to users. The information systems quality depends on processing speed of requests, availability to users and reliability of data transmission [28].

	Variable	SA	%	A	%	N	%	D	%	SD	%
Timely information	V1	9	16%	29	53%	7	13%	8	15%	2	4%
Accurate information	V2	13	24%	28	51%	4	7%	8	15%	2	4%
up-to-date information	V3	17	31%	22	40%	6	11%	9	16%	1	2%
Access to different reports	V4	8	15%	28	51%	13	24%	5	9%	1	2%

Note: SA – Strongly Agree, A- Agree, N-Neutral, D- Disagree and SD- Strongly Disagree, NA – Not Answered.

Table 6 shows data that deals with the quality of information coming from an Oracle ERP system. 69% of the users agree / strongly agree with variable V1 (System produce timely information), 13% chose to be neutral and 19% percent do not agree.

75% agrees/strongly agree with V2 (Accurate information) generated from the system while 7% have remained neutral in the variable and 19% do not agree with the information been accurate. 71% agrees/strongly that the system produces (up-to-

date information) V3 while 11% have opted to be neutral and 18% do not agree/strongly. Lastly when asked about (access to different reports, 66%) V4 agreed/strongly whilst 24% remained neutral and the rest 10% did not agree/strongly.

PART 4 – ERP Support

Oracle ERP system is centralized in National Development Bank. All the servers are located in Head Office (Gaborone) and the management / administration is done by the Information Technology department employees who are all working at Head office. The Questionnaire was circulated to the officers who support the system e.g. Database Administrators, Functional and Technical support officers. The responses were tabulated in Table No. 7.

Table 7: Information Technology Officers response on ERP Support

variable	SA	%	A	%	N	%	D	%	SD	%
V1	4	50%	3	38%	0	0%	1	13%	0	0
V2	3	38%	4	50%	0	0%	1	13%	0	0
V3	6	75%	1	13%	1	13%	0	0%	0	0
V4	1	13%	3	38%	3	38%	1	13%	0	0
V5	2	25%	6	75%	0	0%	0	0%	0	0
V6	1	13%	3	38%	2	25%	2	25%	0	0
V7	5	63%	1	13%	2	25%	0	0%	0	0
V8	1	13%	4	50%	3	38%	0	0%	0	0
V9	1	13%	4	50%	3	38%	0	0%	0	0
V10	3	38%	3	38%	2	25%	0	0%	0	0
V11	2	25%	4	50%	2	25%	0	0%	0	0
V12	1	13%	1	13%	4	50%	2	25%	0	0
V13	3	38%	3	38%	0	0%	2	25%	0	0
V14	1	13%	2	25%	4	50%	1	13%	0	0

V1(Powerful infrastructure), V2(High specification data lines), V3(Easy to administer), V4(Enough technical training), V5(Interest in resolving user queries), V6(Enough functional training), V7(Easy to backup and restore), V8(Test performed before roll-out), V9(Competent IT), V10(Easy to integrate ERP with other systems), V11(ERP usage impressive), V12(Prompt services from ERP companies), V13(ERP support companies knowledgeable), V14(ERP companies can be trusted)

In their response, 100% of the participants agreed to variable V5, 88% of the officers are in agreement with variable V1, V2 and V3, 76% agree to variable V7, V10 and V13. 75% agree to V11. 63% agree to V8, V9. 38% agree to variable V14. V4 had 51% participants in agreement. The rest of the variables, V12, and V14 were graded below 50% with 26% and 38% respectively.

When it came to users not agreeing with some variables, 13% did not agree to Variables V1, V2, V3 and V14. 25% did not agree to V6, V12 and V14. The rest of the variables were graded 0%.

PART 5: CHANGE MANAGEMENT

This portion of the questionnaires was investigating whether proper procedures are followed when there are system modifications. It also looks at the user’s involvement in system changes etc. Table No. 8 shows the response from participants.

Table 8: Change Management

Variable	SA	%	A	%	N	%	D	%	SD	%	NA	%
V1	6	11%	17	31%	16	29%	11	20%	3	5%	2	4%
V2	4	7%	16	29%	10	18%	15	27%	9	16%	1	2%
V3	6	11%	19	35%	19	35%	6	11%	3	5%	2	4%
V4	5	9%	20	36%	19	35%	7	13%	2	4%	2	4%
V5	2	4%	22	40%	19	35%	8	15%	2	4%	2	4%
V6	1	2%	10	18%	20	36%	17	31%	5	9%	2	4%
V7	0	0%	23	42%	20	36%	9	16%	1	2%	2	4%
V8	2	4%	16	29%	24	44%	8	15%	3	5%	2	4%
V9	0	0%	10	18%	31	56%	11	20%	1	2%	2	4%

V1 (Employees aware of system changes), V2 (Emp. Nominated as change implementers), V3 (management willing to be part of change), V4 (employee contribute toward success of system changes), V5 (Process modification as per changes), V6 (Train employees after system changes), V7 (Employees ready and welcome change), V8 (proper budgets to allow for system changes), V9 (Proper system documentation after changes)

Change management is the portion where most of the respondents were not in agreement with most of the variables as shown by the low percentages in the agreed/strongly agreed fields. All variables rated below 50% with V1 (42%), V2 (36%), V3 (46%), V4 (45%), V5 (44%), V6 (20%), V7 (42), V8 (33%) and V9 (18%).

Most of the participant’s preferred to remain neutral or did not answer this section as shown in Table No. 8. When compared to other different Tables in the analysis section, the percentages of the users who do not agree / strongly were high ranging from 18% - 43%.

If system changes are not managed properly there is a high chance of resulting in systems that are not properly used or the systems been able to work as per expectations. There are also high chances of users resisting such new systems / changes.

VIII. Findings

It is observed that a lot of NDB Oracle ERP users are generally happy with the system quality as shown by the high percentages in rating the system availability and the system does not have frequent system downtimes. Users tempt to have faith in a system that is always available. The users have also agreed with the fact that Oracle system is a user friendly system and it has steps that are easy to follow and can be easily used by new/joining officers. The IT officers are also of opinion that Oracle system is easy to work with as the administration is easy (system administration, backup and recovery)

Users did not agree in high numbers with the fact that Oracle can easily inter phase / integrate with non Oracle systems. The small percentage that responded positively are those users who download bank statements that are either Excel or in a comma delimited (csv) format and those who extract data from a system called BM+ (Core banking system) and import it to Oracle. Information Technology officers responded positively to the question as they are highly involved in projects that integrates Oracle with non-oracle systems.

It is located that Oracle users at NDB are in high agreement with the information quality that comes from the system. They agree that the information is accurate and up-to-date. This is a general view from most of the users and it is positive feedback.

In their responses, it is realized that most of the respondents answered neutral when they were not sure of a concept and

only a few did not answer at least one question in the different sections. Most of the respondents were neutral in high numbers in the section for change management.

NDB ERP users and NDB IT officers trusted each other and one can conclude that they work harmoniously together as shown in their responses.

Another finding is that both NDB oracle users and Information technology officers are not happy with the training that they receive. A high percentage answered negatively in their responses and this is a reflection that users are not trained enough to perform their daily duties.

Information generated from the questionnaires also shows that ERP systems are expensive to implement and support but the external support companies that support users are very knowledgeable in their area of expertise. NDB IT officers are not happy with the services that they receive from Support companies especially the promptness part of it.

The oracle users, who are junior officers, are not involved in high numbers when there are system changes / modification or upgrades. From the responses a high number of junior staff said they were never involved in system change projects. Only management and Information Technology officers' responded saying they are involved in system changes that take place and most people remained neutral in this section in most of the questions. One can therefore conclude that indeed junior staff is not always part of change management. Staff believes that management is very much willing to be part of system changes. And they are positive and welcoming to system changes.

It is inferred that after system modifications take place, no proper system documentation is done and kept for future referrals. This is shown by the list of positive response from all the users who answered the question.

Information Technology officers are of opinion that the infrastructure that is used to run Oracle ERP is of high specification but users especially from Maun have given negative feedback on the issue of system availability.

Managers are happy with the Oracle reporting as they believe the reports can be easily accessed whereas staff members believe otherwise. This could be because the managers have answered that they have been trained enough in the system and this somehow helps them to know how to manipulate the data. Staff on the other hand struggle to develop reports from the Oracle system. According to Sangster & Wood (2005) [21], some of the advantages of ERP systems are; reduced time spent on analyzing exception reports (as the level of detail provided by the system is greatly enhanced and greatly reduced lead times in report generations).

Lastly, it is discovered that even though the Oracle system is expensive to support the managers who are also decision makers are saying that there is value for money from the system as it assist in issues like increased customer satisfaction, better decision making tools etc.

IX. Conclusions

- One can conclude that National Development Bank users are generally happy with the Oracle ERP system but they

have not been given enough training.

- Oracle ERP system is an expensive system to implement yet if properly managed users enjoy the smooth running (effectiveness and efficiency) of the system.
- After system modification take place, no proper documentation is done and kept for future referrals. This is shown by the least positive response from all the users who answered the question.
- Management commitment is significant for the success of ERP in implementation and use. NDB management is highly committed to Oracle ERP. Most employees also agree to this.
- Although several ERP systems are in the market, the majority of case studies analyse SAP systems. Very few Studies and a little research generalize the findings of other ERP systems [7].
- Information quality is important to managers for decision making. Most of the respondents are happy with the quality of information from the Oracle system and Managers are happy with the system as they have answered that it helps them in decision making. Respondents from the regional office are not so positive about the system availability or the system been available to users when they need it. It is important to note that the users are connecting through the internet / leased data lines. When the internet is not available then it disrupts all the users' connectivity.

X. Recommendations

Proper system budgets should be done as per the system requirements. Since ERP systems are expensive to implement it is also important to budget for all module installation in order to get the best out of the system. The ERP support does not come cheap and this should also be considered at the time of budget. To be on the safe side companies / organizations should consider having Service Level Agreements (SLA) with their ERP support companies as they will agree on issues of query response time, budget for the year support and or maintenance. Having a SLA has proven better in terms of support cost and effectiveness than having support companies charge on a time and material basis. Training budget should also be done to train new/employees who will be working on the system. Different training needs should be identified and users send for training as per their job requirements. ERP training can be functional for End users, technical or functional for support people. This will highly improve the system usage and reduce on the number of errors that a user can make. If it is expensive to train users at the various ERP / Oracle institutions then a trainer could be brought to train at the work place which has proven to be less expensive and more users can enroll at one time. From research conducted by Lee and Lee [17] on change management after ERP Implementation, it is traced out that Corporations can secure significant benefits from ERP only when they overcome the valley of despair through effective change management programs. This needs a proper change management after ERP implementations. Different level of Employees / users should be made aware of any system changes and if possible they should also be part of change. This will greatly help in that they will feel they are part of change and work very hard in accomplishing successful change. Grabski et al. [10]. highlighted by quoting from Best, 1997 as saying; "involving users in the projects enables the project team to be aware of users requirements and address users' concerns and in addition users training enables users to acquire the requisite skills to utilize the ERP system". Data lines should be upgraded

to increase speed and performance and any disruptions that happen due to data lines should be communicated to the users to avoid them confusing matters e.g. from the questionnaires users that are located in Head Office are happy with the system availability whereas the Maun users complained about system downtimes which could have been caused by reasons other than the system itself having problems. From Experience we have identified that there are few ERP support companies in Botswana and a few companies that have implemented ERP. We suggest that organizations should talk / benchmark and compare with one another; they should look onto issues of usage, benefits and costs. The company wishing to implement ERP should do site visits to check how different companies have structured their systems and compare in monetary terms how these few companies are charging for implementation and support.

Another recommendation is for companies to always send members / users to different ERP user groups e.g. South Africa Oracle Users Group, where they will interact with different users from different companies (local or international). This networking will greatly assist in sharing of new and old experiences in ERP systems. In these conferences there will be some hands on training, presentation on new developments etc. Companies should also check the expertise of the Oracle Company supporting them as compared to other support companies out there. The information will greatly assist in decisions of which Support Companies could best support their organizational needs.

References

- [1] Alang Sangster, Stewart A. Leech, Severin Grabski. "ERP implementations and their impact on management accountants". *Journal of Information Systems and Technology Management*, 2009.
- [2] Cameron, P.D., Meyer, S.L. "Rapid ERP Implementation - A contradiction". *Management Accounting*, Vol. 80, No.6, 1998.
- [3] Christopher et al. "Oracle Certified Professional : Financial Applications Consultant Exam Guide" - TATA McGraw-Hill Edition, 2000
- [4] Davenport, T.H. "Putting the Enterprise into the Enterprise system". *Harvard Business Review*, 1998
- [5] Davenport Thomas. "Mission Critical: Realizing the promise of Enterprise Systems", 2000.
- [6] Deloitte Consulting. "ERP's Second Wave: Maximizing the Value ERP-Enabled Process". New York : Deloitte Consulting, 1999
- [7] Esteves, J., Pastor, J., "Communication of AIS", *Enterprise Resource Planning Systems Research: An annotated Bibliography*, Vol. 7, No. 8, 2001.
- [8] Foster Susan. *Oracle E-Business Suite 11i : Implementing Core Financial Applications*, 2006.
- [9] Ge, L., Vob, S. " ERP application in China: An overview", 19th International Conference on Production Research
- [10] Grabski, S.V, Leech, S.A, Lu, B "Risks and controls in the implementation of ERP Systems". *The International Journal of Digital Accounting Research*, Vol. 1, No.1 pp. 47-68.
- [11] Graeme Shanks, Peter B.Seddon, Lorraine Staehr, *Understanding the Business benefits of Enterprise Resource Planning systems;* Association for Information Systems; Americas Conference on Information Systems (AMCIS), 2002
- [12] Graeme Shanks, Peter B.Seddon, Leslie P. Willcocks.

"Enterprise Resource Planning systems; Implementing for effectiveness", 2003.

- [13] Gunasekaran, A., Ngai, E.T., Cheng T.C.E., "Developing an e-logistics system: a case study". *International Journal of logistics: Research and Applications*. Vol. 10 No. 4, 2007.
- [14] *Harvard Business Review: Davenport: "Saving IT's Soul" Page 1, 1999*
- [15] James et al. "Oracle E-Business Suite Financials Hand book". *Implement Oracle's Robust E-Business Suite of Financial Application - TATA McGraw-Hill Edition*, 2002
- [16] Joseph, R., Matthew, G., Patrick, C., Michael, S., *A teaching case using Cost/Benefit Relationships with an ERP System;* Vol. 2, No. 3. 2006
- [17] Lee Chang Seung, Lee Geun Ho. *The importance of change management after ERP implementation: An information capability perspective*. Twenty-Fifth International Conference on Information systems, 2004
- [18] Mabert, V.A., Soni, A., Venkataramanan, M.A. "Enterprise Resource Planning: Common Myths Versus Evolving Reality," *Business Horizons* (44:3), 2001, pp. 69-76.
- [19] Marcus, M.L., Tanis, C. "The enterprise system Experience - from adoption to success. In framing the domains of IT research; Glimpsing the future through the past" Zmund, R.W (ed.), Cinannati, OH: Pinnaflex Educational Resources, 2000
- [20] Needleman, T. "AlliedSignal Turbocharges its systems," *Beyond computing*, September 1998.
- [21] Sangster, A., Wood, F. "Business Accounting 2". Tenth Edition, 2005
- [22] Saunders, M., Lewis, P., Thornhill, A. "Research Methods for Business Students". Fourth Edition, 2007.
- [23] Schwartz, K. "Putting Consultants on Your Team", *Beyond Computing*, Vol.7, No.6, August 1998.
- [24] Shang, S. "Maximizing benefits from Enterprise systems", 2001.
- [25] Turban Efraim, Mclean Ephraim, Wetherbe James "Information technology for management". *Transforming business in the digital economy*, 2002
- [26] [Online] Available : <http://www.exforsys.com/tutorials/oracle-apps/erp-overview.html>
- [27] [Online] Available : <http://www.softwarearchitectures.com/go/Discipline/DesigningArchitecture/QualityAttributes/tabid/64/Default.aspx>
- [28] [Online] Available : http://www.ehow.com/facts_7152314_information-system-quality_.html
- [29] [Online] Available : [En.wikipedia.org/wiki/Hardware](http://en.wikipedia.org/wiki/Hardware)
- [30] Zikmund, W.G. "Business Research Methods". Sixth Edition. The Dryden Press. Hart court College Publishers, 2000.

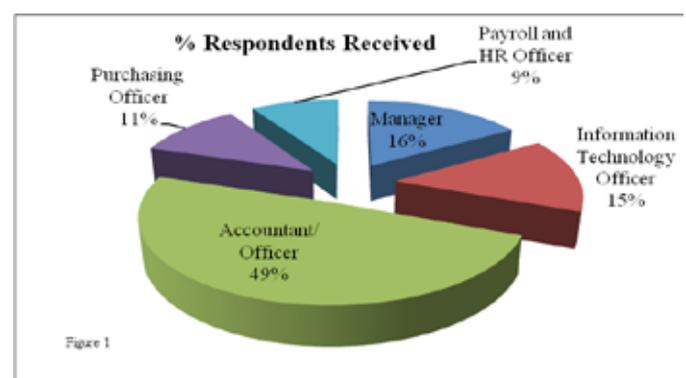


Fig. 1: Responses Received

Fig. 2: Managers Response Reasons for Adopting ERP