



ERP Effectiveness In Measuring Financial Performance. Study Case of SAP Business One At Sarl Grafil

Rafik Belhadj^{1*}, Houssam-Eddine Ghodbane²

¹ Laboratory of Finance, Banking and Business Management, University of Biskra
(Algeria), rafik.belhadj@univ-biskra.dz

² Laboratory of Economics and Management Sciences, University of Biskra
(Algeria), housam.ghodbane@univ-biskra.dz

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Abstract:

This study aims to assess the ERP SAP Business One effectiveness in performance measurement in Mesh welding SMB through studying two key variables, with the software capabilities we assessed how far the implemented ERP could provide the needed resources and capabilities for the performance management and with Current Use of the system we have assessed the effectiveness of the management in using these software resources in order to provide insightful performance measurement, the study used interviews and direct exploration of the software, it concluded that despite of the fact that the SAP Business One ERP offers all the needed tools and information to implement performance measurement system, the company management didn't use these capabilities to produce and report insightful performance measurement

Keywords: ERP, SAP Business One, SAP B1, Financial Performance Measurement, Balanced Scorecards.

JEL Classification Codes: M41, M15.

1-Introduction:

Most of SME nowadays rely on ERP systems in order to manage their operations and management activities, in recent research (Statistics of ERP in SME, s.d.) it was found that 95% of startups and emerging businesses are using ERP or willing to. While ERP systems provide informative support to the basic transactions of the company such as sales, quotation, purchasing or accounting and contains very large amount of data about what is happening in the company in the different functions through various processes, yet we think it is never used further to subtract key indicators that help drive the company's performance which we consider ineffective use of the information resources that it contains, based on this hypothesis this study intends to verify the effectiveness of the implemented ERP in measuring financial Performance in the studied company.

the main problematic of the research is how effective is the ERP system in measuring financial performance in the studied company?

The importance of the study relies in the fact that performance measurement is crucial for the company success and effectiveness (Simons, 2014, p. 88) and as nowadays most of the company's activities are handled using ERP systems, the ERP effectiveness in performance measurement plays a very crucial part in the company's success.

This Study aims to explore the potential of the SAP Business one ERP in financial performance measurement. And also, to evaluate the quality of performance measurement process in the company. This study will also serve as guide in preparing questionnaires and directing further studies on larger samples of companies. Another goal of the study is to beware companies of the fact that they spend so much money on ERP implementation projects that often remain limited in storing data and managing basic transactions instead of using it as strategic tool to boost the company's performance.

We will describe in the introduction the basic concepts of the ERP and financial main indicators and then we will see a literature review and the methodology we worked on, and then we summarize the results for every axe of indicators and conclude the study with some recommendations

2. ERP – Enterprise Resource Planning

2.1 ERP Overview:

Historically the ERP went through many developing stages, it evolved first from the MRP software which stands for Material Requirements Planning in the seventies and that was upgraded to MRPII in the eighties (Majed, 2022, p. 22) including more planning and control features and then it the Software included the other functions such as finance and HRM in one single database and was called ERP – Enterprise Resource Planning

ERP or Enterprise Resource Planning is a software that a company uses to support its key functions as sales, purchasing, operations or accounting and a complete ERP would include performance management module that helps plan, budget and generate reports for the results of the company (Tittel, 2022, p. 1)

Figure 1 - ERP Modules Structure



Source : Made by the author,2023

Some Key ERP vendors include Microsoft, SAP, IBM and Oracle, the market of ERP in the US has annual growth rate of 11% and reaches more than 54 billion \$ by 2022 (ResearchGrandView, 2022)

The implementation of ERP could benefit in improving operational excellence such as reducing inventory levels, reducing costs or delays which leads to higher customer satisfaction(Belkacem Bouzida & Merzoug, 2021 , p. 421)

SAP Business One:

SAP B1 was first launched first as Top Manager in 1996 and in 2002 SAP purchased the Top Manager Application and was branded as SAP Business One it was designed to suit the Small and midsize Business(Tal, 2016), it counts more than 70 000customersin over 170 countries.

The SAP B1 contains different modules that can be used from Planning and Finance Management to Sales and operations...

Figure 2 - the SAP B1 Modules

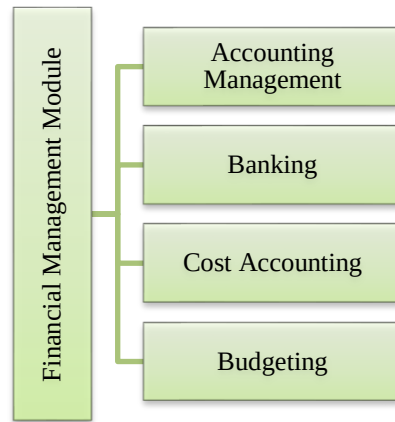


Source: (SAP, SAP Business One Introduction: digitalisation of your business, 2021)

For the Financial Management Module, the SAP Business One allows to record and manage accounting postings and generate the financial statements such as ledger, P&L and Banking Sub Module that allows to

record and manage the Cash transactions. While for the Controlling it has Budget Management and Cost Accounting sub modules.

Figure 3 - Financial Management Module



Source: Made by the author based on the direct exploration of the Software,2023

- **SAP B1 Reporting Capabilities:**

For the Reporting Capabilities SAP B1 has many features that allows the user to generate high quality reports (Niefert, 2009, p. 71) thorough Query Wizard or Query Generator, Drag and Relate features the user can design queries and develop reports even without deep knowledge in SQL.

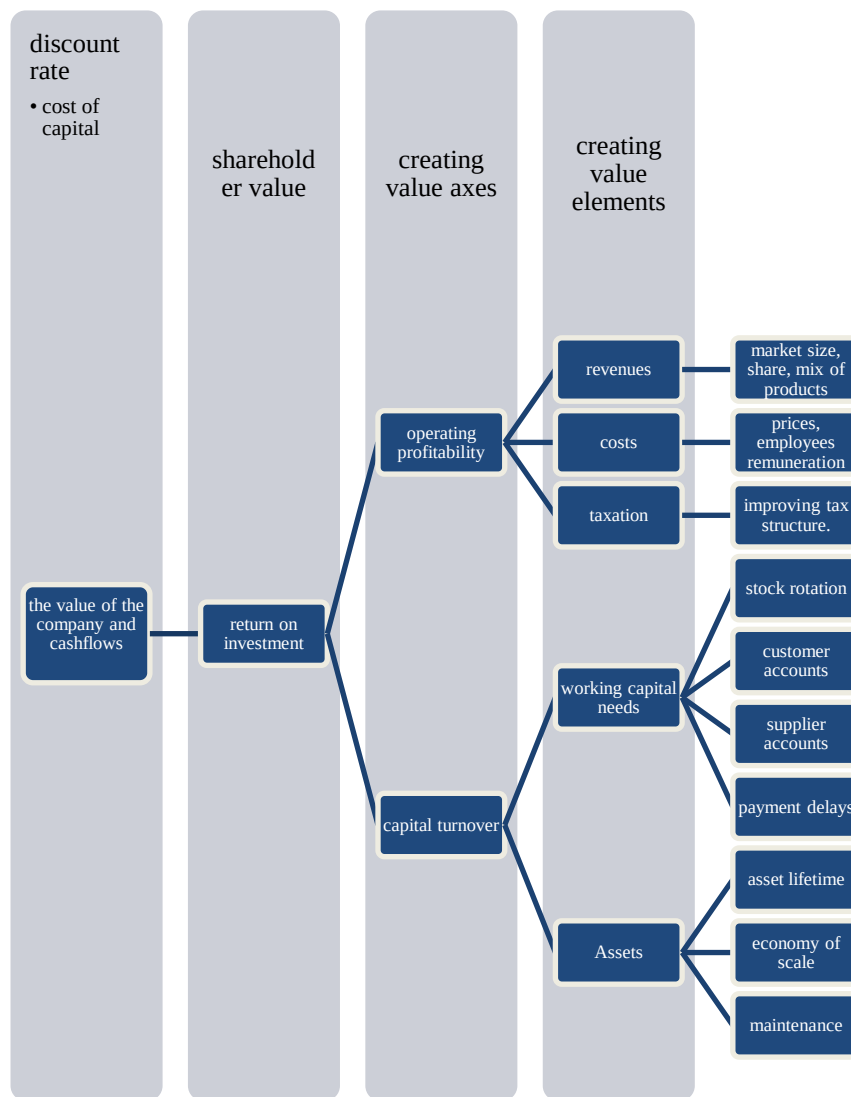
The Other two powerful Features are the XL reports which allows to automate reports in Microsoft Excel and benefit from Excel powerful capabilities whereas Crystal Reports offers graphical illustrations that are accessible on crystal viewer or web dashboard where the disadvantage is that you can't process the data further in Excel(Niefert, 2009, p. 81).

2.2 Financial goals:

The main goal for every company is maximizing the value for shareholders (Kaplan & Norton, Sep Oct 2000, p. 170) and in order to achieve it, the firm has to:

- Grow and diversify the revenues
- Reduce costs and improve productivity
- Improve use of assets.
- The following figure shows the different sources for creating value for shareholders.

Figure 4 – rising shareholder value



Source: adapted from(X. Bouin & F. Simon, 2009, p. 130) and (Lorino, 2002, p. 74)

In another way the financial goals of any company may vary according the product development through its lifecycle:

Table 1 - financial performance indicators through product lifecycle

	Main axes		
	Growth and diversification of revenues	Improving productivity and reducing costs	Improving use of asset
Growth	- Revenues growth rate - Revenues of new products, new customers	Revenues per employee	- Asset ratio to revenues - R&D investments ratio to revenues
Stability	- Targeted markets share - New products revenues - Profitability of each segment	- Cost price compared to competitors - Cost reduction rate - Indirect cost rate to sales	- Working Capital rate - Ratio of asset use
maturity	- Profitability of each segment - Percent of unprofitable customers	Unit costs	Break-even point margins

Source:(R.S.Kaplan, 1998, p. 67)

Grow and Diversify Revenues:

The following table shows the possible means a company can grow its revenues:

Table 2 - ways for increasing revenues

Goals	indicators
Releasing new products	new products share to revenues, new products margin
New uses for current products	the new applications share from total revenues
New customers and markets	the increase in revenues increase from new markets, revenues of new customers
New setup for marketing mix	the increase in revenues

Source:(R.S. Kaplan, Le Tableau de bord prospectif, 2002, p. 66)

• Reducing costs and improving productivity:

during the growth phase, the firm tend to direct its energy more toward growing its market and acquiring new customers rather than reducing costs as the standardization efforts of cost reduction programs doesn't fit into the flexibility that is needed in acquiring new markets and customers(R.S. Kaplan & D.P. Norton, Comment utiliser le tableau de bord prospectif, 2001, pp. 66-69).

In order to improve its profitability, the company has to reduce either direct and indirect costs which needs from the company to have cost accounting system to trace back the cost fluctuations.

- **Diversifying sale channels:**

The cost of products and services always depend on the sale and distribution channel it goes through therefore directing customer to e-commerce for example will enable the company to reduce the cost of transactions and reducing sale delays, so the company should always direct customers to more profitable channels.

- **Improving the use of Assets:**

Which means that managers should use the assets and capital that were placed at their disposal at best, we can measure the asset use rate the following way:

- $$\text{Asset use ratio} = \frac{\text{currentusagetime}}{\text{period}}$$

- **Working Capital:**

For the working capital the company has to reduce the cash cycle and reducing the inventory levels. We can use the cash cycle in days and the stock level as indicators for it.

2.3 Financial Performance Indicators

Of course, we have wide variety of financial indicators, we are not going to mention them all. we will list most common ones.

- **Sales and added value:**

The first and main financial indicators is revenues or sales which shows the activity scale of the company, and increasing revenues is sign of growth of the company.

The value added represents the revenues minus consumptions

- **Profits:**

- **Return on Equity (ROE):**

Which is measured by the ratio of net profit on equity

- $$\text{ROE} = \frac{\text{netprofit}}{\text{equity}} = \frac{\text{netprofit}}{\text{revenues}} \times \frac{\text{revenues}}{\text{equity}}$$

- **Return on Investment (ROI):**

Which is measured by the ratio of net profit on investment

- $$\text{ROI} = \frac{\text{netprofit}}{\text{investedcapital}} = \frac{\text{netprofit}}{\text{revenues}} \times \frac{\text{revenues}}{\text{investedcapital}}$$

- **Economic Value Added (EVA):**

Which is measured by deducing the cost of capital from the net profits(R. Brealey et Autres, 2006, p. 330)

- $$\text{EVA} = \text{Net Profits} - \text{Cost of Capital} = \text{Net profits} - \text{Capital} \times (\text{Capital Cost Rate})$$

- **Cashflows:**

Which is the net cashflows of the company that allows to the company to pay the shareholders profits, improve working capital and help fund new projects(F. Guerra, 2007, p. 115).

Gross Cashflows = Net Profits + non-cashable expenses (amortization, depreciations.)

Net Cashflows = Gross Cashflows – Distributed Profits.

- **Cost Indicators:**

It's strategically significant for any company to have vision over the evolution of their costs.

It could use full or partial cost indicators.

- Full Cost: where the company tracks the unit full cost and tries to improve the full cost of the product.
- Partial Cost: where the company may focus on variable or direct costs.

3. Literature Review

The first Study entitled **ERP effects on management control and decision making process**(OUAFEK & OUACHERINE, 2020) was conducted on an SMB which uses the same ERP as in our study which is SAP Business One, and the methodology they used is almost the same, which is to check if the implemented ERP could satisfy the Management Control needs, however the study took the variable of Management Control in general whereas in our study we focused on performance measurement dimension only, in this study they identified the need of the company in terms of management control as cost control and budget management and through interviews they did test how far the SAP Business One ERP could meet these needs. The study found that the SAP Business One is effective in enabling cost and budget controlling which agrees with our conclusion on the Software capabilities.

The second study entitled **Performance Measurement – Does ERP systems measure UP?** (Bredmar, 2011), employed a similar approach to our study, it identified the main areas related to performance measurement and by examining the text and semantics of the most common ERP suppliers (Oracle, Peoplesoft, SAP R/3, JD Edwards), it assessed the ability of the ERP to provide information access in a comparative view for performance measurement need, the study concluded that the ERP suppliers primarily tend to offer standard ERP systems, whereas The Performance measurement needs specific solutions adapted to the company context and its industry. Our study differs from Bredmar's studying that we focus on SAP business one rather than SAP R/3, additionally while Bredmar's study focused on the standard features of the ERP independently of any company, our study focuses on a specific company and extends the research into how effective the company is using the software capabilities for the performance measurement.

4. Methodology

This study is descriptive since we do not influence any variables of the study, in order to measure the effectiveness of the ERP in the financial performance measurement and answer the problematic question we consider two variables that together build the variable of the ERP system, first is the Software Capabilities which means primary features of the Software, the Second is the Current Information system which means the real data and reports and modules that are in use by the managers of the company in the real current situation.

This way we divide the main question into two secondary questions:

- The First is how effective is the software in providing the tools for financial performance measurement and reporting?
- The Second is how effective is the current information system of the company in measuring and reporting financial Performance indicators?

In order to answer these questions, we have proceeded through the following steps:

- A. First, we have defined four categories for financial performance measurement which are:
Sales, profits, costs and asset use
- B. We have selected a set of indicators for each of the four categories that are relevant for the financial performance measurement as follows
- Sales: we have Sales, Orders and Quotes indicators
 - Profits: we have P&L Reports, Profits (ROI) and Cashflows
 - Costs: Material and Var Costs, indirect Costs
 - Asset Use: Asset Use Ratio
- C. Then we have examined the ability of the ERP system both the software and current information system to support the financial performance measurement process for each indicator. In the performance measurement process, we consider different Check-ins
For the Software Capabilities we check whether the software is designed to measure basic data for the indicators calculations and also the ability to display the indicators in adequate reports and graphs while for the Current Information system we check whether these software capabilities are used to save reliable data and use that data to produce key insights about the financial performance.
- D. For Each indicator we have given scores that vary from 0 to 100% which allows us to measure the overall effectiveness of the system by calculating the average score of the Category or the group of indicators.
- E. By measuring the average of all indicators, we could have an idea about the overall effectiveness of the system in measuring the financial performance.

The score of each indicator is calculated based on the interview with IT managers or accounting and finance managers and also by direct check in the SAP system as we have been given a full access to the different modules of the SAP ERP

4. Results and Discussion

4.1 Sales:

- **Software Capabilities:**

the SAP Business One Sales Modules is fully capable to hold the needed data to do analysis of sales, orders or quotes by segment or by product. And also, is able to project them in graphical reports or tables through the Sap Crystal Reports app (Niefert, 2009, p. 127).

Table 3 Sales Performance Measurement -Software Capabilities

SOFTWARE Capabilities	Sales DB		
ERP Maturity in Measuring Performance	Sales by Segment,pro	Quote by segment,	Quote by segment,
ERP designed to save basic data	100%	100%	100%
ERP can calculate indicators	100%	100%	100%
ERP Allows displaying graphical illustrations of indicators	100%	100%	100%
<i>ERP Software Capabilities - effectiveness Index</i>	100%	100%	100%

Source: made by the author, 2023

- **Current Information System:**

The SAP B1 system is used for managing the sales process so it contains all the data about the orders, quotes and sales however the Data is fully reliable only for bills.

For the Orders there exist in the system abandoned orders or orders that are not fully delivered. The same for Quotes the amount is exaggerated due to duplicates that happen when a customer ask different quotes for the same opportunity.

Table 4 Sales Performance Measurement ERP Current Use

Company ERP Current Use	Sales DB		
ERP Maturity in Measuring Performance	Sales by Segment,pro	Orders by segment,	Quote by segment,
ERP Contains real time basic data	100%	100%	100%
ERP Data is Reliable :Basic Data is checked and corrected	100%	0%	0%
ERP Calculates the Indicators	0%	0%	0%
ERP displays the Indicators	0%	0%	0%
<i>ERP Current Use - effectiveness Index</i>	<i>50%</i>	<i>25%</i>	<i>25%</i>

Source: made by the author,2023

4.2 Profits, Asset Use:

- **Software Capabilities**

The Financial Management Module saves all the accounting postings and is able to provide P&L Reports based on queries that SUM the 6 and 7 Class accounts.

For The Asset Use Ratios, the same module allows to access and report balance sheet accounts in order to calculate asset use ratios. Also, the production module saves information about the time the machines were used and can measure the plant capacity utilization.

Table 5 Profits and Asset Use - Software capabilities

SOFTWARE Capabilities	Profits - Financial Accounting DB			Asset Use
ERP Maturity in Measuring Performance	P&L reports	Profits (ROI, ROE...)	CashFlows	Asset Use
ERP designed to save basic data	100%	100%	100%	100%
ERP can calculate indicators	100%	100%	100%	100%
ERP Allows displaying graphical illustrations of indicators	100%	100%	100%	100%
<i>ERP Software Capabilities - effectiveness Index</i>	<i>100%</i>	<i>100%</i>	<i>100%</i>	<i>100%</i>

Source: made by the author,2023

- **Current Information System:**

Due to an error in inventory receipts and later attempts to regularization in accounts the P&L presents false numbers in the Cost of Material Sections and is unreliable to do further analysis on the margin or profit this situation makes it impossible to exploit the financial numbers of accounts in order to track the monthly performance.

In the other hand there is no established customized reports that present Profits or Cashflowsand that are linked to the SAP B1 database.

Table 6 Profits and Asset Use - Current ERP Use

Company ERP Current Use	Profits - Financial Accounting DB			Asset Use
ERP Maturity in Measuring Performance	P&L reports	Profits (ROI, ROE...)	CashFlows	Asset Use
ERP Contains real time basic data	100%	100%	100%	70%
ERP Data is Reliable :Basic Data is checked and corrected	0%	0%	0%	0%
ERP Calculates the Indicators	0%	0%	0%	0%
ERP displays the Indicators	0%	0%	0%	0%
<i>ERP Current Use - effectiveness Index</i>	25%	25%	25%	18%

Source: made by the author,2023

For The Asset Use, while the company has the asset values in accounting information system, yet the information about machines utilization times is not fully recorded in the system.

4.3 Costs:

- **Software Capabilities**

One of the Sub Modules of Financial Management is Cost Accounting which allows the cost calculation and can provide the needed information on Direct and indirect costs(SAP, Comptabilité Analytique).

Table 7 Cost Indicators - Software Capabilities

SOFTWARE Capabilities	Costs - Cost Accounting	
ERP Maturity in Measuring Performance	Material & Var Costs	Indirect Costs
ERP designed to save basic data	100%	100%
ERP can calculate indicators	100%	100%
ERP Allows displaying graphical illustrations of indicators	100%	100%
<i>ERP Software Capabilities - effectiveness Index</i>	100%	100%

Source: made by the author,2023

- **Current Information System:**

The Costing Sub Module capabilities are not used so there is no data about the detailed cost information however because of the existence of The BOM (bill of material) for each Product, the system can give the material cost of a particular product.

Table 8 Cost Indicators - Current ERP Use

Company ERP Current Use	Costs - Cost Accounting	
ERP Maturity in Measuring Performance	Material & Var Costs	Indirect Costs
ERP Contains real time basic data	70%	0%
ERP Data is Reliable :Basic Data is checked and corrected	0%	0%
ERP Calculates the Indicators	0%	0%
ERP displays the Indicators	0%	0%
<i>ERP Current Use - effectiveness Index</i>	18%	0%

Source: made by the author,2023

5. Conclusion

• Software Capabilities:

The SAP business one seems to be very effective software other than many standard reports that it offers the SQL queries and Sap Crystal Reports feature allows to create customized reports for the specific need of the company. Through examining its abilities to report different indicators we can say that it has the full potential to track financial performance.

Table 9 Overall ERP Effectiveness - Software capabilities

SOFTWARE Capabilities	Financial Performance Measurement Effectiveness				
ERP Maturity in Measuring Performance	Sales Indicators	Profits Indicators	Costs Indicators	Asset Use Indicators	Overall Effectiveness
ERP designed to save basic data	100%	100%	100%	100%	100%
ERP can calculate indicators	100%	100%	100%	100%	100%
ERP Allows displaying graphical illustrations of indicators	100%	100%	100%	100%	100%
ERP Software Capabilities - effectiveness Index	100%	100%	100%	100%	100%

Source: made by the author,2023

• Current Information System:

While the SAP Business one capabilities is satisfying in matter of financial performance reporting, the studied company use of these capabilities remains weak, in fact the ERP contains important Data for performance measurement (76%) yet it is not made reliable (8%) or used to report insightful indicators (0%).

Table 10 Overall Effectiveness - Current ERP Use

Company ERP Current Use	Financial Performance Measurement Effectiveness				
ERP Maturity in Measuring Performance	Sales Indicators	Profits Indicators	Costs Indicators	Asset Use Indicators	Overall Effectiveness
ERP Contains real time basic data	100%	100%	35%	70%	76%
ERP Data is Reliable :Basic Data is checked and corrected	33%	0%	0%	0%	8%
ERP Calculates the Indicators	0%	0%	0%	0%	0%
ERP displays the Indicators	0%	0%	0%	0%	0%
ERP Current Use - effectiveness Index	33%	25%	9%	18%	21%

Source: made by the author,2023

While The SAP Business one as a software offers different capabilities in order to implement financial performance reporting (Software Capabilities 100%) the company has not invested in producing indicators to measure financial performance (21%).

Table 11 - Overall ERP effectiveness in Performance Measurement

ERP Effectiveness in measuring financial performance	Sales Indicators	Profits Indicators	Costs Indicators	Asset Use Indicators	Overall Effectiveness
SOFTWARE Capabilities	100%	100%	100%	100%	100%
Company ERP Current Use	33%	25%	9%	18%	21%

Source: made by the author,2023

Due to the fact that the business performance of the company is almost invisible in the system, the company is taking too high risks and should take urgent actions in order to correct the situation, we suggest the following initiatives:

- A. recruiting an executive officer and management controller in order to setup controlling procedures and watch on reliability of the data in the system.
- B. check all the data in the system continuously and keep it reliable such as controlling the inventory receipts and unit prices in the system.
- C. Implement the cost accounting in the system to keep control over the margins of sales and over prices and discounts.
- D. Establish Operational and Strategic Performance Review meetings on a regular basis.
- E. Resolve the problems and restore the relationship with the software supplier.

For the scientific research we suggest further descriptive or comparative studies with other ERP systems also there is lack of information about the ERP market in Algeria, so it will be very beneficial to give an insight about the volume of the market and its segmentation by supplier or by region. That will help direct future researches on ERP.

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