OpenERP evaluation with SAP as reference

Learn by discovering where the challenger meets the leader.

A world in constant evolution

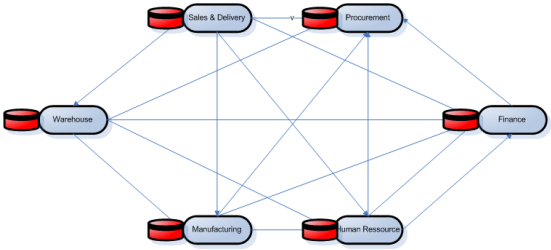
The first "industrial" application of the electricity appeared around 1880 when a steam generator has been connected to an alternator. The electricity produced was used to light the production lines and increase the production capacity and quality thanks to a better lighted work environment. Some 20 people worked on the electricity power environment in order to produce the company lighting. When the electricity transport began in the 1890s, the power production was localized in very restricted area. The world had to wait until 1920 to get an "industrial" electricity network. In 1955, in the U.K., the first nuclear power unit produced 9 MW of electricity a day. Nowadays, a nuclear power unit can produce more than 1500 MW a day. From the isolated steam generator to the 1500 MW power units, 130 years have gone by.

Computers were born around 1935 with the electromagnetism pieces (relays). The first computer, the IBM 601, was able to calculate some basic operations with a really limited computing power: 1 multiplication per second. 1500 units of this computer were produced for the accounting and scientific sectors. According to IBM, the first real computer was created in 1948. It appeared in companies in 1956 and in houses in 1984.

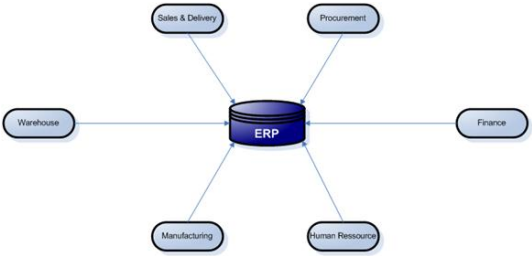
The first Enterprise Resource Planning (ERP)[3] concept was born in the early 1960s from a joint effort between a construction machinery manufacturer and IBM. This application software was used as a method for planning and scheduling materials for complex manufactured products. In 1972, five former employees of IBM have decided to create a new company called "Systems Applications and Products in data processing" in order to develop a new kind of ERP. In 1976, the company was renamed "SAP GmbH". The first R/1 version was launched in 1973. Six years later, SAP launched the R/2 release; and the R/3 release, in 1992.

3 See definition in annex

The vision of SAP was the centralisation of the information to remedy the IT decentralised architecture with many stand-alone applications per department with no integration between them, which meant a lot of non-synchronised master data.



1. Anarchical IT architecture



2. Centralised & Integrated architecture

SAP is going on evolving since 40 years now:

- they keep on developing a strong branding over the years that positions them as the leading management software for large size companies (more than 50% of the market);
- they maintain a global growth by expanding on different industries, that is the reason why today they have more than 25 vertical industry solutions[4], and that they try to win new markets with static and preconfigured solutions;
- they keep on expanding the scope of their solution via new developments, acquisitions[5] or stakes in specialised companies. These companies are either leaders on the software development side or consulting companies with in-depth competencies in a given industry sector.

Year	Acquisitions	Stakes	Divestitures
2011	2	1	1
2010	1	1	1
2009	3	0	1
2008	6	2	2
2007	5	0	0
2006	5	4	0
2005	5	0	1
2004	2	1	1
2003	2	0	0
2002	3	0	3
2001	4	2	1
2000	0	2	1
1999	3	4	1
1998	0	5	1
1997	0	1	0
1996	0	2	1
1995	0	0	0
1994	0	1	0
1993	0	2	1
1992	0	0	0
1991	0	0	0
1990	0	0	1
Total	**41**	**28**	**17**

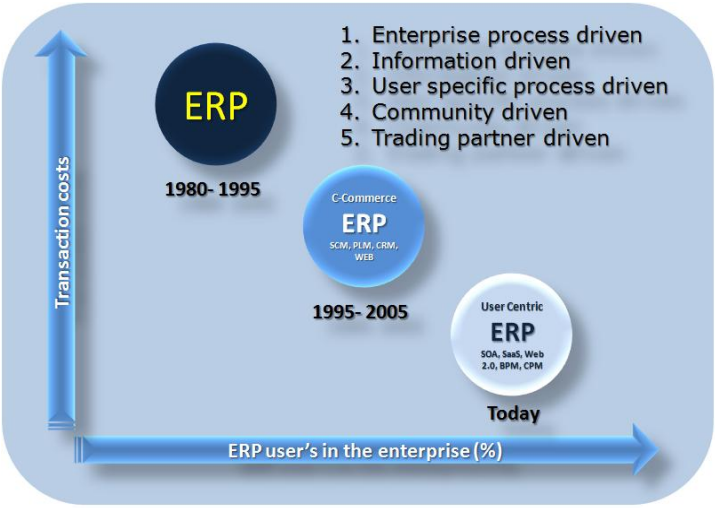
3. SAP Acquisition table

[4] see section "Part II: The client' s solution evaluation – Features Coverage - Verticals: Industry Solutions

[5] The latest well known acquisitions are:
- OutlookSoft, so as to replace the old SAP consolidation module;
- Sybase, so as to develop small local databases on smartphone platforms.

As SAP, the ERP foundation and market evolve.

If we look at the ERP foundation evolution, we can identify three major periods.



4 .ERP evolution

The first period represents the globalisation of the ERP, very expensive in comparaison with the total number of transactions and the small number of users. The second period takes into account the internet opportunities on a process driven approach with a constant increasing number of users. We are now in the third period, with a user centric approach supported by the current technologies such as SOA, Web 2.0, etc.

If we look at the ERP market evolution, the interest for large size companies to have their business supported by an information system has been for years a well known key success factor. But today, it is also a key success factor for the small and middle size companies. Like any large size company, they have to achieve the same main goals:

- being more profitable in conformity with legal regulations,
- keeping on developing their core processes in order to stay at the forefront,
- outsourcing parts of their business worldwide (production, sales, etc…),
- remaining at the leading edge of the latest technologies,
- dealing with different actors in a heterogeneous IT landscape,

- being productive and reactive in a constant evolving world in terms of economy, technology and geographical expansion,
- and last but not least, reaching the objectives fixed by the company's strategy

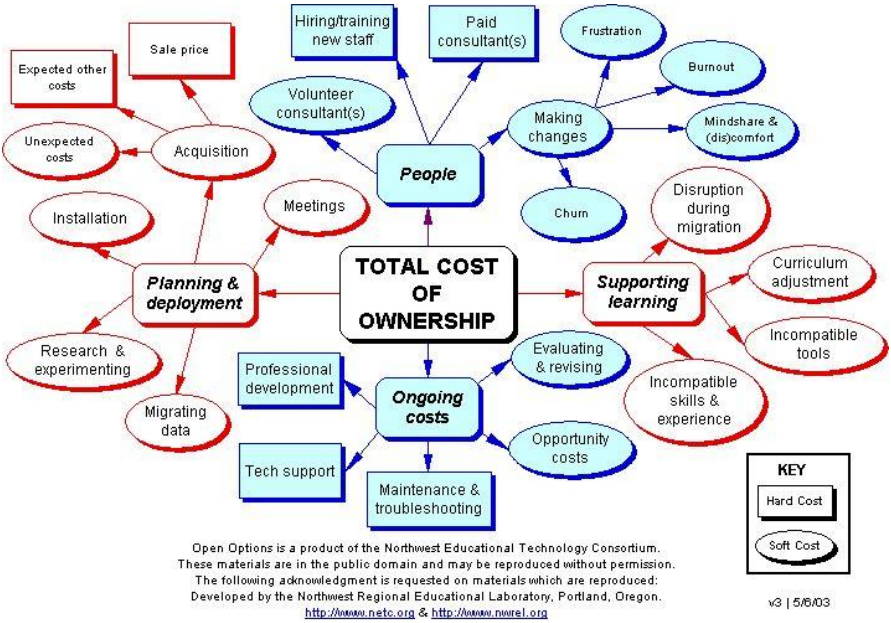
With the globalisation of the business, every company now needs to be supported by an agile and consolidated system offering fast and clear results at low cost.

In this evolving world, the open source software is an alternative to the proprietary software more adapted to specific entities of large size companies and to SMEs.

5. Total Cost of Ownership (TCO)

The "Total Cost of Ownership" [18], usually abbreviated as TCO, is a calculation designed to help people make more informed financial decisions. Rather than just looking at the purchase price of an object, TCO looks at the complete cost from purchase to disposal. It adds to the initial purchase price other costs expected to be incurred during the life of the product, such as service, repair, and insurance.

TCO is used heavily in the IT industry. When used in evaluating the purchase of a computer or system, usually includes purchase, repairs, maintenance, upgrades, service and support, networking, security, training, and software licensing. However, the costs included in a TCO evaluation can get complex as the concept map[19] displayed below.



28. Total Cost of Ownership Model

[18] **Total Cost of Ownership (TCO):** http://management.about.com/od/money/a/TCO.htm
[19] http://management.about.com/od/money/a/TCO.htm

Our ERP costing model[20], part of a complex TCO, includes the consulting and software vendor costs. The client's internal resources cost and the costs generated by the client's IT department are not considered here. We have assessed this model based on a case study which is a solution with standard processes (FI/CO - SD - MM - CRM) for a middle market company (500 to 999 users) with only 15% specific requirements. Over a 5 years period, we have planned one major software upgrade including data migration (for instance, SAP3.1 to 4.0, SAP 4.6 to ECC or OpenERP5.14 to 6.01. We have taken into account three main cost groups:

- **Implementations cost:**
  - **Project management**, with Project Support Office (PSO costs) and Project Management Office (PMO costs)
  - **Customisation**, regrouping the activities of analysis, configuration and development
  - **Change management**, regrouping training and coaching activities
- **Installation cost:**
  - **License**
  - **Hardware** (including the **Integration cost** of the system in the IT landscape of the company (OS installation, Firewall, Backup, ERP Installation)
- **Maintenance cost**, including upgrade and support costs

We also consider that strict project governance exists. The project scope is clearly defined and accepted by both the client and the consulting teams. A project manager is designated at the client side. This project manager is able to manage the client's team (key users, steering committee) and is acknowledged and empowered to take decisions.

20 Figures are presented in annex.

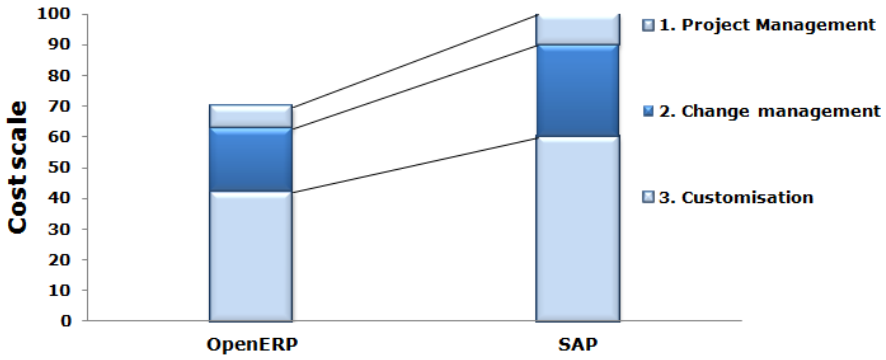
5.1.The implementation cost

In a SAP project, the **project management** cost represents 10% of the implementation cost. It is generally admitted that it can reach 25% when the project manager has no real decision power and that there is no project support officers (PSO) appointed. The **customization** cost represents around 60% of the implementation cost. And a global envelop of 30% is allocated for all the **change management** aspects, with 60% of this envelop allocated to training and the rest to coaching/reorganization.

The implementation cost of an OpenERP project is also composed of 10% for the **project management,** 60% for the **customization** and 30% for the **change management**. But compared to SAP, this implementation cost (same scope, same number of users) is reduced by 30% to 40% thanks to the customization. Indeed, OpenERP's architecture and technology allow to perform quicker and easier a number of activities such as:

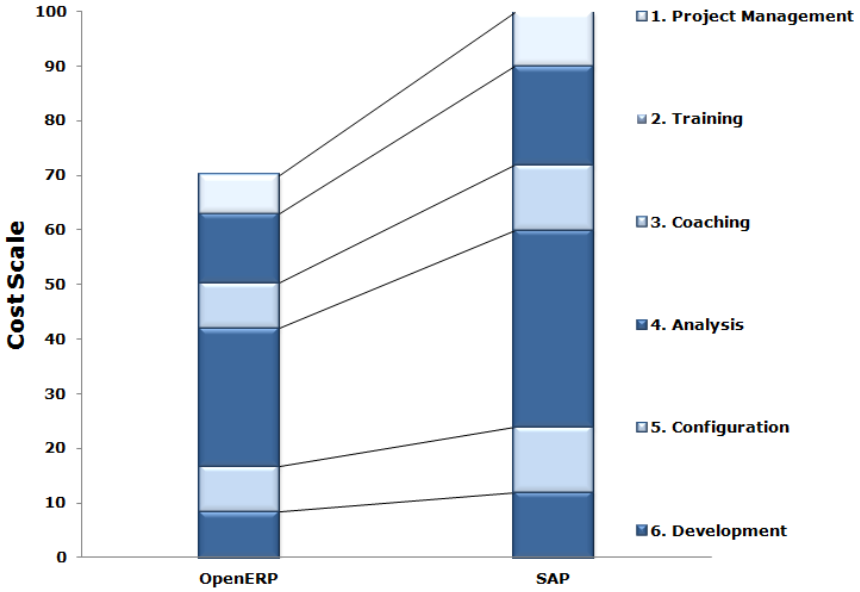
- creation of reports
- uploading batch files for data migration
- adding fields
- customizing screens
- definition of the interface
- implementation of authorizations
- configuration

For the costing model built below, a 30% reduction of the implementation cost will be considered as conservative approach. This percentage is based on our experience and feedbacks from OpenERP's partners.



29. Implementation cost by stream

Looking at the implementation cost in details, we observe that all sub-costs are reduced in the same way.

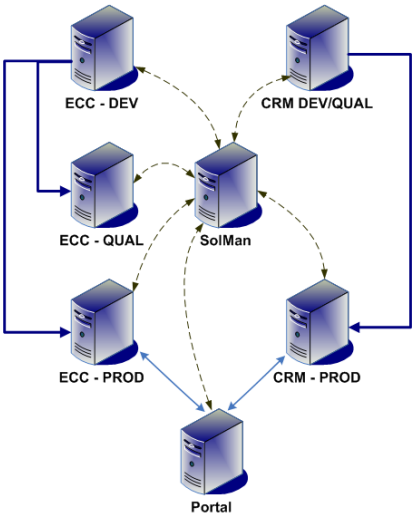


30. Direct Implementation Cost

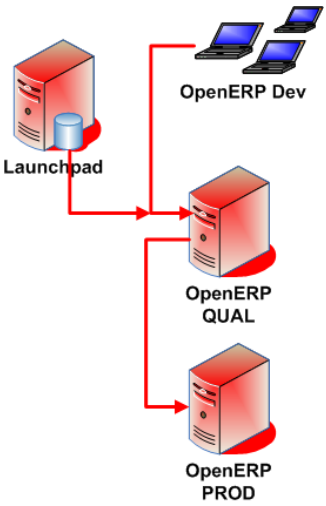
5.2.The installation cost

In a SAP project, it is usually considered that the global **license cost** represents 25% more than the implementation cost. In other words, the implementation costs 4 times more than the global license package. This is a usual ratio, not a rule. It is also admitted that the **hardware cost** represents around 10 % of the implementation cost. This cost takes into account not only the hardware aspect but also the **integration cost** with the IT landscape of the company, the backup tools and server configuration, the firewall, the documentation, the governance, the internal training and finally the SAP installation on the different servers.

In our case study, the SAP's IT landscape will look like this, using dedicated servers for CRM.



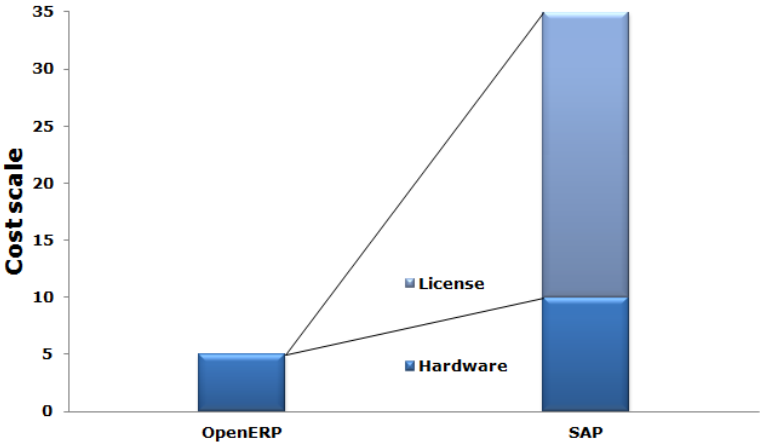
31. SAP Landscape



With OpenERP, the IT landscape will rather be different. It is drastically reduced thanks to its technical approach based on the middleware technology. For security and performance reasons, it is recommended to have two physical environments even though there is a real separation between the instances on a same machine. Notice that no dedicated servers are used for CRM because it is integrated into OpenERP.

The installation cost of OpenERP is cut down because there is **no license cost** and the **hardware** requirements are limited.

32. OpenERP Landscape

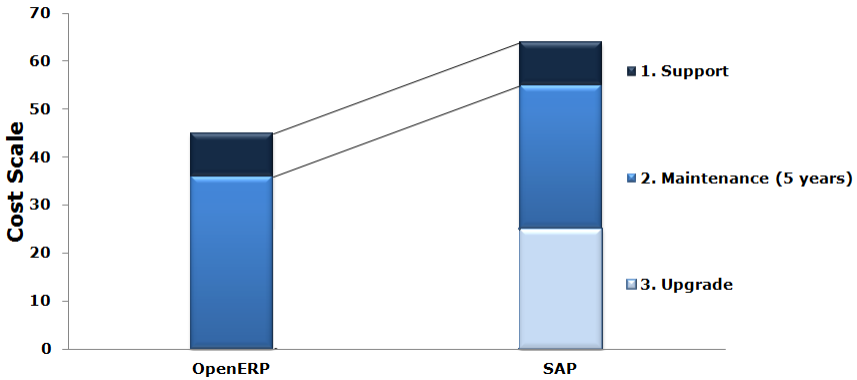


33. Installation cost

5.3.The maintenance cost

In a SAP project, the **maintenance cost** represents an annual budget allocated for a period of five years in order to maintain, support and upgrade the system. The official yearly SAP maintenance fees represent 24% of the global license cost. In other words, it represents 6% of the implementation cost. With its **maintenance contract**, SAP regularly delivers patches and bug fixes. But in case of a major release, as foreseen in our case study, the client needs to launch a new project with external consultancy services. This additional upgrade cost must be supported by the client. Pay attention to the notice published on the 13th of October 2011 where SAP announces that *"SAP users should plan for a migration of their NetWeaver-based applications to SAP's HANA Architecture within the next three to five years. At the same time, users must determine if there are opportunities to improve their Advanced Business Application Programming (ABAP) applications with the new infrastructure"*[21]. This reinforces the idea that the client must even plan an upgrade budget every 3 or 4 years.

OpenERP calculates its **maintenance cost** in another way. Up to 150 users, it is a fixed amount according to the number of users (from1..10, 10..25, 25..70, 70..150). Above 150 users, it is a negotiated price with the software vendor. The OpenERP's **maintenance contract** covers the patches, bug fixes and the upgrades (conversion/migration script) for the standard and certified modules. In our case study, as there are between 500 and 999 users, the software vendor estimates the annual maintenance fees to 10% of the estimated implementation cost.

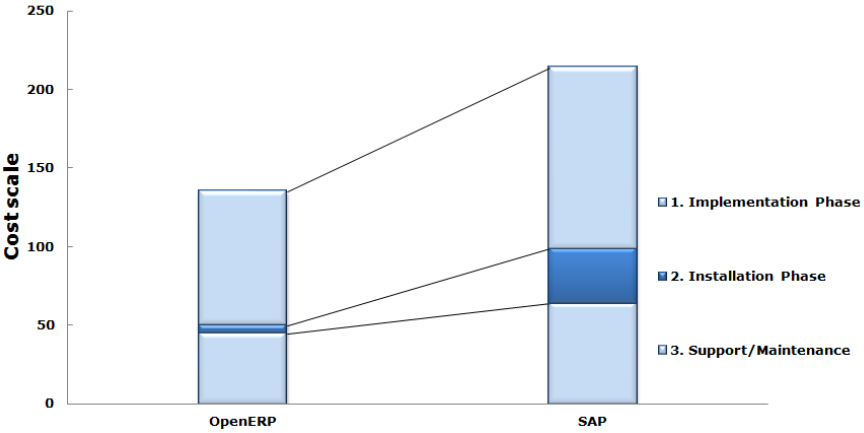


34. Cost Maintenance over 5 years

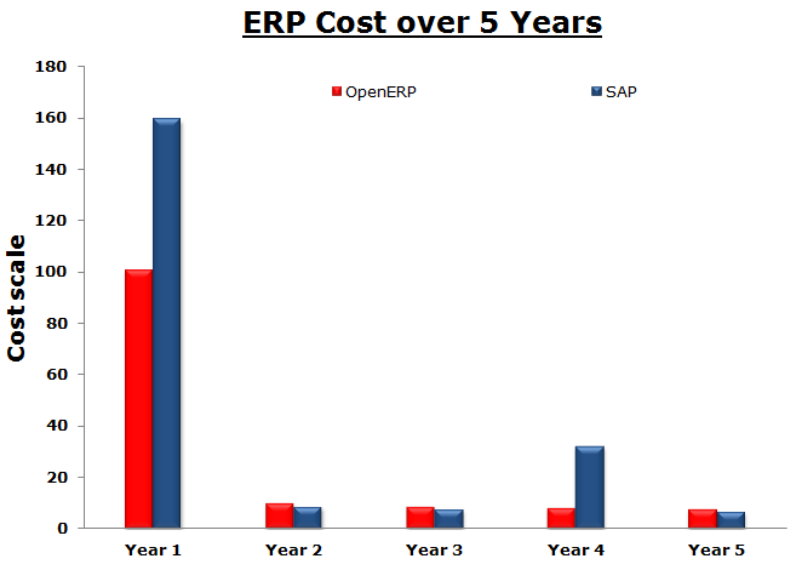
[21] SAP Throws Down the Next-Generation Architecture Gauntlet With HANA

5.4.The ERP costing model

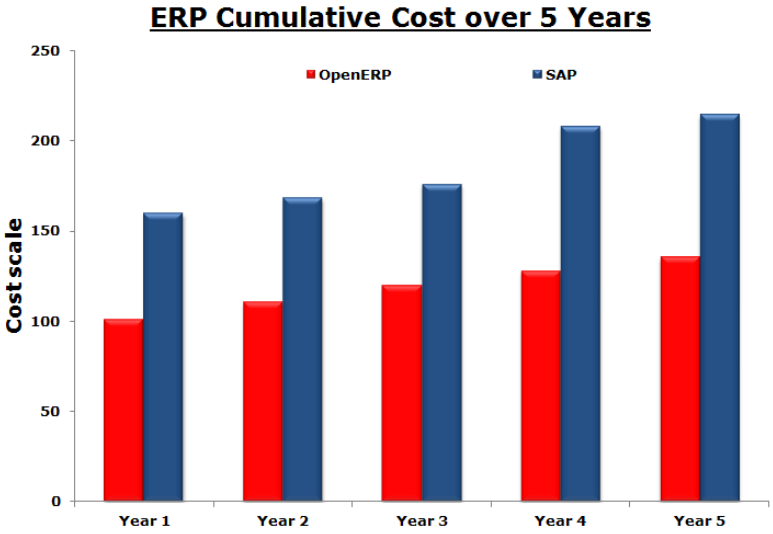
The model over a 5 years period shows that with a conservative approach, the implementation & utilization costs decrease from a coefficient of 214 for SAP to 135 for OpenERP. During the 1st implementation year, this coefficient goes from 160 for SAP to 100 for OpenERP. Concretely, for the same scope with standard functionalities (+15% specific requirements) and the same consulting scale rate, we can estimate that the ERP budget is reduced by around 40% during the first year as well as over the period of 5 years.



35. Cumulative costs over 5 years by solution



36. Annual costs over 5 years



37. Yearly cumulative costs over 5 years

The flow of work at each stage of the workflow must be monitored, measured and reported.

- **Improve Collaboratively** (using models & the scientific method)

  The Kanban method encourages small continuous, incremental and progressive changes. When teams have a shared understanding of theories about work, workflow, process and risk, they are more likely to be able to build a shared comprehension of a problem and to suggest improvement actions agreed by consensus.

7.3.3. A business scenario

Now let's compare productivity with a same **business scenario** running in both applications.

Note that for the OpenERP case, screenshots are based on the web interface.

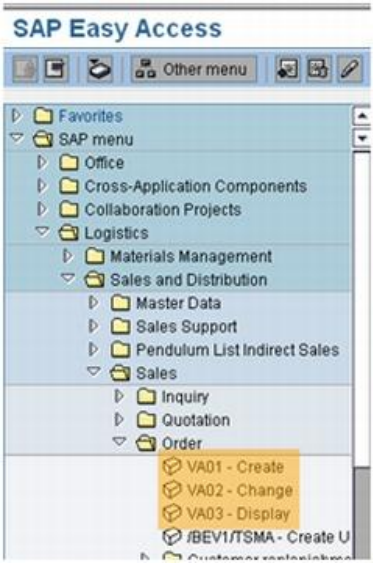
The business scenario[30] is the following:

A customer has placed an order with company ABC Computers Inc. for 10 computers to be delivered on the 10th of March. The customer typically pays with Net30, but this time for this order, he wants a Net 60 payment terms.

[30] This scenario has been found on SAPLab: http://saplab.org/2011/02/how-to-create-a-sales-order-in-sap-part-1/

Creating a sale order in SAP

Step No. 1: Use the Transaction Code [VA01] to create the Sales Order in SAP. Alternatively, you can use the menu path as shown in the picture below [Logistics -> *Sales and Distribution -> Sales -> Order -> Create*]

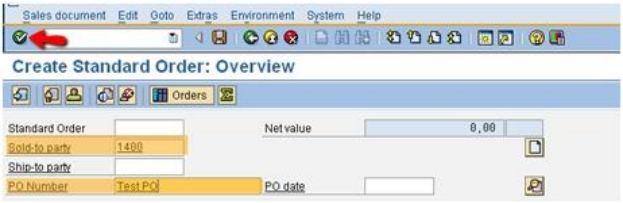


52. SAP Sales transaction code

53. SAP Sales document type selection

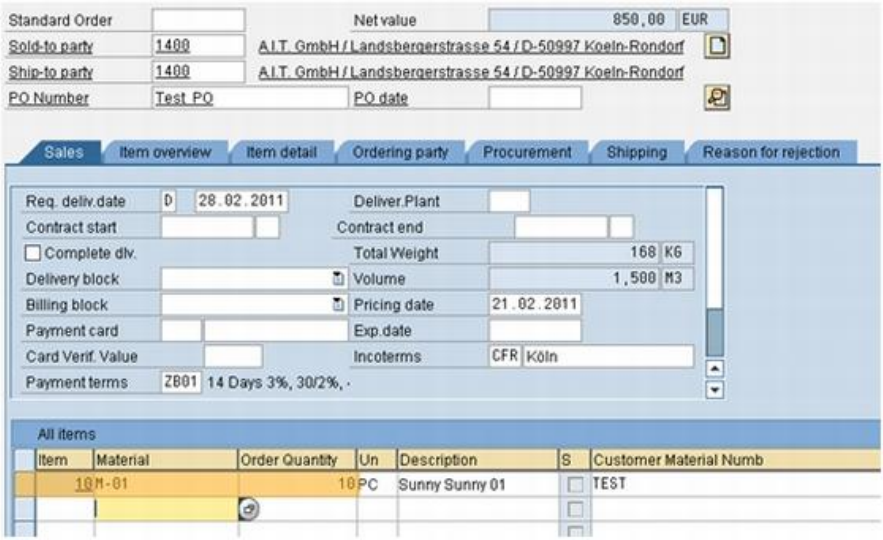
Step No. 2: Use the document type 'OR' in the field Order Type.

Select a Customer (let's say customer number: 1400) and enter some text in the Customer PO Number field and either hit the return key or the Green check mark button. This will ensure that SAP will validate the data you have entered.



54. SAP sold to party (customer) selection

Step No. 3: Enter a material number and quantity. We have chosen a material of M-01 (representing Computer product) and a quantity of 10 based on the scenario. As you can see, the corresponding material descriptions and other information are automatically pulled up by SAP.



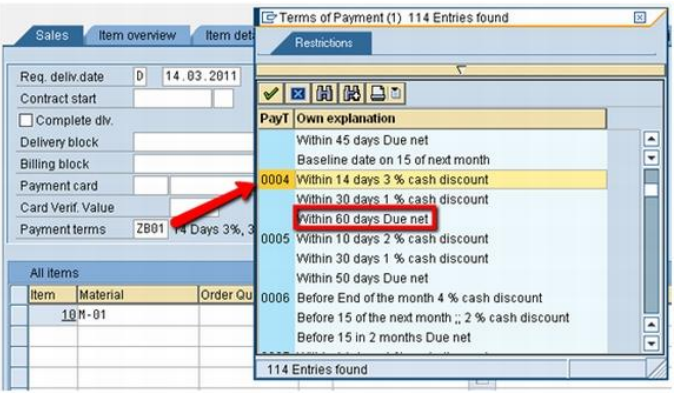
55. SAP sales item entry

Step No. 4: As you can see in the above picture, SAP automatically proposed a Requested Delivery date (28/02/2011). This data is retrieved from the lead time configuration in the Sales Order. However, since the customer has requested that the goods to be delivered on March 10th, let's change the requested delivery date.

Hint: Always change the Requested Delivery Date before you enter the line items.

56. SAP Sales requested delivery date entry

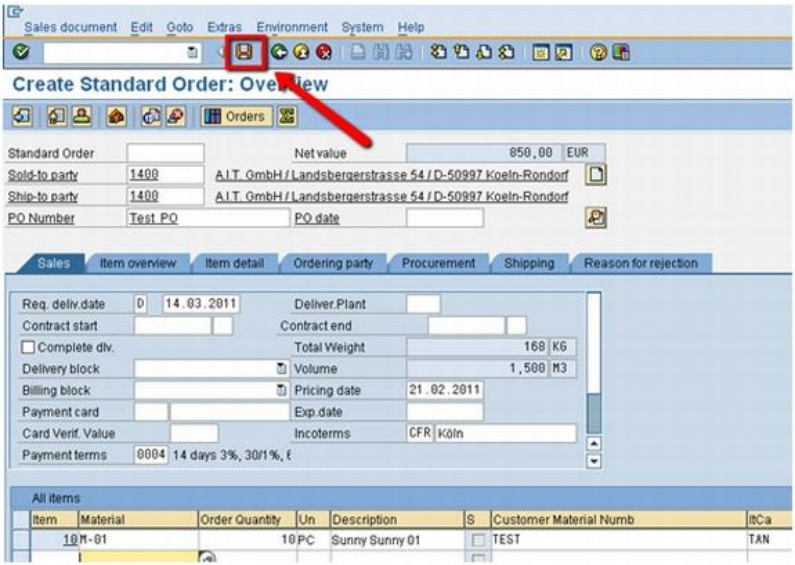
Step No. 5: Since the customer has requested a change in the Payment terms, let's select the right payment terms from the SAP Search Help.



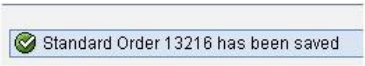
Since the customer has requested a payment terms of NET 60, we are selecting a payment terms of '0004' – Within 60 days due net.

57. SAP Sales terms of payment selection

Step No. 6: If you are done with creating the Sales Order in SAP, click the save button to finish the order. SAP will display the order number at the bottom.



58. SAP save the sales document



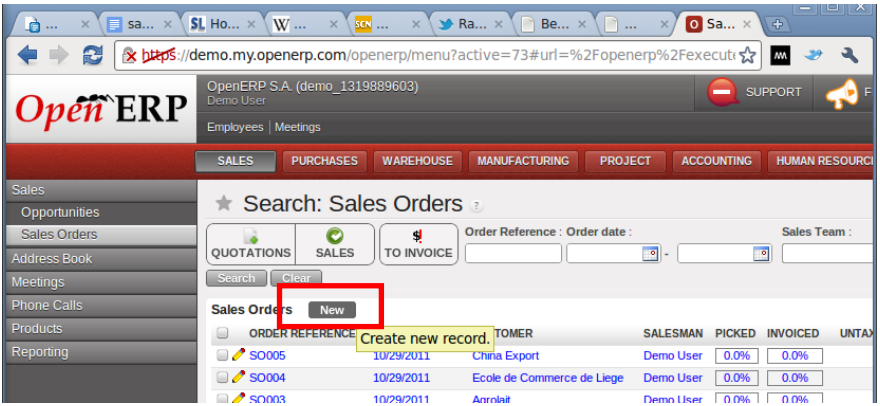
Creating a sale order in OpenERP

Step No. 1: Use the menu [Sales / Sales Orders] to view, edit and create the Sales Order in OpenERP.

Note that in OpenERP, the same menu and screen are used to create, view or modify documents.

59. OpenERP Menu

Step No. 2: From the list of sales orders, click on the [New] button to create a new sale.

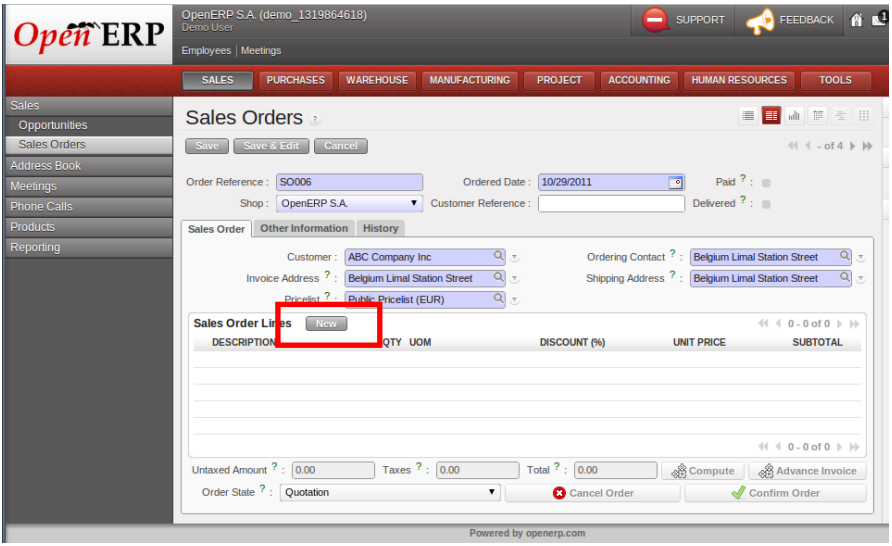


60. Creating a new sales order in OpenERP

Step No. 3: From the customer field, select your customer. You can write the name of the customer or his code. As you type in the name, OpenERP proposes you in real time the customers with similar names for a quick search (self completion functionality).

After selecting the customer, all the other fields are automatically pulled up by OpenERP: the delivery and invoicing addresses, the pricelist, the delivery methods, etc.

61.Selecting a customer in OpenERP

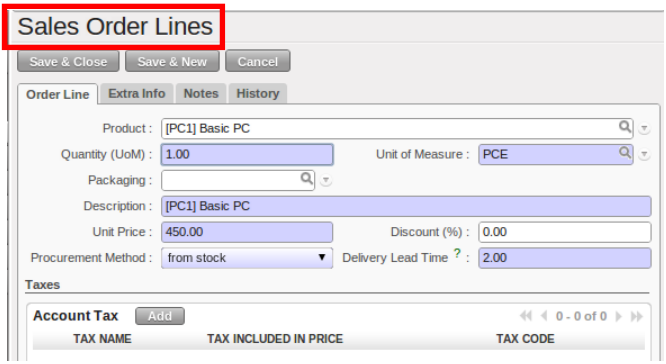


62. Creating a new sales order line in OpenERP

In order to facilitate the users' life, documents in OpenERP look like their paper version. So, the sale order form looks like a real sale order (header, sale order lines, and footer with price).

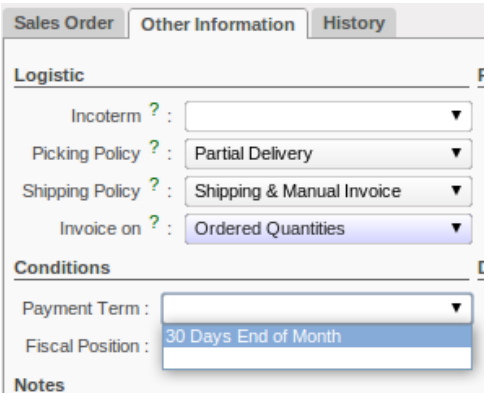
In order to achieve this, OpenERP only shows the limited number of fields usually used according to the module installed. Data of less importance are also put in other tabs.

Step No. 4: Click on the "New" icon on the right of the "Sale Order Lines" section to create a new line with a product and a quantity. Select your product in the same way you have selected your customer.



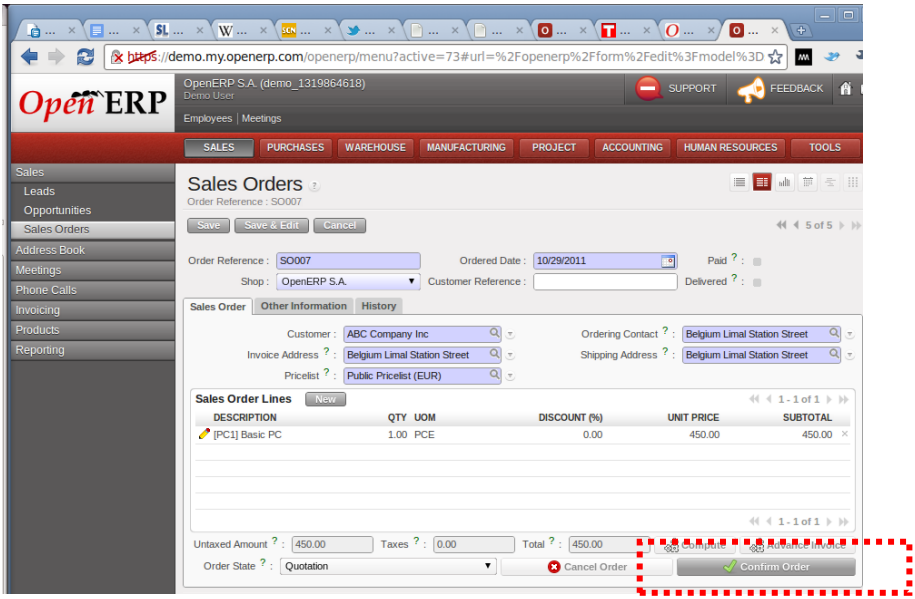
63. Selecting the material in OpenERP

Step No. 5: From the "Other Information" tab, you can change the default payment term of the customer and select the "30 Days End of Month" payment term.



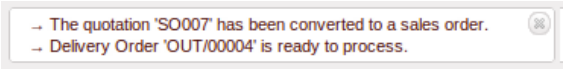
64. Selecting the term of payment in OpenERP

Step No. 6: Once you have created your Sale Order, you can save and confirm it by clicking on the "Confirm Order" button at the bottom right corner.



65. Confirming & Saving the sales order in OpenERP

OpenERP will display you the log of every document created and operation scheduled. You can click on any of the line to zoom to that document.



8. Conclusion

After having identified, scored and balanced the selection criteria of an ERP, we have gathered them together in order to make it possible to visualize through the "Blue Ocean Wave" diagram the strengths and weaknesses of the two solutions in relation to client's expectations (which are 100%).