LISBON
SCHOOL OF
ECONOMICS &
MANAGEMENT
UNIVERSIDADE DE LISBOA

ERP
Enterprise Resource Planning

Carlos J. Costa

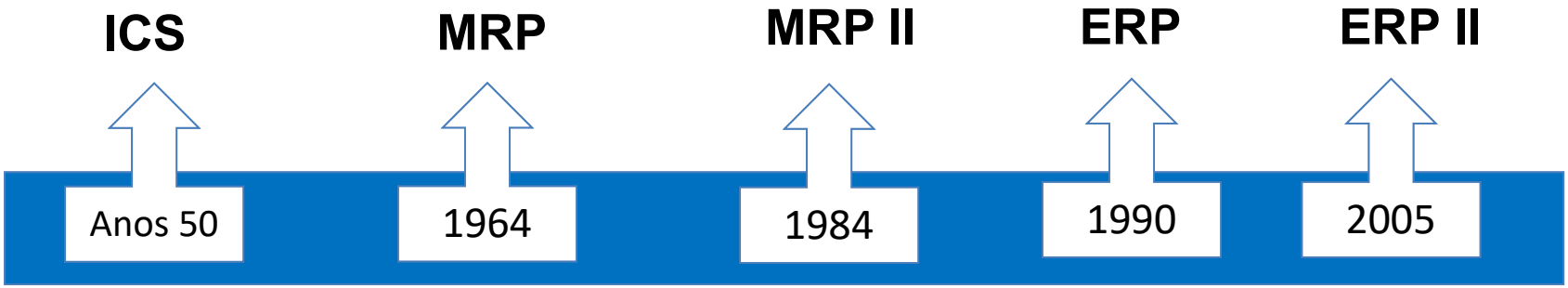
(versão 2020)

Agenda

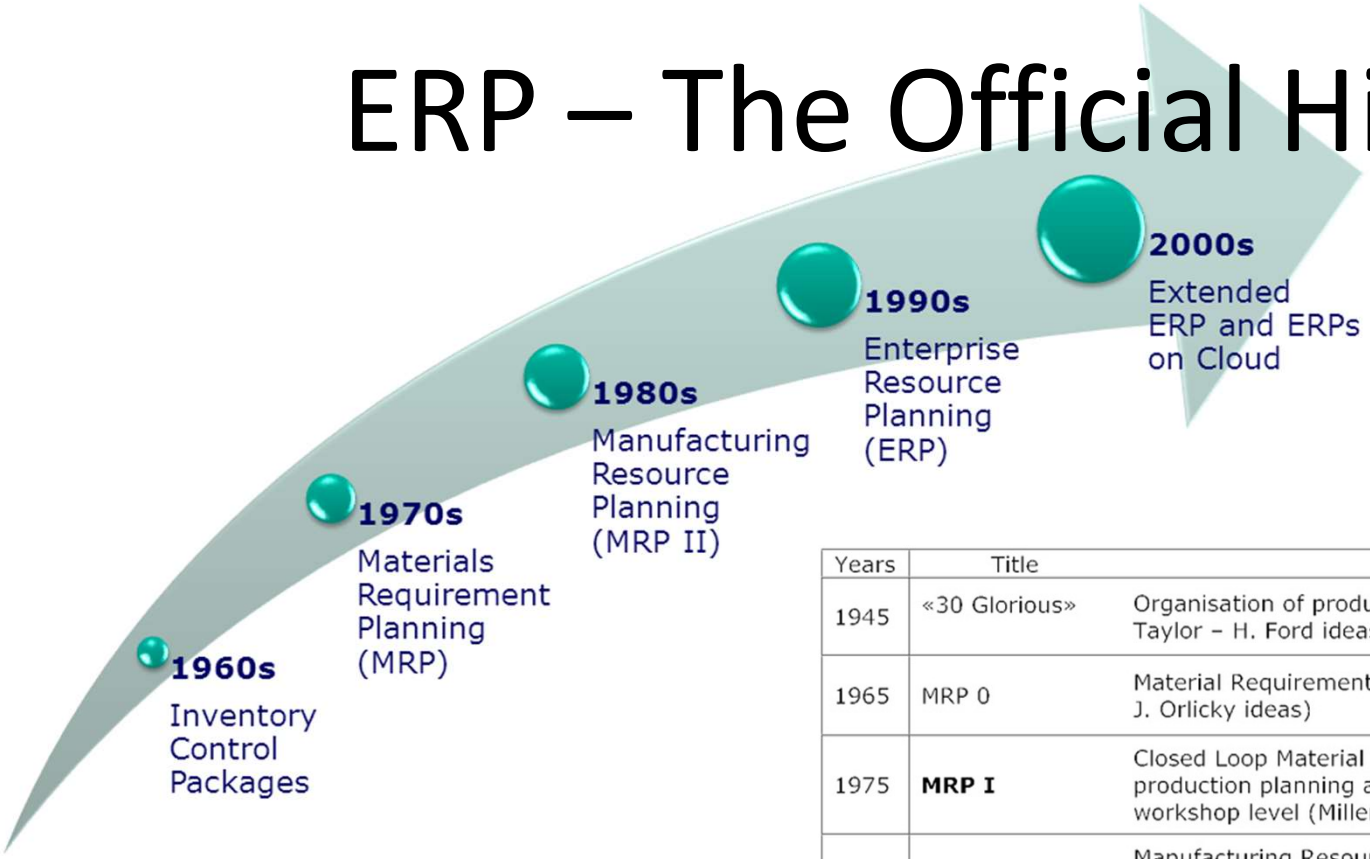
- ERP- The official history
- ERP concept
- ERP- Integrated System
- Advantages to management
- ERP Architecture
- Market
- Open Source
- Law and Tax Issues

ERP – The Official History

- ICS- Inventory Control Systems
- MRP – Material Requirement Planning
- MRP II – Manufacturing Resource Planning
- ERP – Enterprise Resource Planning
- ERP II- Enterprise Resource Planning II



ERP – The Official History



Years	Title	Main features
1945	«30 Glorious»	Organisation of production principles (based on F.W. Taylor – H. Ford ideas)
1965	MRP 0	Material Requirements Planning (based on O. Wight – J. Orlicky ideas)
1975	**MRP I**	Closed Loop Material Requirement Planning, setting of production planning and its execution control on workshop level (Miller-Spregue)
1980	**MRP II**	Manufacturing Resource Planning based on data from suppliers and customers. Forecasting, planning and production controlling.
1985	MRP II+	Implementing of JIT (Just in Time) concept, weak spot optimisation
1990	**ERP**	Enterprise Resource Planning, Materials Planning, Order Entry, Distribution, General Ledger, Accounting, Shop Floor Control
1996	Extend ERP	Scheduling, Forecasting, Capacity Planning, e-Commerce, Warehousing, Logistics
2001	ERP II	Project Management, Knowledge Management, Workflow Management, Customer Relationship Management, Human Resource Management, Portal Capability, Integrated Financials

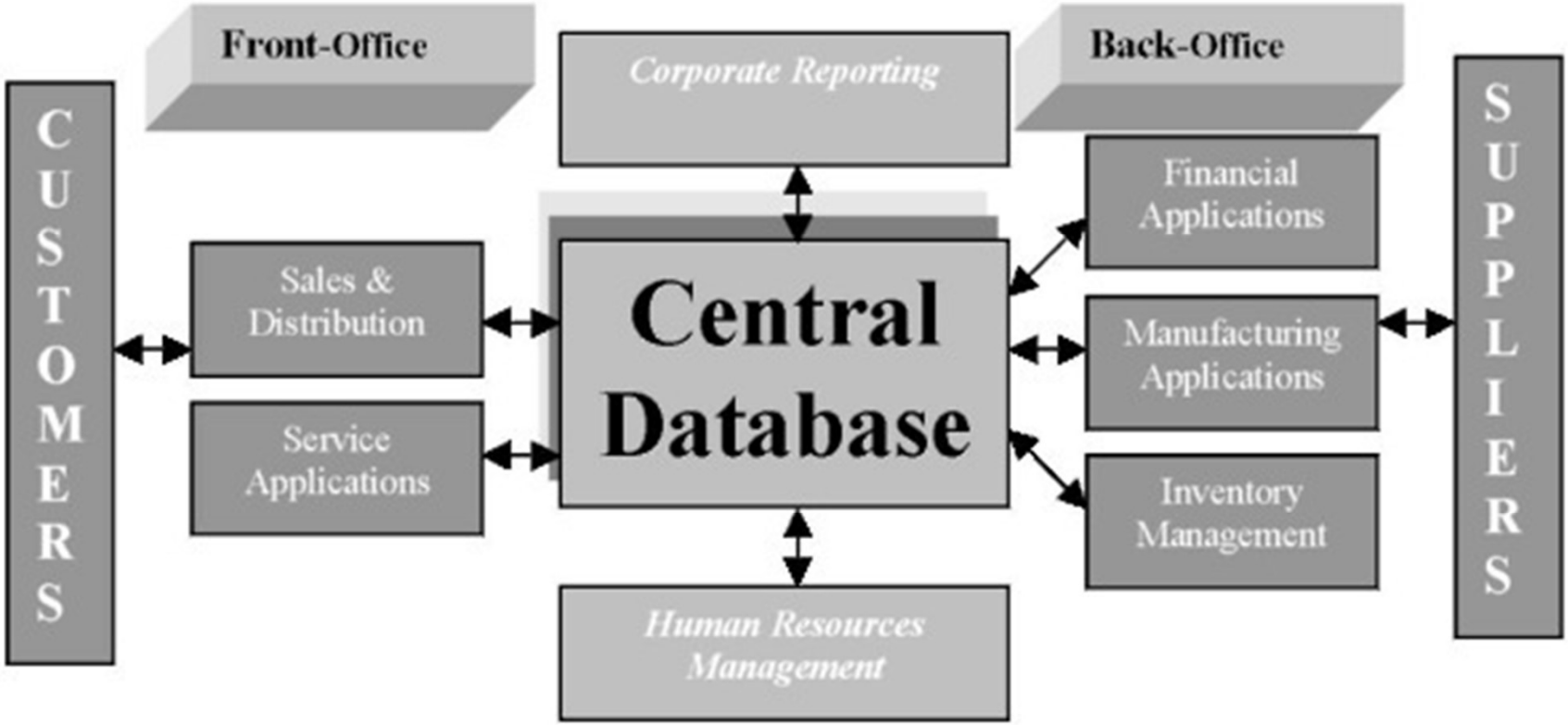
Concept

- *Enterprise Resource Planning*
- Set of very integrated programs
- Information is introduced just once in the system
- Allows integration of information and processes supported in information
- Is supported in DBMS
- Customizable

Concept

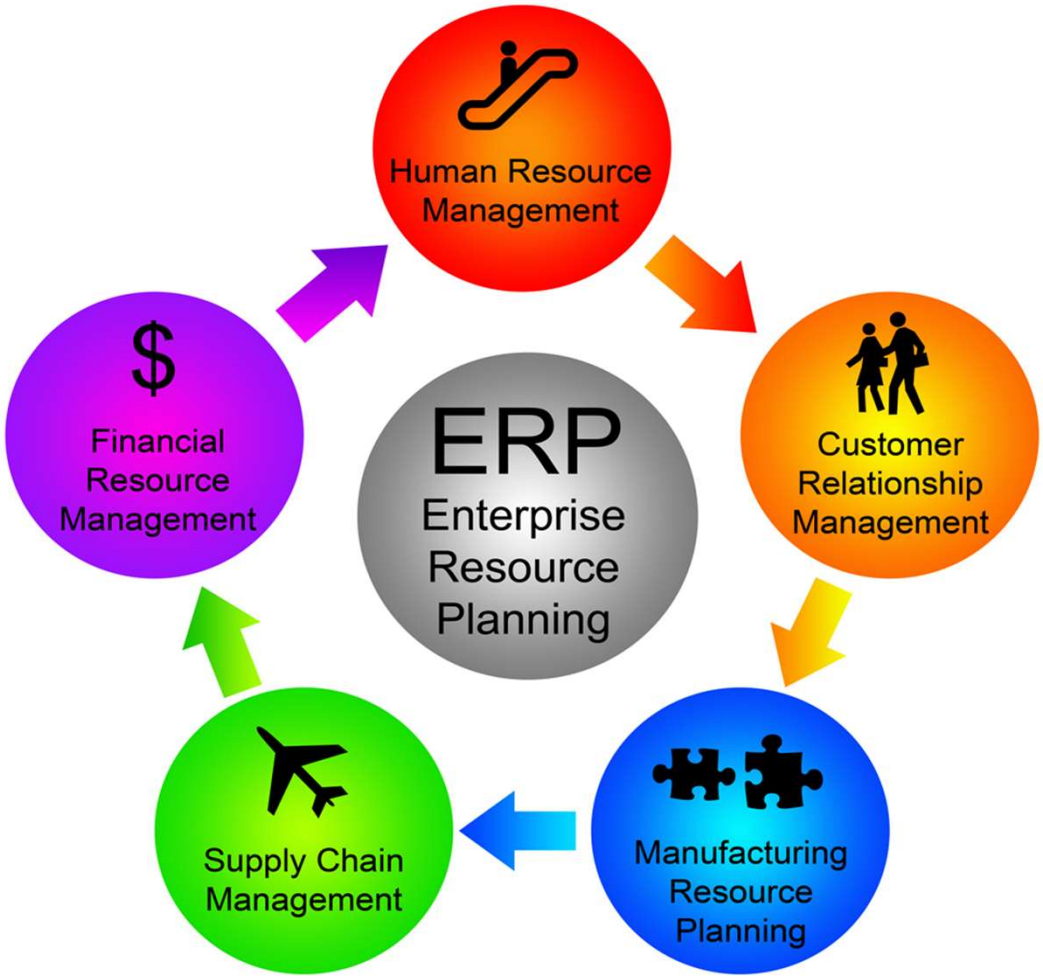
- Davenport (1988), presented the architecture of a ERP.
- In the center it is database with data from all the modules.
- Each module supports a functional area (Davenport, 1998).

ERP Architecture



(Davenport, 1998)

ERP as Integrated System



ERP II

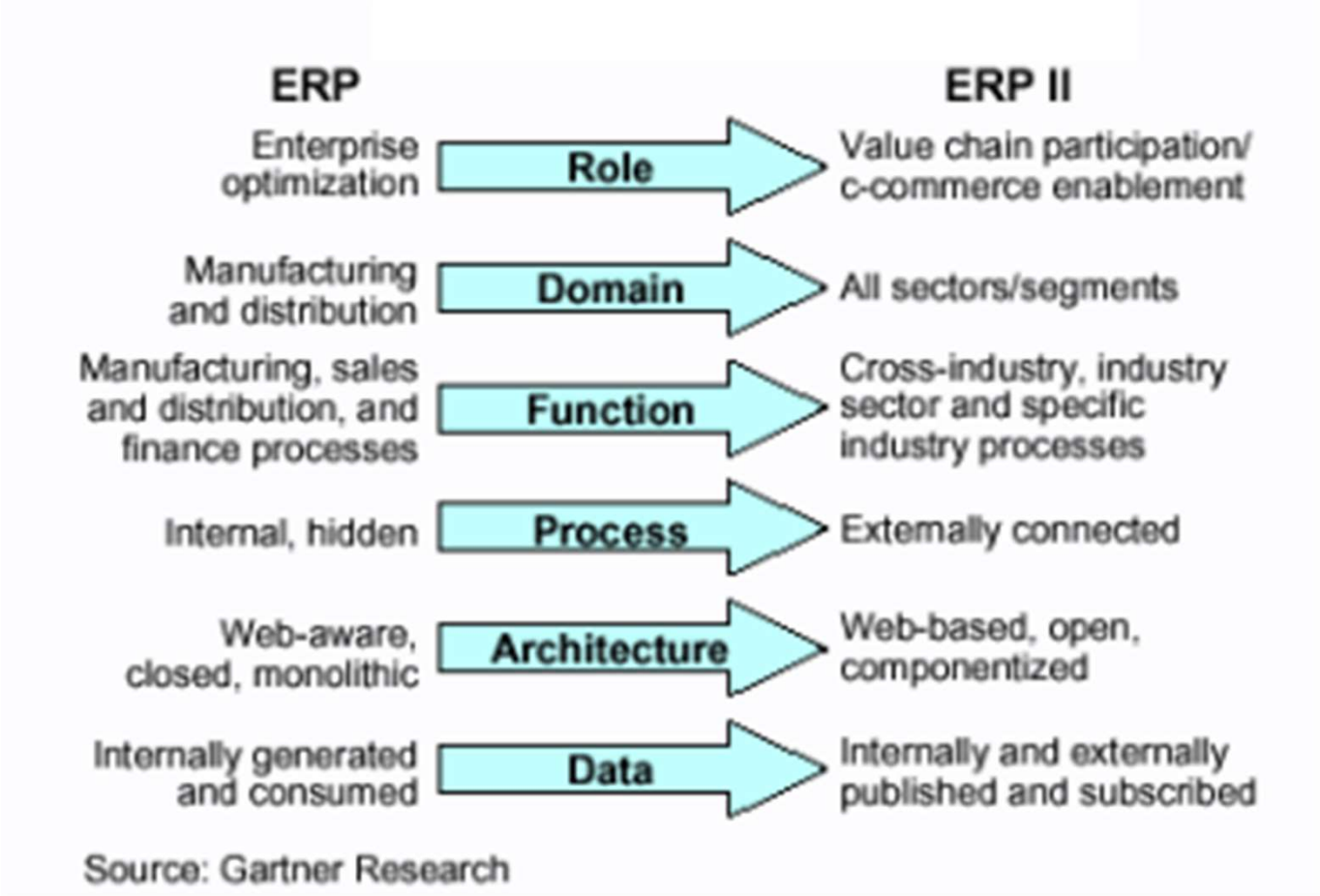
- ERP II is a transformation of ERP into a new generation of entreprise systems.

(Møller, 2005)

- Collaborative tools, (e.g. social networks) available in Web 2.0, have the potentiality to improve business processes and should be consideres in the ERP II.

(Grabot, Mayere, Lauroua, & Houe, 2014)

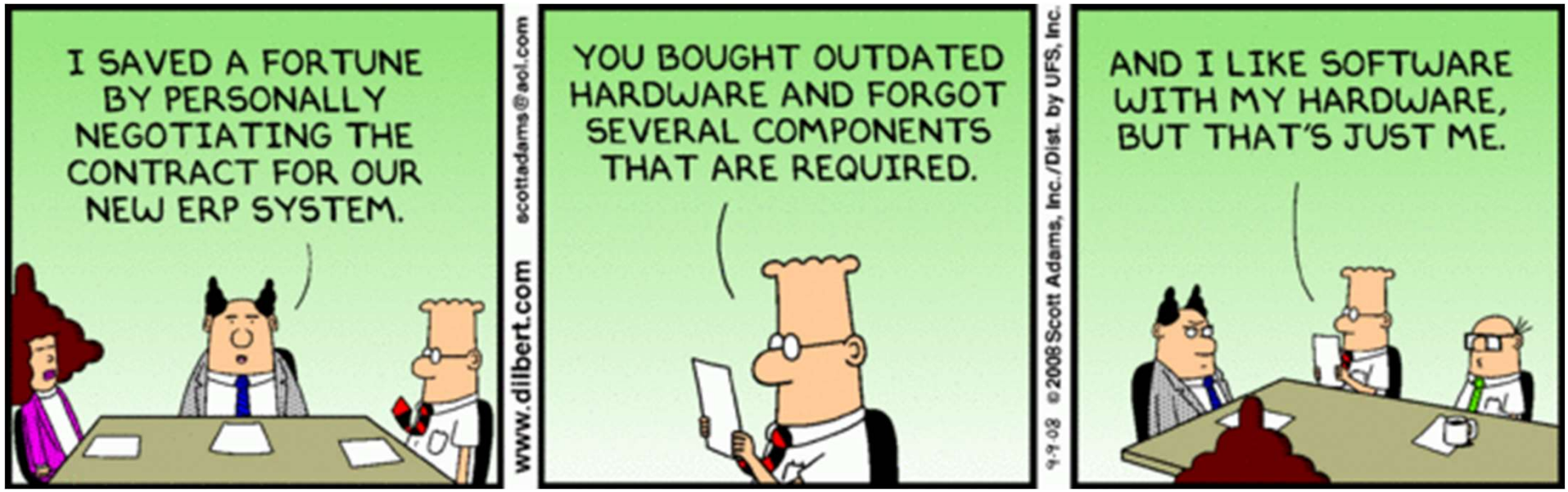
ERP II


ERP
ERP II
Enterprise optimization
Role
Value chain participation/ c-commerce enablement
Manufacturing and distribution
Domain
All sectors/segments
Manufacturing, sales and distribution, and finance processes
Function
Cross-industry, industry sector and specific industry processes
Internal, hidden
Process
Externally connected
Web-aware, closed, monolithic
Architecture
Web-based, open, componentized
Internally generated and consumed
Data
Internally and externally published and subscribed
Source: Gartner Research

Advantages of ERP

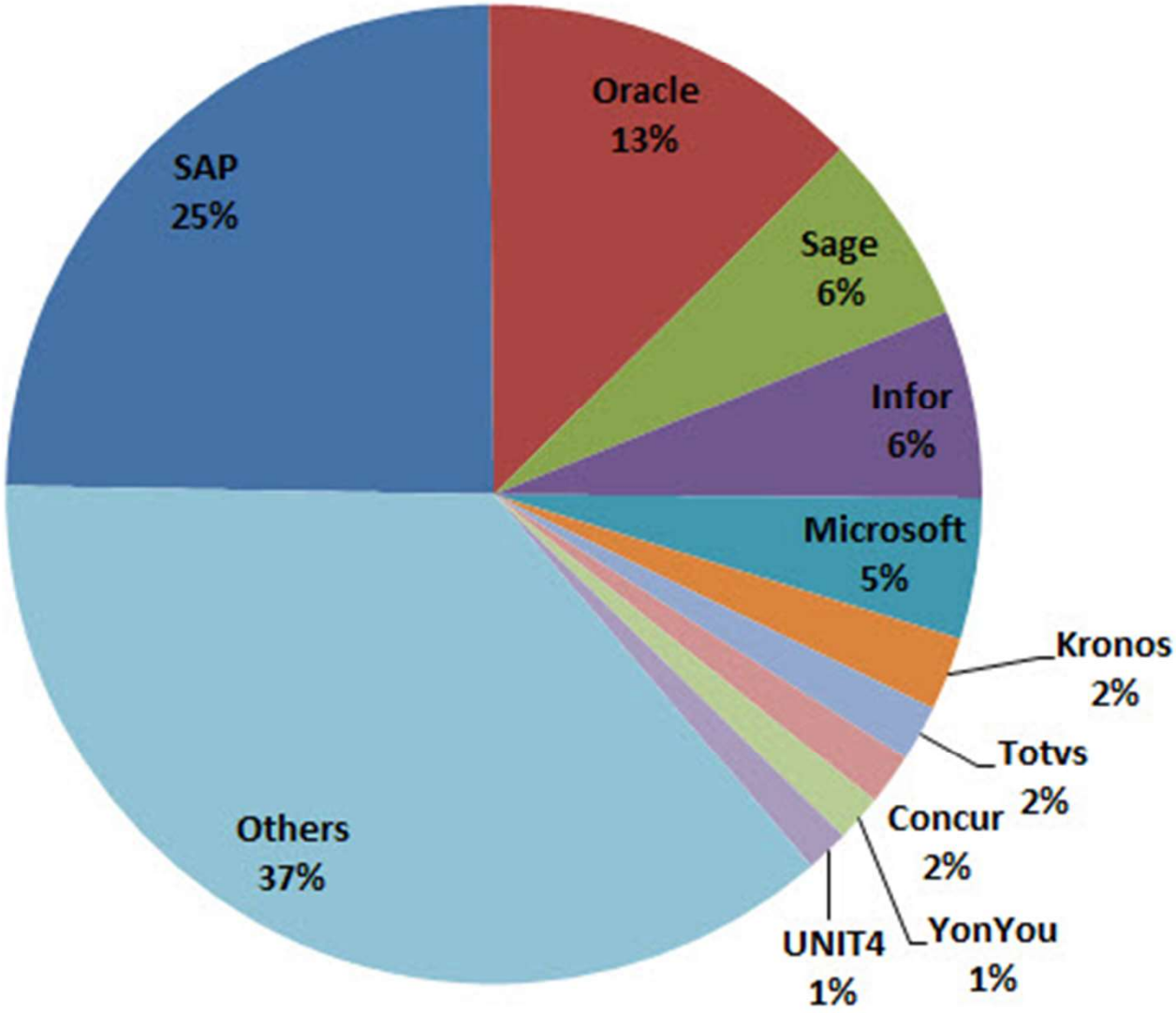
- Support business growth
- Change Legacy systems
- Improve business processes
- Reduce maintainance
- Reduce administrative Costs
- Prevent input of redundact data
- Decrease stoks maintance costs
- Decrease data entrance errors
- Multi currency systems are possible
- Decrease system operation costs
- Prevent delays and error in client orders
- Integrate applications
- Standardize processes

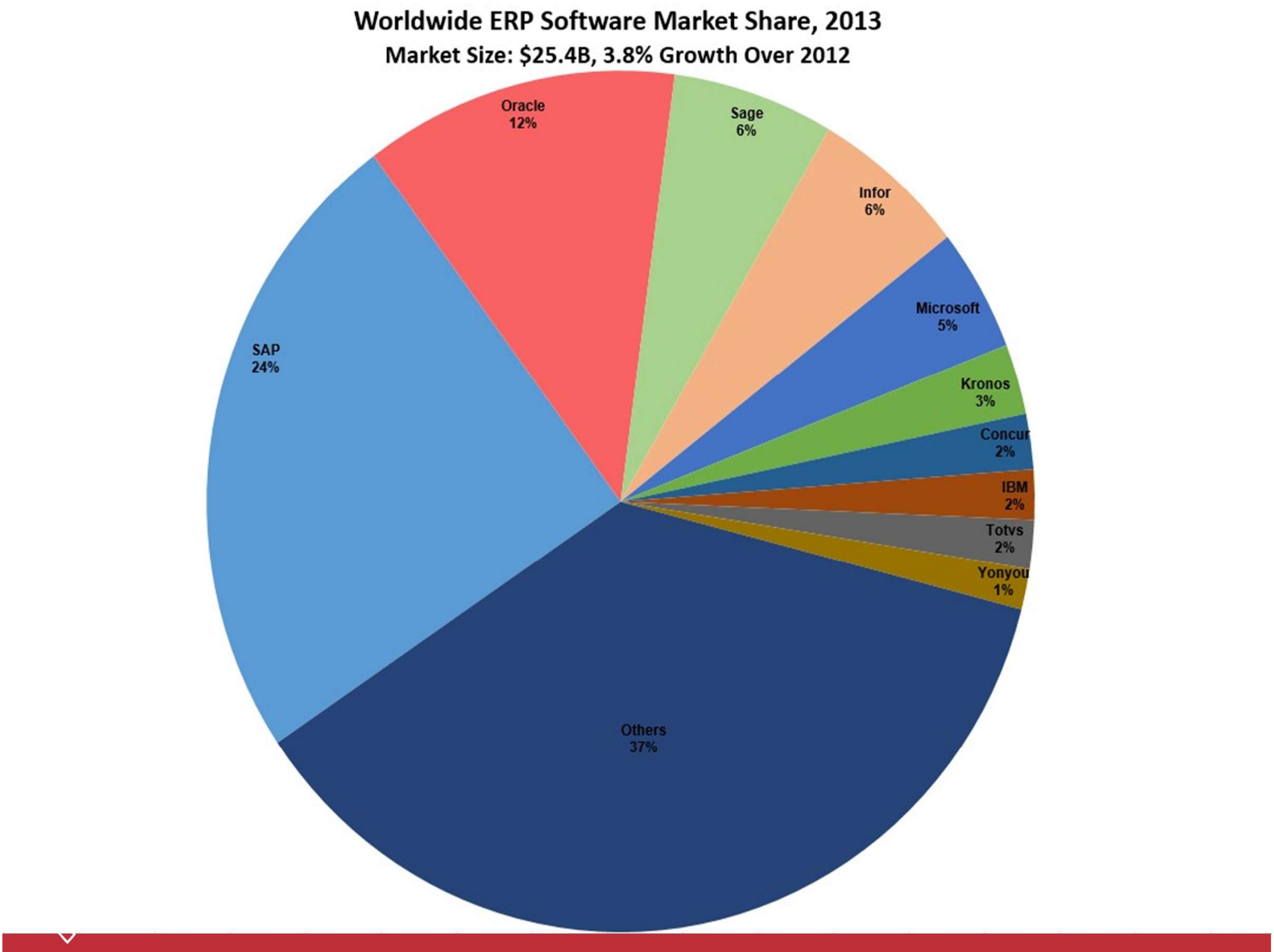
WE INADVERTENTLY BOUGHT AN ENTIRE ERP SYSTEM WITHOUT ANY SOFTWARE. NOW WE'RE OUT OF MONEY.
www.dilbert.com scottadams@aol.com
WHY DO I SUDDENLY FEEL AS IF MY BOAT IS SINKING AND SOME-ONE NAILED AN ANCHOR TO MY HEAD?
©2008 Scott Adams, Inc./Dist. by UFS, Inc.
IF ONLY SOMEONE ON MY STAFF COULD WRITE THE SOFTWARE IN HIS SPARE TIME. . .
GLUB GLUB GLUB


I SAVED A FORTUNE BY PERSONALLY NEGOTIATING THE CONTRACT FOR OUR NEW ERP SYSTEM.
YOU BOUGHT OUTDATED HARDWARE AND FORGOT SEVERAL COMPONENTS THAT ARE REQUIRED.
AND I LIKE SOFTWARE WITH MY HARDWARE, BUT THAT'S JUST ME.
www.dilbert.com scottadams@aol.com
9-9-08 ©2008 Scott Adams, Inc./Dist. by UFS, Inc.

Worldwide ERP Software Market Share, 2012

Market Size: $24.5B; 2.2% Growth Over 2011




Worldwide ERP Software Market Share, 2013
Market Size: $25.4B, 3.8% Growth Over 2012
Oracle 12%
Sage 6%
Infor 6%
Microsoft 5%
Kronos 3%
Concur 2%
IBM 2%
Totvs 2%
Yonyou 1%
Others 37%
SAP 24%

Firms

SAP

ORACLE®

sage

infor

Microsoft Dynamics

KRONOS
Workforce Innovation
That Works™

TOTVS

CONCUR

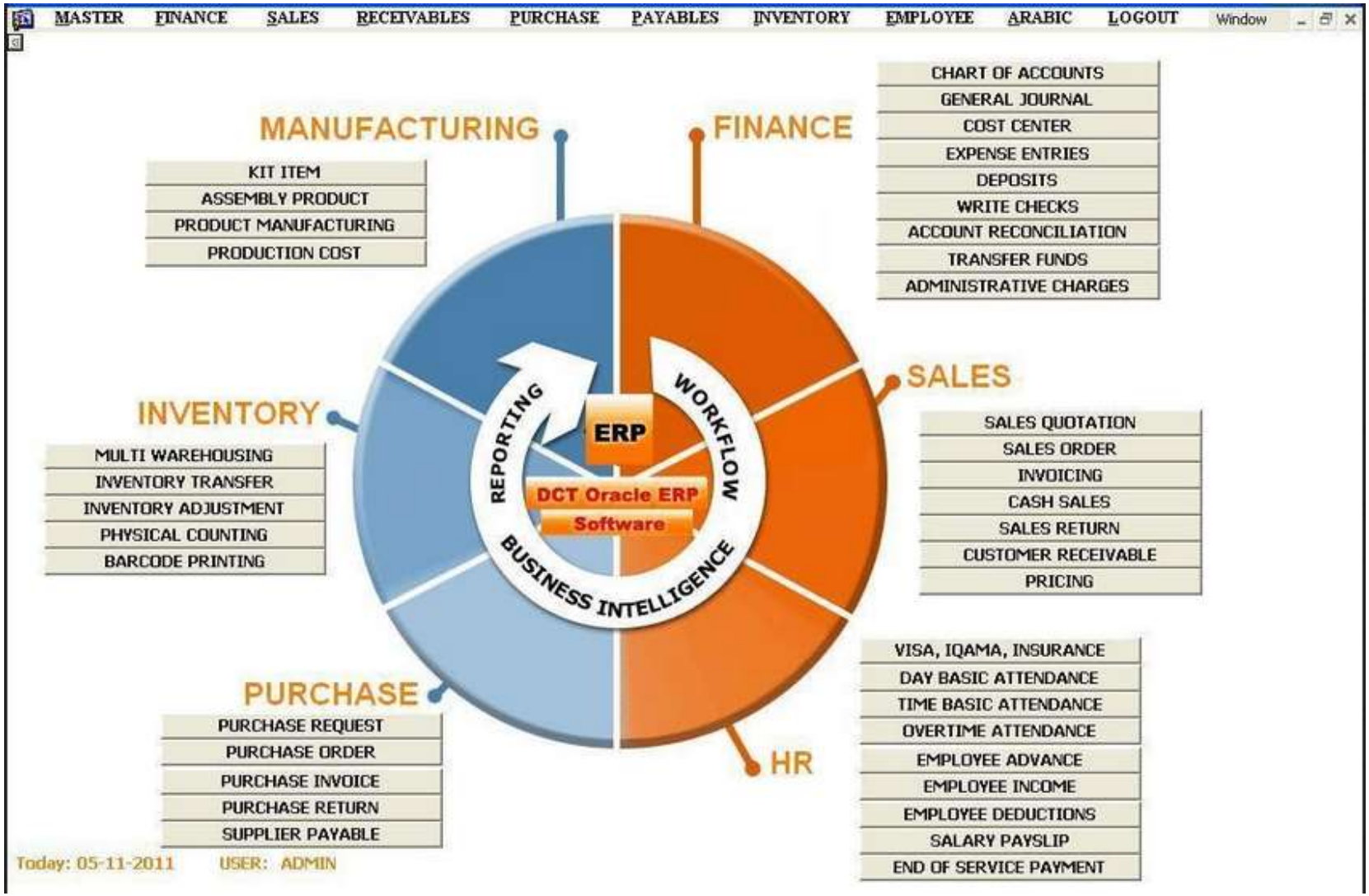
yonyou

UNIT4

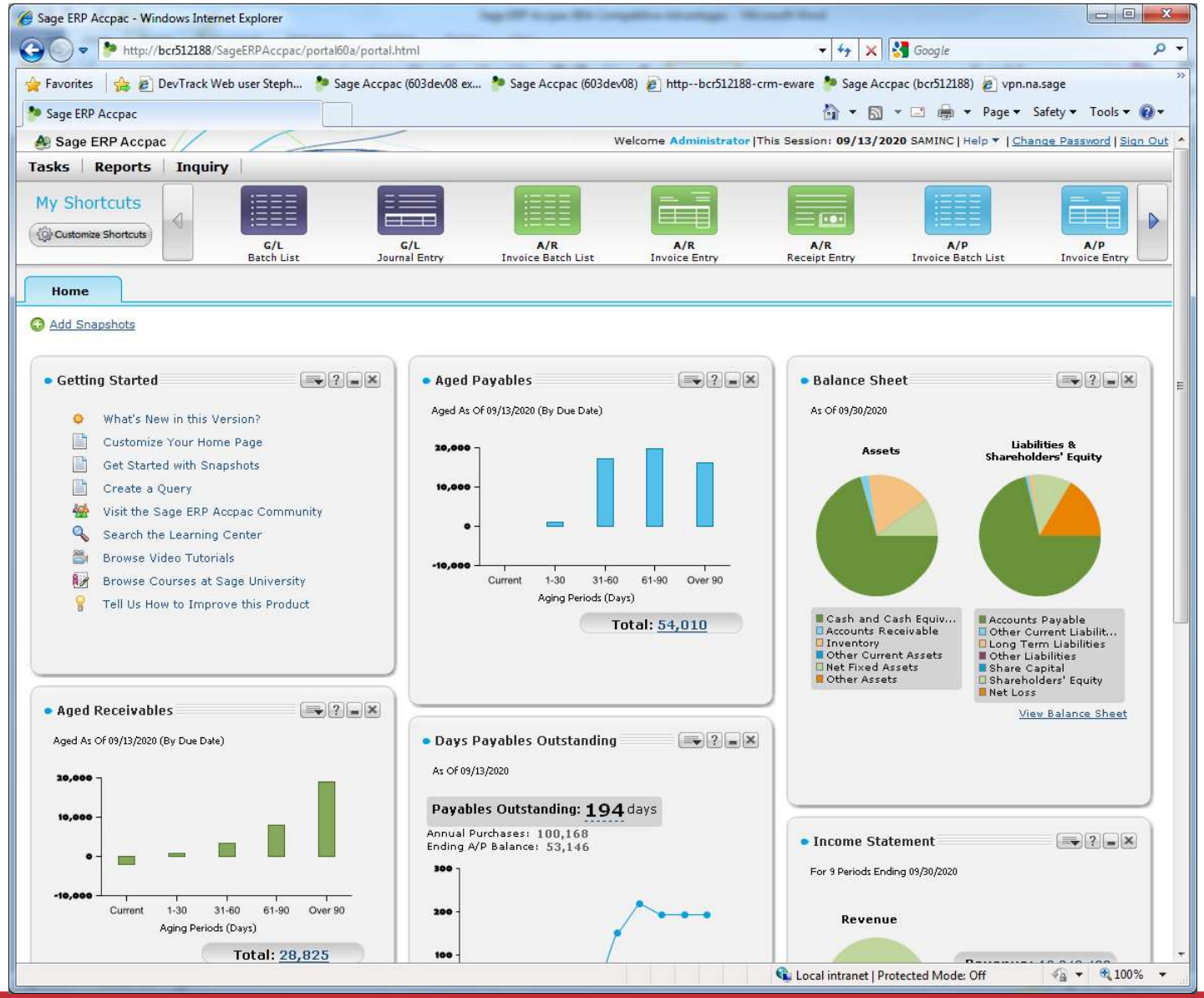
SAP

	Self Services											
Analytics	Strategic Enterprise Management			Financial Analytics			Operations Analytics			Workforce Analytics		
Financials	Corporate Governance			Financial Accounting			Management Accounting			Financial Supply Chain Management		
Human Capital Management	Employee Relationship Management			Employee Lifecycle Management			Employee Transaction Management			Workforce Deployment		
Operations: Value Generation	Purchasing		Inventory Management			Manufacturing	Distribution		Sales Order Management			Service Order Management
Operations: Support	Product Structure Management			Project Management			Quality Management			Asset Management		
Corporate Services	Travel Management			Environment, Health & Safety			Incentive and Commission Management			Real Estate Management		
Solution and Integration Platform	People Integration			Information Integration			Process Integration			Application Platform		

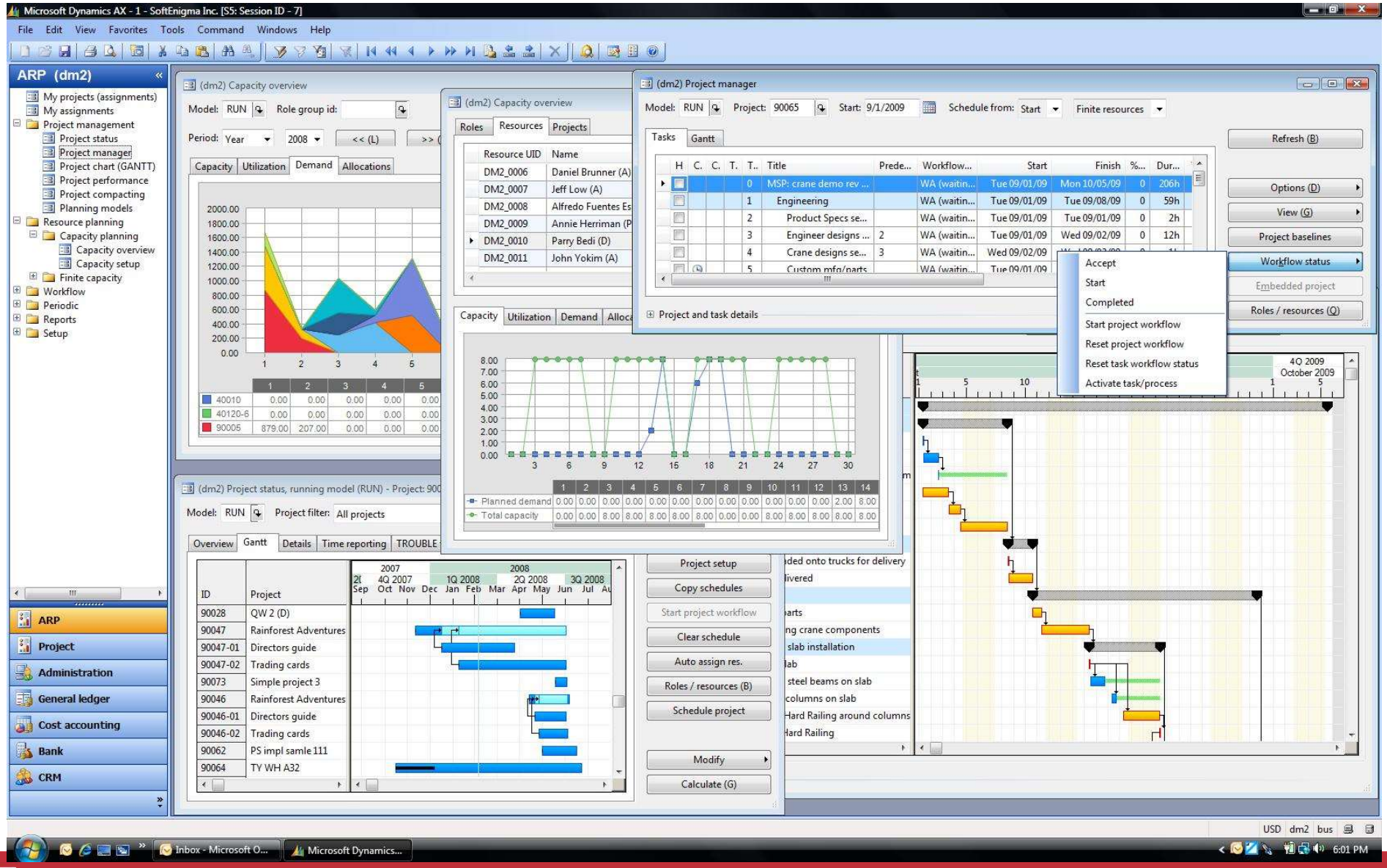
ORACLE


MASTER
FINANCE
SALES
RECEIVABLES
PURCHASE
PAYABLES
INVENTORY
EMPLOYEE
ARABIC
LOGOUT
Window
MANUFACTURING
KIT ITEM
ASSEMBLY PRODUCT
PRODUCT MANUFACTURING
PRODUCTION COST
FINANCE
CHART OF ACCOUNTS
GENERAL JOURNAL
COST CENTER
EXPENSE ENTRIES
DEPOSITS
WRITE CHECKS
ACCOUNT RECONCILIATION
TRANSFER FUNDS
ADMINISTRATIVE CHARGES
INVENTORY
MULTI WAREHOUSING
INVENTORY TRANSFER
INVENTORY ADJUSTMENT
PHYSICAL COUNTING
BARCODE PRINTING
SALES
SALES QUOTATION
SALES ORDER
INVOICING
CASH SALES
SALES RETURN
CUSTOMER RECEIVABLE
PRICING
REPORTING
WORKFLOW
ERP
DCT Oracle ERP
Software
BUSINESS INTELLIGENCE
PURCHASE
PURCHASE REQUEST
PURCHASE ORDER
PURCHASE INVOICE
PURCHASE RETURN
SUPPLIER PAYABLE
HR
VISA, IQAMA, INSURANCE
DAY BASIC ATTENDANCE
TIME BASIC ATTENDANCE
OVERTIME ATTENDANCE
EMPLOYEE ADVANCE
EMPLOYEE INCOME
EMPLOYEE DEDUCTIONS
SALARY PAYSLIP
END OF SERVICE PAYMENT
Today: 05-11-2011
USER: ADMIN

SAGE

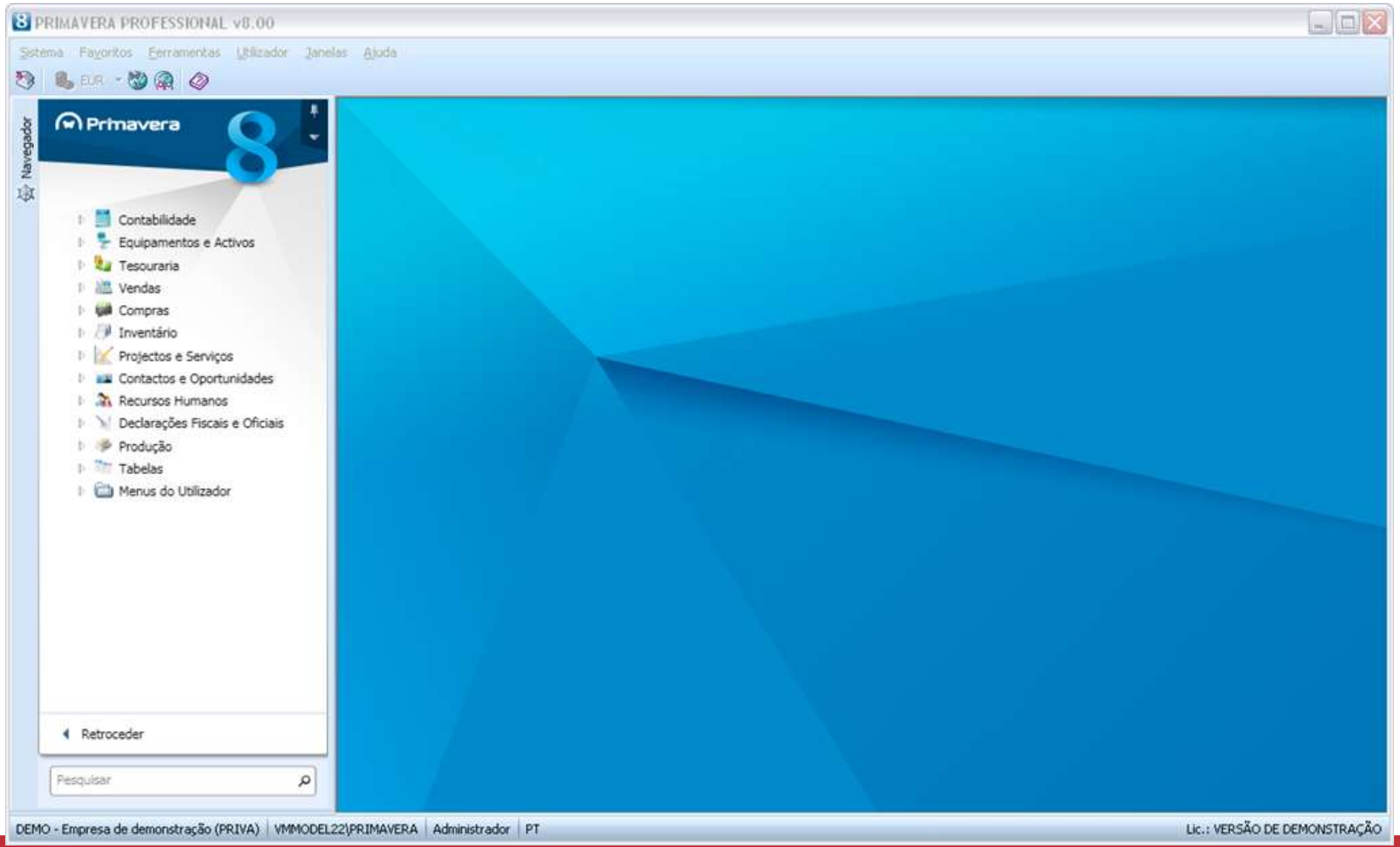

Sage ERP Accpac - Windows Internet Explorer
http://bcr512188/SageERPAccpac/portal60a/portal.html
Sage ERP Accpac
Welcome Administrator | This Session: 09/13/2020 SAMINC | Help | Change Password | Sign Out
Tasks | Reports | Inquiry
My Shortcuts
Customize Shortcuts
G/L Batch List
G/L Journal Entry
A/R Invoice Batch List
A/R Invoice Entry
A/R Receipt Entry
A/P Invoice Batch List
A/P Invoice Entry
Home
Add Snapshots
Getting Started
What's New in this Version?
Customize Your Home Page
Get Started with Snapshots
Create a Query
Visit the Sage ERP Accpac Community
Search the Learning Center
Browse Video Tutorials
Browse Courses at Sage University
Tell Us How to Improve this Product
Aged Payables
Aged As Of 09/13/2020 (By Due Date)
Current
1-30
31-60
61-90
Over 90
Aging Periods (Days)
Total: 54,010
Balance Sheet
As Of 09/30/2020
Assets
Liabilities & Shareholders' Equity
Cash and Cash Equiv...
Accounts Receivable
Inventory
Other Current Assets
Net Fixed Assets
Other Assets
Accounts Payable
Other Current Liabilit...
Long Term Liabilities
Other Liabilities
Share Capital
Shareholders' Equity
Net Loss
View Balance Sheet
Aged Receivables
Aged As Of 09/13/2020 (By Due Date)
Total: 28,825
Days Payables Outstanding
As Of 09/13/2020
Payables Outstanding: 194 days
Annual Purchases: 100,168
Ending A/P Balance: 53,146
Income Statement
For 9 Periods Ending 09/30/2020
Revenue
Local intranet | Protected Mode: Off
100%

Microsoft Dymamics

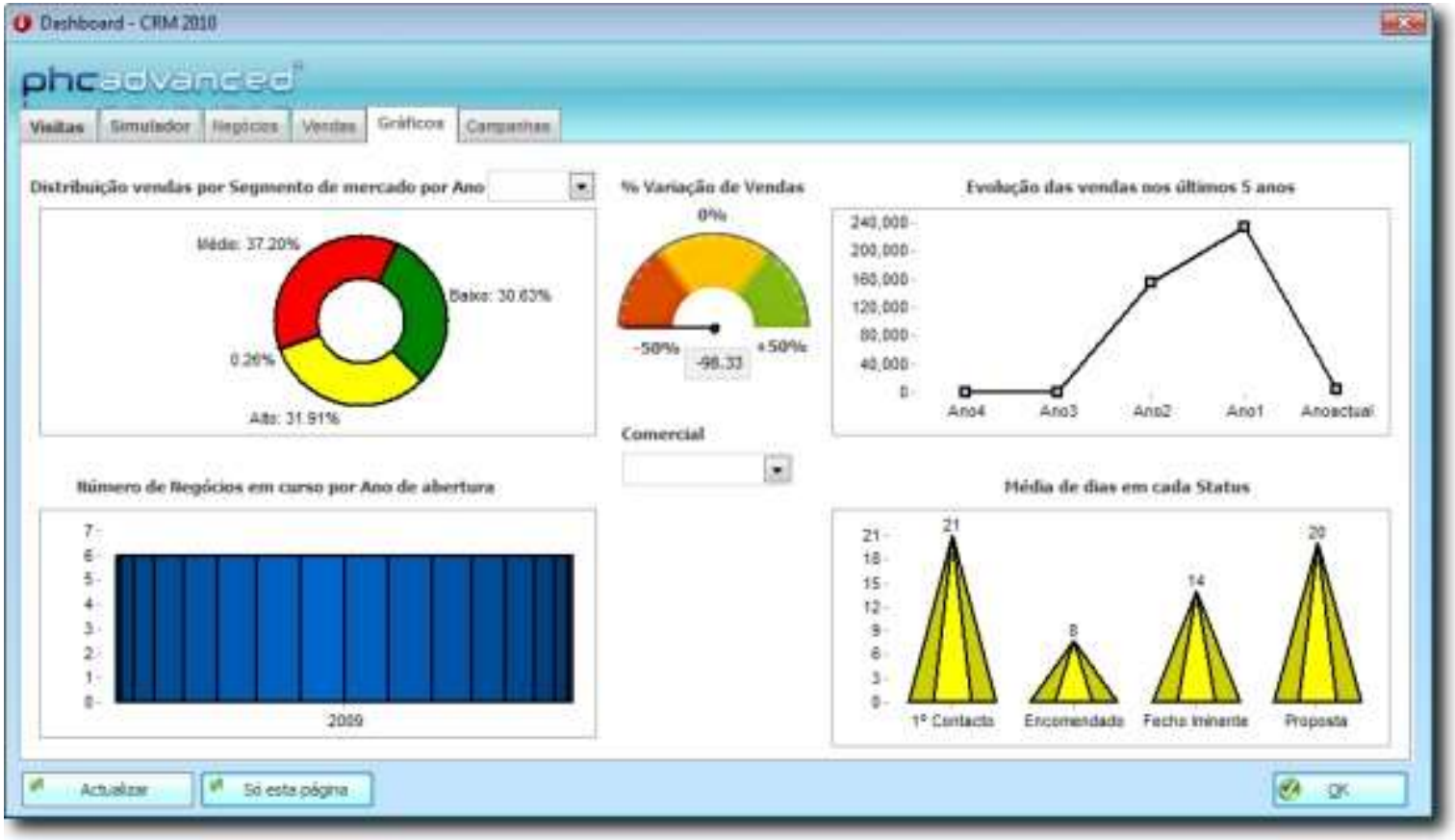


National Market

Primavera


PRIMAVERA PROFESSIONAL v8.00
Sistema Favoritos Ferramentas Utilizador Janelas Ajuda
EUR
Navegador
Primavera
8
Contabilidade
Equipamentos e Activos
Tesouraria
Vendas
Compras
Inventário
Projectos e Serviços
Contactos e Oportunidades
Recursos Humanos
Declarações Fiscais e Oficiais
Produção
Tabelas
Menus do Utilizador
Retroceder
Pesquisar
DEMO - Empresa de demonstração (PRIVA)
VMMODEL22\PRIMAVERA
Administrador
PT
Lic.: VERSÃO DE DEMONSTRAÇÃO

PHC


Dashboard - CRM 2010
phcadvanced
Visitas
Simulador
Negócios
Vendas
Gráficos
Campanhas
Distribuição vendas por Segmento de mercado por Ano
Média: 37.20%
Baixo: 30.63%
0.26%
Alto: 31.91%
% Variação de Vendas
0%
-50%
+50%
-98.33
Evolução das vendas nos últimos 5 anos
240,000
200,000
160,000
120,000
80,000
40,000
0
Ano4
Ano3
Ano2
Ano1
Anoactual
Comercial
Número de Negócios em curso por Ano de abertura
7
6
5
4
3
2
1
0
2009
Média de dias em cada Status
21
18
15
12
9
6
3
0
21
8
14
20
1º Contacto
Encomendado
Fecho Iminente
Proposta
Actualizar
Só esta página
OK

Open Source

odoo

ERP/CRM
Dolibarr

openbravo

Tryton

ERP5

ofbiz™ The Apache Open for Business Project

COMPIERE

ADempiere

webERP

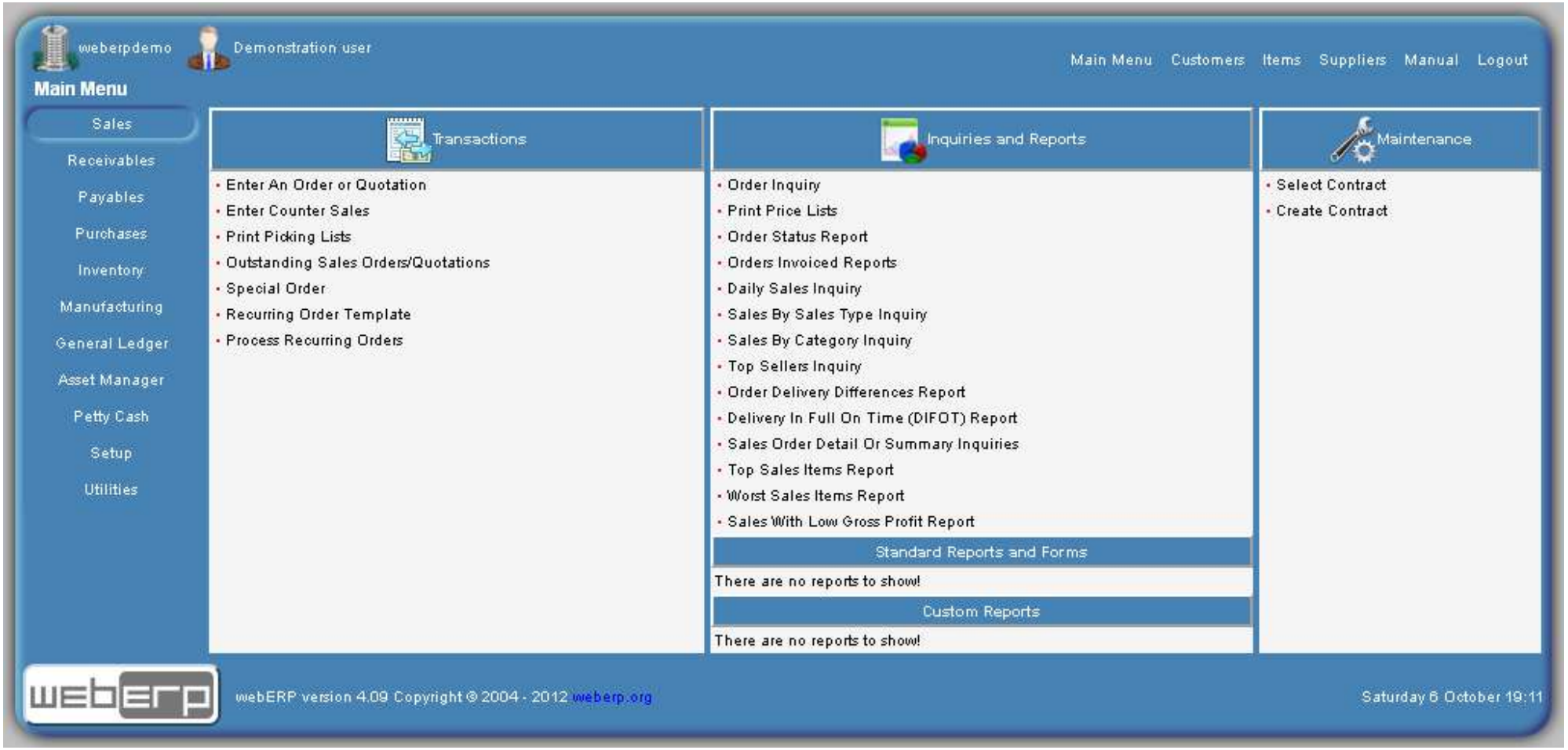
erpnext

iDempiere
Open Source ERP System

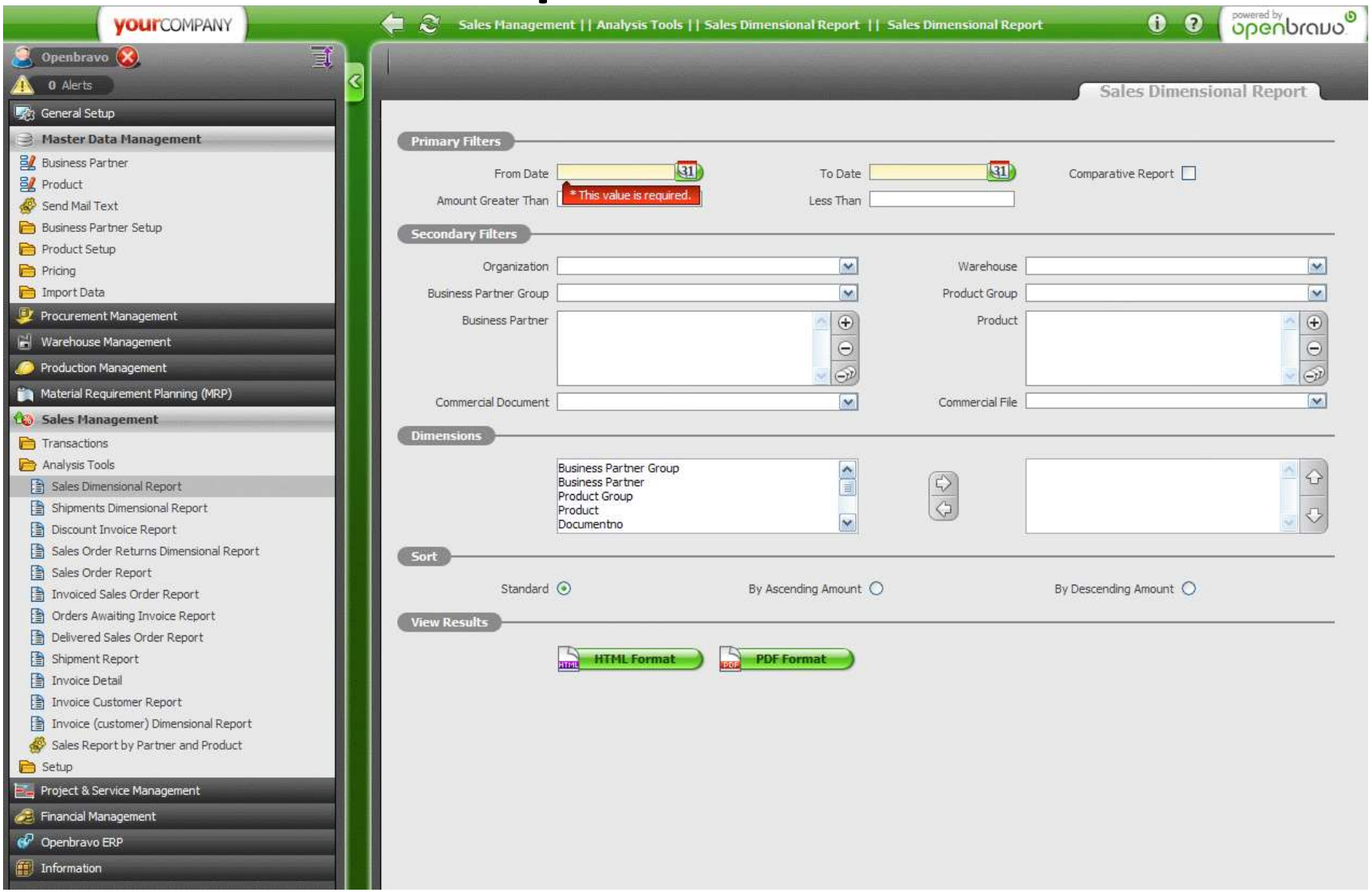
FrontAccounting
ERP

Kwa
Moja

WEBERP


weberpdemo
Demonstration user
Main Menu Customers Items Suppliers Manual Logout
Main Menu
Sales
Receivables
Payables
Purchases
Inventory
Manufacturing
General Ledger
Asset Manager
Petty Cash
Setup
Utilities
Transactions
Enter An Order or Quotation
Enter Counter Sales
Print Picking Lists
Outstanding Sales Orders/Quotations
Special Order
Recurring Order Template
Process Recurring Orders
Inquiries and Reports
Order Inquiry
Print Price Lists
Order Status Report
Orders Invoiced Reports
Daily Sales Inquiry
Sales By Sales Type Inquiry
Sales By Category Inquiry
Top Sellers Inquiry
Order Delivery Differences Report
Delivery In Full On Time (DIFOT) Report
Sales Order Detail Or Summary Inquiries
Top Sales Items Report
Worst Sales Items Report
Sales With Low Gross Profit Report
Standard Reports and Forms
There are no reports to show!
Custom Reports
There are no reports to show!
Maintenance
Select Contract
Create Contract
webERP version 4.09 Copyright © 2004 - 2012 weberp.org
Saturday 6 October 19:11

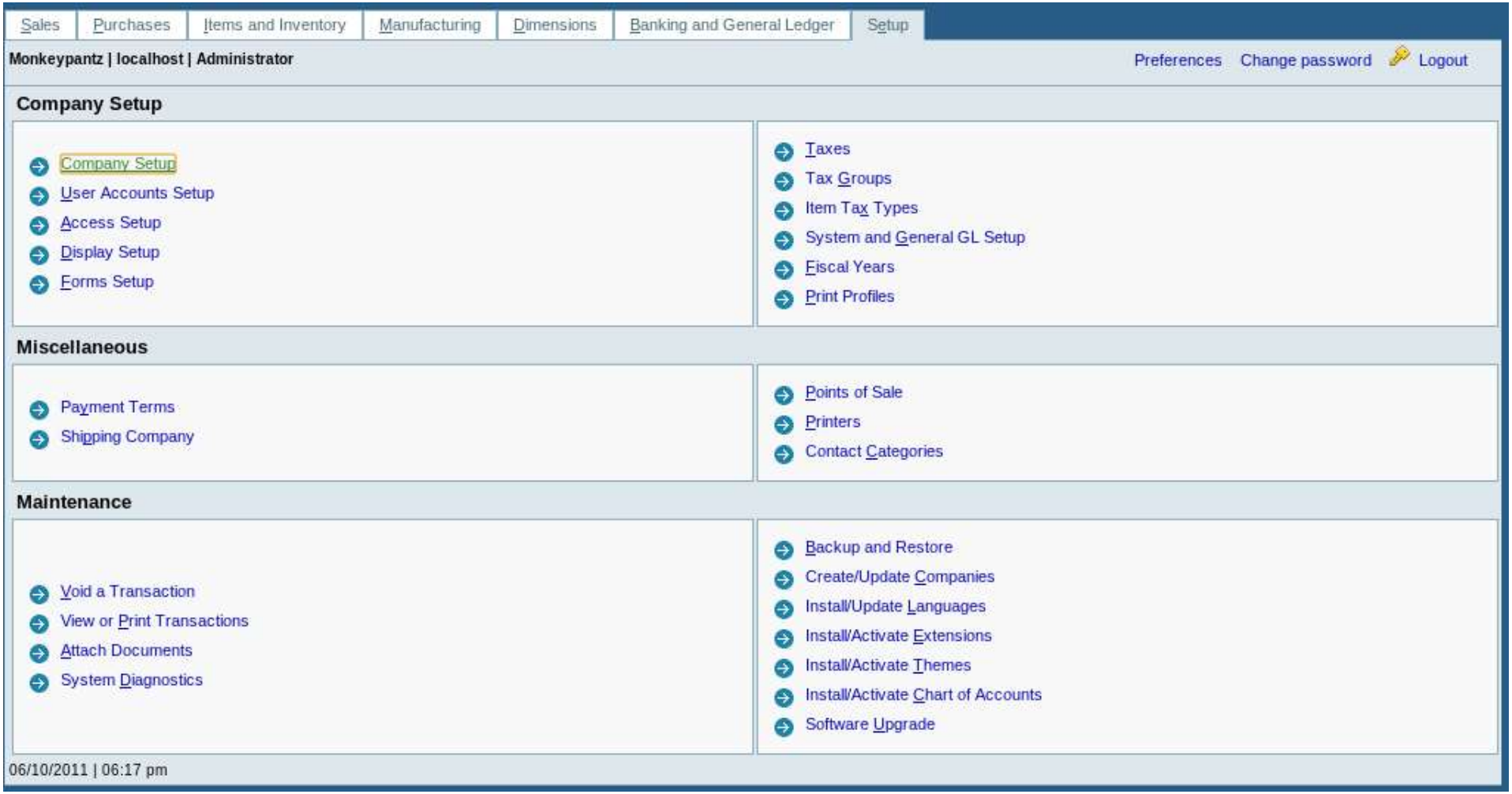
OpenBravo


yourCOMPANY
Sales Management | | Analysis Tools | | Sales Dimensional Report | | Sales Dimensional Report
powered by openbravo
Openbravo
0 Alerts
General Setup
Master Data Management
Business Partner
Product
Send Mail Text
Business Partner Setup
Product Setup
Pricing
Import Data
Procurement Management
Warehouse Management
Production Management
Material Requirement Planning (MRP)
Sales Management
Transactions
Analysis Tools
Sales Dimensional Report
Shipments Dimensional Report
Discount Invoice Report
Sales Order Returns Dimensional Report
Sales Order Report
Invoiced Sales Order Report
Orders Awaiting Invoice Report
Delivered Sales Order Report
Shipment Report
Invoice Detail
Invoice Customer Report
Invoice (customer) Dimensional Report
Sales Report by Partner and Product
Setup
Project & Service Management
Financial Management
Openbravo ERP
Information
Sales Dimensional Report
Primary Filters
From Date
To Date
Comparative Report
Amount Greater Than
* This value is required.
Less Than
Secondary Filters
Organization
Warehouse
Business Partner Group
Product Group
Business Partner
Product
Commercial Document
Commercial File
Dimensions
Business Partner Group
Business Partner
Product Group
Product
Documentno
Sort
Standard
By Ascending Amount
By Descending Amount
View Results
HTML Format
PDF Format

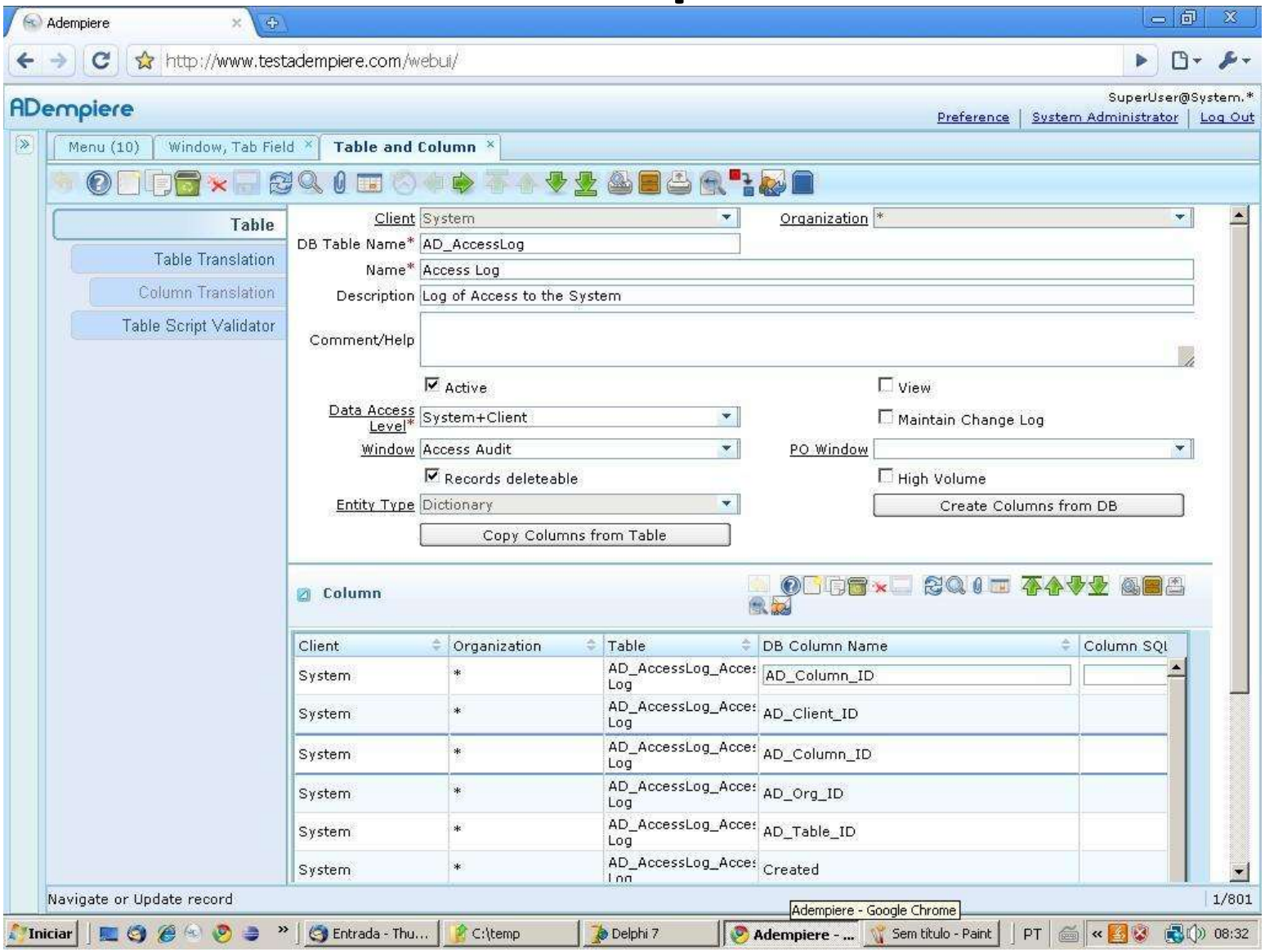
Compiere

CompiereEnterprise
User: GardenAdmin | Select Role | Log Off
Home | Main Menu
View | Preference | Help
Home
Last Login Time: Sep 30, 2009 2:31:57 PM -0700
Sales By Period and Sales Rep
Sales
Period
Jan-09 Feb-09 Mar-09 Apr-09 May-09 Jun-09 Jul-09 Aug-09 Sep-09
Sales By Region
Sales (USD)
Largest Sale (USD)
Average Sale (USD)
Sales Vs. Discount Vs. Margin By Invoice
Discount
Sales
Revenue Vs. Expense by Period
Value
Period
Jan-09 Feb-09 Mar-09 Apr-09 May-09 Jun-09 Jul-09 Aug-09 Sep-09

FrontAccounting



ADempiere


Adempiere
http://www.testadempiere.com/webui/
ADempiere
SuperUser@System.*
Preference | System Administrator | Log Out
Menu (10) | Window, Tab Field | Table and Column
Table
Table Translation
Column Translation
Table Script Validator
Client System
Organization *
DB Table Name* AD_AccessLog
Name* Access Log
Description Log of Access to the System
Comment/Help
Active
View
Data Access Level* System+Client
Maintain Change Log
Window Access Audit
PO Window
Records deleteable
High Volume
Entity Type Dictionary
Create Columns from DB
Copy Columns from Table
Column
Client | Organization | Table | DB Column Name | Column SQL
System | * | AD_AccessLog_Acces Log | AD_Column_ID
System | * | AD_AccessLog_Acces Log | AD_Client_ID
System | * | AD_AccessLog_Acces Log | AD_Column_ID
System | * | AD_AccessLog_Acces Log | AD_Org_ID
System | * | AD_AccessLog_Acces Log | AD_Table_ID
System | * | AD_AccessLog_Acces Log | Created
Navigate or Update record
1/801
Adempiere - Google Chrome
Iniciar
Entrada - Thu...
C:\temp
Delphi 7
Adempiere - ...
Sem título - Paint
PT
08:32

ERPNext

erpnext
Modules
Document
Recent
Tools
Help
Demo User
0
You are in the Live Demo of ERPNext. Close this window and go back to the main website to start your own ERP
Accounts
Selling
Production
Stock
Buying
Support
Human Resources
Projects
Activity
To Do
Messages
Calendar
Knowledge Base
Dashboard

Invoice software certification (Portugal)

- Law:
  - Portaria n.º 363/2010, de 23 de Junho
  - Portaria n.º 22-A/2012, de 24 de janeiro
  - Portaria n.º 340/2013, de 22 de novembro
  - Especificação dos requisitos técnicos – Despacho n.º 8632/2014 de 03 de julho, do Diretor-Geral da AT
  - http://info.portaldasfinancas.gov.pt/pt/apoio_contribuinte/CertificacaoSoftware.htm
- List of certified software
  - https://www.portaldasfinancas.gov.pt/pt/TC/Out/consultaProgCertificadosM24.action?&pagina=22

Invoice

- *Invoice*
- Legal definition**(código art. 36º CIVA)**
  - **http://info.portaldasfinancas.gov.pt/pt/informacao_fiscal/codigos_tributarios/civa_rep/iva36.htm**
- Issueing of copy of invoice till 5 days after transaction
- Data and numbers sequencial order
- Name of company, Address and Tax Number
- Quantities and Item names
- Price without taxes and tax rate applied
- Date where itens were supplied to client

e-fatura

- https://faturas.portaldasfinancas.gov.pt/

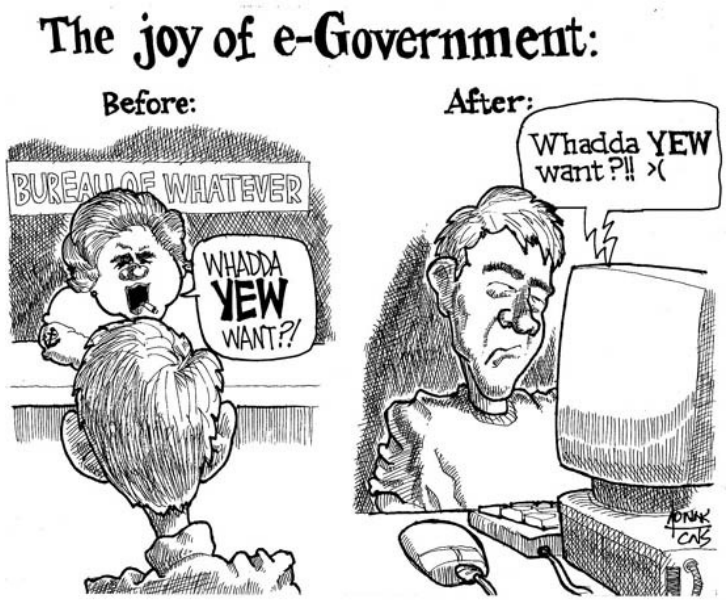
Electronic Incoice

Electronic Invoice = *Fatura Electronica*

E-Fatura != Fatura Electronica

Integrating eGov and eBanking

Declarações Electrónicas



"The computer salesman said we can do all of our banking online. I slipped my paycheck into the slot, but nothing happened."

ACCORDING TO THIS, THE PLANET EARTH WAS ONCE POPULATED BY HUMANS, THEN IN 2012...
...THEY ALL MOVED TO THE CLOUD.

Sites

- Associação de Empresas de Sotware de Open Source de Portugal (http://www.esop.pt/)
- Associação Portuguesa de Software (http://www.assoft.org/)
- Dynamics (http://www.microsoft.com/en-us/dynamics/)
- Odoo (https://www.odoo.com/)
- Oracle

(https://www.oracle.com/applications/enterprise-resource-planning/)

- PHC (http://www.phc.pt/)
- PrimaveraBSS (http://www.primaverabss.com)
- Sage (http://www.sage.com/)
- SAP (http://www.sap.com)
- Tryton (http://www.tryton.org/)

Some References

Costa, C.J., Aparicio, M. and Raposo, J., 2020. Determinants of the management learning performance in ERP context. Heliyon, 6(4), p.e03689.

Carlos J. Costa, Edgar Ferreira, Fernando Bento, and Manuela Aparicio. 2016. Enterprise Resource Planning Adoption and Satisfaction Determinants," Comput. Hum. Behav., vol. 63, no. C, pp. 659–671, Oct.

Carlos J. Costa. 2010. Testing usability of ERP open source systems. In Proceedings of the Workshop on Open Source and Design of Communication (OSDOC '10). ACM, New York, NY, USA, 25-30. DOI=10.1145/1936755.1936763 http://doi.acm.org/10.1145/1936755.1936763

Mario Batista, Carlos J. Costa, and Manuela Aparicio. 2013. ERP OS localization framework. In Proceedings of the Workshop on Open Source and Design of Communication (OSDOC '13). ACM, New York, NY, USA, 1-8. DOI=10.1145/2503848.2503849 http://doi.acm.org/10.1145/2503848.2503849

Ana Isabel Mendes Duarte and Carlos J. Costa. 2012. Information systems: life cycle and success. In Proceedings of the Workshop on Information Systems and Design of Communication (ISDOC '12). ACM, New York, NY, USA, 25-30. DOI=10.1145/2311917.2311923 http://doi.acm.org/10.1145/2311917.2311923

Carlos J. Costa and Manuela Aparicio. 2011. ERP and assistance systems. In Proceedings of the 11th WSEAS international conference on Applied informatics and communications and Proceedings of the international conference on Computational engineering in systems applications (AIASABEBI'11), Myriam Lazard, Andris Buikis, S. Yuriy Shmaliy, Roberto Revetria, and Nikos Mastorakis (Eds.). World Scientific and Engineering Academy and Society (WSEAS), Stevens Point, Wisconsin, USA, 216-221.

Carlos J. Costa. 2010. Supporting ERP open source customization with UML. In Proceedings of the Workshop on Open Source and Design of Communication (OSDOC '10). ACM, New York, NY, USA, 31-34. DOI=10.1145/1936755.1936764 http://doi.acm.org/10.1145/1936755.1936764

Nuno G. Lopes and Carlos J. Costa. 2008. ERP localization: exploratory study in translation: European and Brazilian Portuguese. In Proceedings of the 26th annual ACM international conference on Design of communication (SIGDOC '08). ACM, New York, NY, USA, 93-98. DOI=10.1145/1456536.1456555 http://doi.acm.org/10.1145/1456536.1456555