

Cost Effective Implementation Of ErpNext Software In SMEs

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Abstract

Companies implement ERP systems to integrate the business processes of a company, and help organizations obtain a competitive advantage. Enterprise Resource Planning (ERP) is one of the solutions for the Small and Medium Enterprises (SMEs) in order to face the global challenges. ERP (Enterprise Resource Planning) is a way to integrate the data and processes of an organization into one single system. Its main goal is to integrate data and processes from all areas of the organization and unify it, to provide ease of access and an efficient work flow. ERP Systems usually accomplish this through one single database that employs multiple software modules. ERP NEXT is a software which has all the ERP modules and easy to use. ERPNext is an Open Source integrated Enterprise Resource Planning (ERP) software developed by Web Notes Technologies Pvt Ltd and is built on MySQL database system using a Python (software) based server-side framework.. Small and mid-sized firms can take the benefit of ERP NEXT software as it is free of cost for one user. This report provides detail information about ERPNext software.

.Keywords: SME, ERPNEXT, Bill of materials.

1.Introduction

Small business are not so different from large ones. They contain most of the complexities of a large business but with many more constraints. Small businesses have to communicate with customers, do accounts, pay taxes, do payroll, manage timelines, deliver quality, answer questions and keep everyone happy just like large businesses. Large businesses have the advantage of using advanced data systems to manage their process efficiently. Small businesses typically struggle to keep things organized. They are often using a mix of apps like spreadsheets, accounting software, web CRM etc to manage but not everyone is on the same page. ERPNext changes that. ERPNext helps small businesses get things done. ERPNext helps you to manage all your business

information in one application and use it to manage operations and take decisions based on data. Among other things, ERPNext will help you to:

1. Track all Invoices and Payments.
2. Know what quantity of what product is available in stock
3. Identify open customer queries.
4. Manage payroll.
5. Assign tasks and follow up on them.
6. Maintain a database of all your customers, suppliers and their contacts.
7. Prepare quotes.
8. Get reminders on maintenance schedules.
9. Publish your website.

ERPNext is a modern accounting plus everything system and has many benefits over both traditional accounting as well as ERP applications.

Benefits over traditional accounting software:

1. Do a lot more than just accounting! Manage inventory, billing, quotes, leads, payroll and much much more.
2. All data safe and in one place. Don't keep hunting for data when you need it across spreadsheets and different computers.
3. Everyone on the same page. All users get the same update data.
4. Stop repetitive work. Don't enter the same information from your word Processor to your accounting tool. It's all integrated.
5. Keep track. Get the entire history of a customer or a deal in one place.

2. Modules of ERP Next

ERPNext has a large number of built-in modules (or apps) to help you manage your business on one platform [7].

- Accounts
- Buying
- HR
- Manufacturing
- Sales
- Purchase
- Inventory



Fig. 1 Modules of ERPNext

2.1 Bill of Materials (BOM)

A bill of materials (BOM) is used to describe the parts list of components such as screw, bolt and nut that needed to complete a profitable product. BOMs are listed in hierarchical order with the top level representing the sub-assembly or end-item. The BOMs that describe the sub-assemblies are referred as a Modular BOMs. Modular Bill of Material (BOM) is a vital part that defines the product structure for an end-item. It also defines the parts, documents, component materials, and engineering drawings in order to complete a sub-assembly. Besides sub-assemblies, a BOM also can define products in the Engineering Bill of Material which called designed

product or in the Sales BOM as they are ordered, Manufacturing bill of material as they are built in the industry, and as they are maintained which is Service BOM. These different types of bills of materials are depending on the business need and use which they are intended to use that are available in the ERP system features.[8]

2.2 Purchasing

Purchasing is defined as a business or organization attempt to purchase goods or services in order to achieve the goals for the enterprise. Although there are several organizations attempt to set standards in the purchasing process, it will create greatly different between the Organizations.

2.3 Logistic

Logistics acts as a managing system that control the flow of goods, energy, information and other resources like products, services, and people, from the source of production to the marketplace in order to meet the requirements of consumers. Logistics management contribute to the supply chain system which plans, implements and controls the efficient, effective forward and reverse flow and storage of goods, services and related information between the point of origin and the point of Consumption.

2.4 Open Source

ERPNext is Open Source and you are free to peek into the source code, copy it, host it on your own, tweak it and submit your update back to the community. ERPNext is available under the GNU General Public License. This license means that all derivative works must also have the same license and must also be Open Source. There are some alternatives for ERP Next but ERP Next is the cheapest and contains more modules than any of them the alternatives for ERP Next are Open bravo, Open ERP , Apache of Biz, X tuple, Compiere and forks. Comparison of ERPNext with above software is shown in the following table

YES	NO	ADD ON
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Product	Accounting	Inventory	Sales	Mfg.	Open Source	Pricing (/user/month)
Quickbooks Online	Green	Red	Red	Red	Red	\$10
Zoho CRM	Orange	Red	Green	Red	Red	\$12
Freshbooks	Green	Red	Orange	Red	Red	\$15
Xero	Green	Red	Orange	Red	Red	\$30
Work etc	Orange	Red	Green	Red	Red	\$40
Sugar CRM	Orange	Red	Green	Red	Green	\$45
Open ERP	Green	Green	Green	Green	Green	\$50
Open Bravo	Green	Green	Green	Green	Green	\$50
Sales Force	Orange	Orange	Green	Red	Red	\$65
Bright Pearl	Green	Green	Green	Red	Red	\$100
Netsuite	Green	Green	Green	Green	Red	\$100
SAP By Design	Green	Green	Green	Green	Red	\$125
ERPNext	Green	Green	Green	Green	Green	\$5*

Fig 2 : Comparison of ERP Next with other ERP software

3.0 Implementation of ERP

3.1 Company profile

Valvfit Engineering handles diversified engineering activities like designing and supplying of machineries and process equipment manufacturing of RO and DM plants , Tanks , and about 300 types of valves. Company is Iso 9001-2000 certified company .

Need of ERP in Valvfit Engineers

- 1) communication with customors
- 2) Do accounts
- 3) Pay Taxes
- 4) Do Payroll
- 5) Manage Inventory

3.2 Manufacturing Item

I implemented ERP system on 15mm lift check valve. Description of the 15 mm lift check valve is given below.

15LCV800ST

15-Valve size in mm

LCV-Left Check Valve

800-Pressure STD

20BAR410

20-Size

410-Material STD

15PT800410

15-Size

PT-Piston.

3.3 Test phase

1. Read the Manual

2. Create your first Customer, Supplier and Item. Add a few more so you get familiar.

3. Create Customer Groups, Item Groups, Warehouses, Supplier Groups so that

you can classify your Items.

4. Complete a standard sales cycle - Lead > Opportunity > Quotation > Sales Order

> Delivery Note > Sales Invoice > Payment (Journal Voucher)

5. Complete a standard purchase cycle - Purchase Request > Purchase Order >

Purchase Receipt > Payment (Journal Voucher).

6. Complete a manufacturing cycle (if applicable) - BOM > Production Planning Tool

> Production Order > Stock Entry (issue) > Stock Entry (back-flush).

3.4 Live Phase

1. Clean up the account of test data.

2. Setup all the modules with Customer Groups, Item Groups, Warehouses, BOMs etc.

3. Import Customers, Suppliers, Items, Contacts and Addresses using Data Import Tool.

4. Import opening stock using Stock Reconciliation Tool.

5. Create opening accounting entries via Journal Voucher and create outstanding.

Test phase for 15mm Lift check valve

Manufacturer Item Supplier	Item name	Item code	Manufacturer of Item	QTY
① Progressive steel	Bar stock	208AK420	→ Piston (ISPTSD=410)	1
			→ Seat ring (ISFRSD=410)	1
② Gauthi Engineering	Forgings		→ For Body (ISBDS=410)	1
			→ Machined body (ISBDZMAMS=410)	1
			→ For Cover (ISSCR=410)	1
			→ Piston cover (ISCVRS=410)	1
			Buyer def. Item (Purchased Item)	
③ Vijay spring	→ Spring	ISSPRSD=304	QTY	1
④ KG Engg.	→ Bolt	ISB205 BLT 87	QTY	4
⑤ Handweld components	→ CAP	ISCAP	Parent Item	ISMP life check Valve
⑥ Divijay Gasket	→ Gasket	ISSA1316 9 R	Item code:-	ISLCVSD=STD

3.5 Manufacturing

The Manufacturing module in ERPNext helps you maintain multi-level Bill of Materials (BOMs) for your Items, help you in Product Costing, plan your production via Production Plan, create Production Orders for your manufacturing shop floor and plan your inventory by getting your material requirement via your BOMs (also called Material Requirements Planning MRP).

3.5.1 Production planning

There are three types of production planning tool

1. Make-to-Stock: In these systems, production is planned based on a forecast and then the Items are sold to distributors or customers. All fast moving consumer goods that are sold in retail shops like soaps, packaged water etc and electronics like phones etc are Made to Stock.
2. Make-to-Order: In these systems, manufacturing takes place after an firm order is placed by a Customer.
3. Engineer-to-Order: In this case each sale is a separate Project and has to be designed and engineered to the requirements of the Customer. Common examples of this are any custom business like furniture, machine tools, specialty devices, metal fabrication etc.

At the heart of the Manufacturing system is the Bill of Materials (BOM). The BOM is a list of all material (either bought or made) and operations that go into a finished product or sub-Item. In ERP Next, the component could have its own BOM hence forming a tree of Items with multiple levels. To make accurate Purchase Requests, you must always maintain your correct BOMs. To make a new BOM:

Manufacturing > Bill of Materials > New BOM

In the BOM form:

1. Select the Item for which you want to make the BOM.

2. Add the operations that you have to go through to make that particular Item in the “Operations” table. For each operation, you will be asked to enter a Workstation. You must create new Workstations as and when necessary.

3. Add the list of Items you require for each operation, with its quantity. This Item could be a purchased Item or a sub-assembly with its own BOM. If the row Item is a manufactured Item and has multiple BOMs, select the appropriate BOM.



Fig 3 : Window of BOM for bearing assembly

3.5.2 Production Planning Tool

Production Planning Tool helps you plan production and purchase of Items for a period (usually a week or a month). This list of Items can be generated from the open Sales Orders in the system and will generate:

1. Production Orders for each Item.
2. Purchase Requests for Items whose Projected Quantity is likely to fall below zero.

To use the Production Planning Tool, go to:

The Production Planning Tool is used in two stages:

1. Selection of Open Sales Orders for the period based on “Expected Delivery Date”.
2. Selection of Items from those Sales Orders.
3. Click on “Raise Production Orders” to

The tool will update if you have already created Production Orders for this Item against this Sales Order.

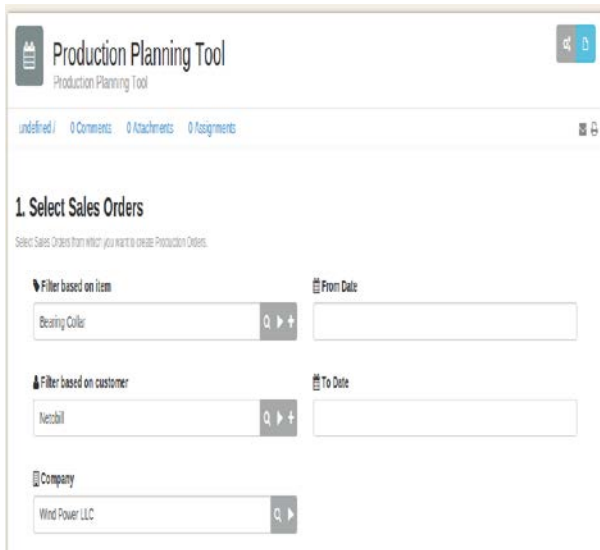


Fig 4 : Production planning tool window in ERP Next

3.5.3 Production Order

Production Order (also called as Work Order) is a document that is given to the manufacturing shop floor by the Production Planner as a signal to product a certain quantity of a certain Item. Production Order also helps to generate the material requirements (Stock Entry) for the Item to be produced from its Bill of Materials. The Production Order is generated directly from the Production Planning Tool based on Sales Orders. You can also create a direct Production Order by:

Manufacturing > Production Order > New Production Order.Sales

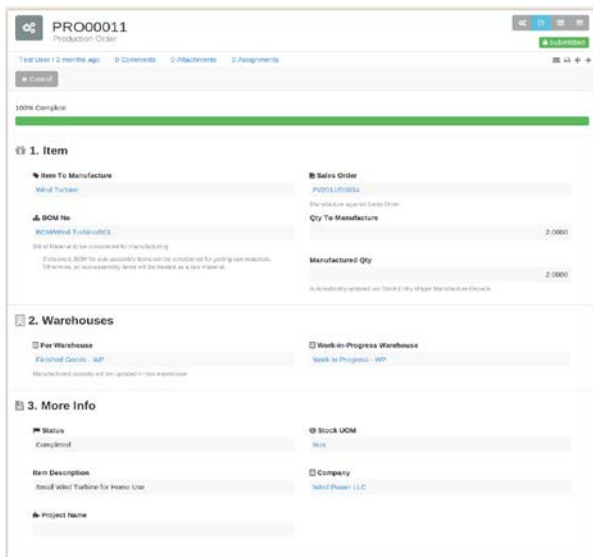


Fig 3.3 : Production planning window

4.0 Conclusion

A well-designed and properly integrated ERPNext system allows the most updated information to be shared among various business functions, thereby resulting in tremendous cost savings and increased efficiency and provide Competitive advantages. Lot of time is saved due to implementation of ERP Next. It increases time to value ratio. Due to its lower cost any small scale and midsize industries implement it also it is very easy to use anyone can use it.

Therefore ERP Next software is very beneficial for small and midsize scale industries.

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