ENTERPRISE SYSTEMS, OSS, AND CONVERSATIONAL SYSTEMS

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# Types of Enterprise Systems

Generic types:

- **Enterprise Resource Planning (ERP) systems**
- Supply Chain Management (SCM) systems
- Customer Relationship Management (CRM) systems
- Knowledge Management Systems (KMS)

Other classifications:

- *Commercial (aka Proprietary) vs. open-source*
- *Generic vs. Niche-application*
- On-prem vs. on-cloud (aka *software as a service – SaaS)*
- *In--house vs. off-the-shelf*
- *Single-vendor vs. best-of-breed*

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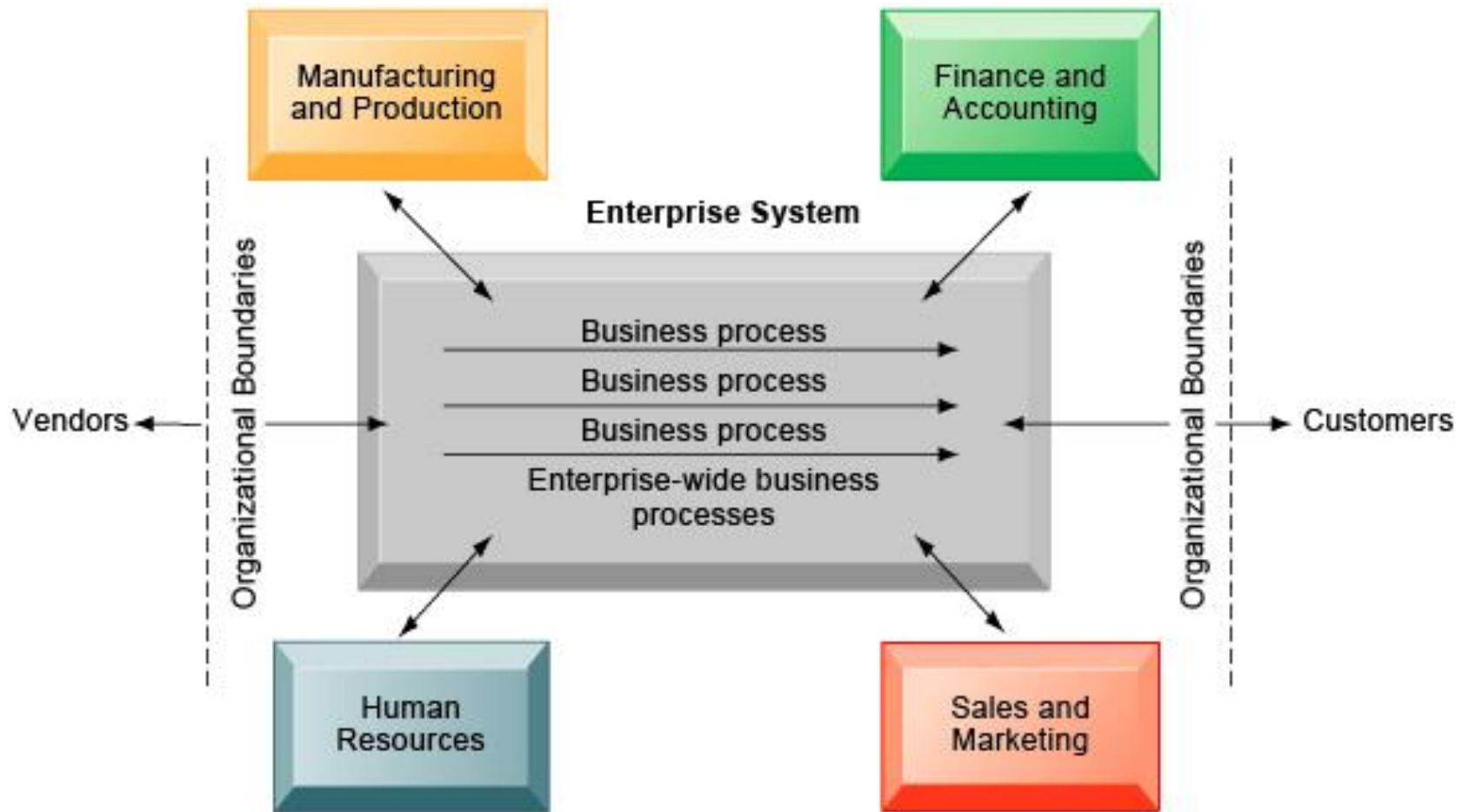
Types of Data in ES
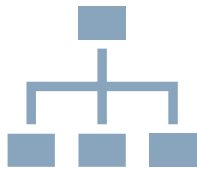
Organizational Data

Master Data

Transaction Data

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Organizational Data

— Defines the organizational structure of the enterprise

— Includes definitions of:

　—Companies (subsidiaries, etc.)

　—Divisions based on, product or geographical hierarchy

　—Sales organizations

　—Purchasing organizations

　—Physical facilities: plants, warehouses, distribution centers

　—HR organization

　　—Functional areas, reporting relationships

—*Organizational data rarely changes!*

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Master Data

Define key entities in an organization

Customers

Basic information: name, address, contact information
Financial information: payment terms, methods
Sales information: delivery terms

Vendors* / *suppliers

Similar information as customer

Products

Basic data: description, weight, color
Purchasing data
Sales data
Manufacturing data

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Master Data

Employees

Basic data

Personal data: dependents

Payroll data

Tax data

Master data changes occasionally!

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Transaction Data

	Data that is the consequence of day-to-day transaction	Who, what, when, where, how, how much
	Sales	Customer, products, quantities, dates and times, location (shipping, delivery), salesperson
	Purchase	Vendor, products, quantities, dates and times, location (delivery), salesperson, requester
	Production	Materials, quantities, facilities, resources (machine, people), dates and times, locations (storage, production)
	Transaction data changes very frequently on daily basis!	

Super Skateboard Builders, Inc.

— Product

— Customer

— Vendor

— Employee

— Organization Chart

SSB, Inc. - Product

PRODUCT NUMBER	PRODUCT DESCRIPTION	STANDARD PRICE (MANUFACTURING OR PURCHASE COST)	WHOLESALE PRICE	MSRP
DXSB1000	DELUXE SKATEBOARD	$58.00	$96.00	$160.00
STSB2000	STANDARD SKATEBOARD	$40.00	$66.00	$110.00
ENSB3000	ENTRY-LEVEL SKATEBOARD	$34.00	$45.00	$75.00
HLMT5000	HELMET	$20.00	$27.00	$45.00
SHRT4000	T-SHIRT	$7.00	$10.00	$16.00
FAID6000	SKATEBOARD FIRST AID KIT	$10.00	$16.00	$27.00

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SSB, Inc. - Customer

CUSTOMER NUMBER	NAME	ADDRESS	CITY	STATE	ZIP
1	WORLD WIDE SKATEBOARD DISTRIBUTORS	1229 MAIN STREET	ANN ARBOR	MI	48109
2	EXTREME SKATEBOARD SPORTS, INC.	5000 RENSELLEAR AVE	DETROIT	MI	48202
3	"WALDO" AUTRY	3012 HASLETT ROAD	LANSING	MI	48906
4	SPORTING GOODS, INC.	6903 28TH STREET	GRAND RAPIDS	MI	49508
5	FLYING ACROBATS, INC.	274 ADAMS STREET	HOLLAND	MI	49423
6	MI SPORTING COMPANY	3000 ALPINE AVE	GRAND RAPIDS	MI	49544
7	DAWGS	4005 STATE STREET SE	SAGINAW	MI	48710

SSB, Inc. - Vendor

VENDOR NUMBER	VENDOR NAME	CITY	STATE	ZIP	MATERIALS SUPPLIED
100000	NUTCASE SUPPLIES	GRAND RAPIDS	MI	49525	NUTS, BOLTS
100001	SKATELUBBERS, INC.	GRAND RAPIDS	MI	49525	FIRST AID KIT, T-SHIRT, HELMET
100002	GRAND SKATEBOARD SUPPLIES	GRAND RAPIDS	MI	49525	TRUCKS, RISER PADS, GRIP TAPE, DECKS, ENTRY LEVEL SKATEBOARD, FIRST AID KIT
100003	BLACK WIDOW SKATEBOARDS, INC.	HOLLAND	MI	49424	ENTRY LEVEL SKATEBOARD, FIRST AID KIT, T-SHIRT, HELMET
100004	SPOTTED OWL LUMBER	CASCADE	MI	49546	MAPLE PLY, ENTRY LEVEL SKATEBOARD
100005	VAN GO PAINT SUPPLIES	KENTWOOD	MI	49508	SEALERS, PAINTS
100006	THE DUTCH MONSTER	GRAND RAPIDS	MI	49504	BOXES, LABELS, GLUE
100007	WHITEWATER DEVELOPMENT COMPANY	JONESBORO	AR	72401	BUILDING SPACE

SSB, Inc. - Organization Chart

John Z. Boeve
(President)

Maria Rivera
(Office Manager)

Catherine VanderBos
(Plant Manager)

Patrick Stevens
(Sales Manager)

Shana Smith
(Accountant)

David Bloomberg
(Warehouse Manager)

Martha Seward
(Purchasing Manager)

Charles Skivers
(Shop Floor)

Mark McKendry
(Shop Floor)

Tom Jones
(Warehouse)

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OPEN SOURCE ERP SYSTEMS

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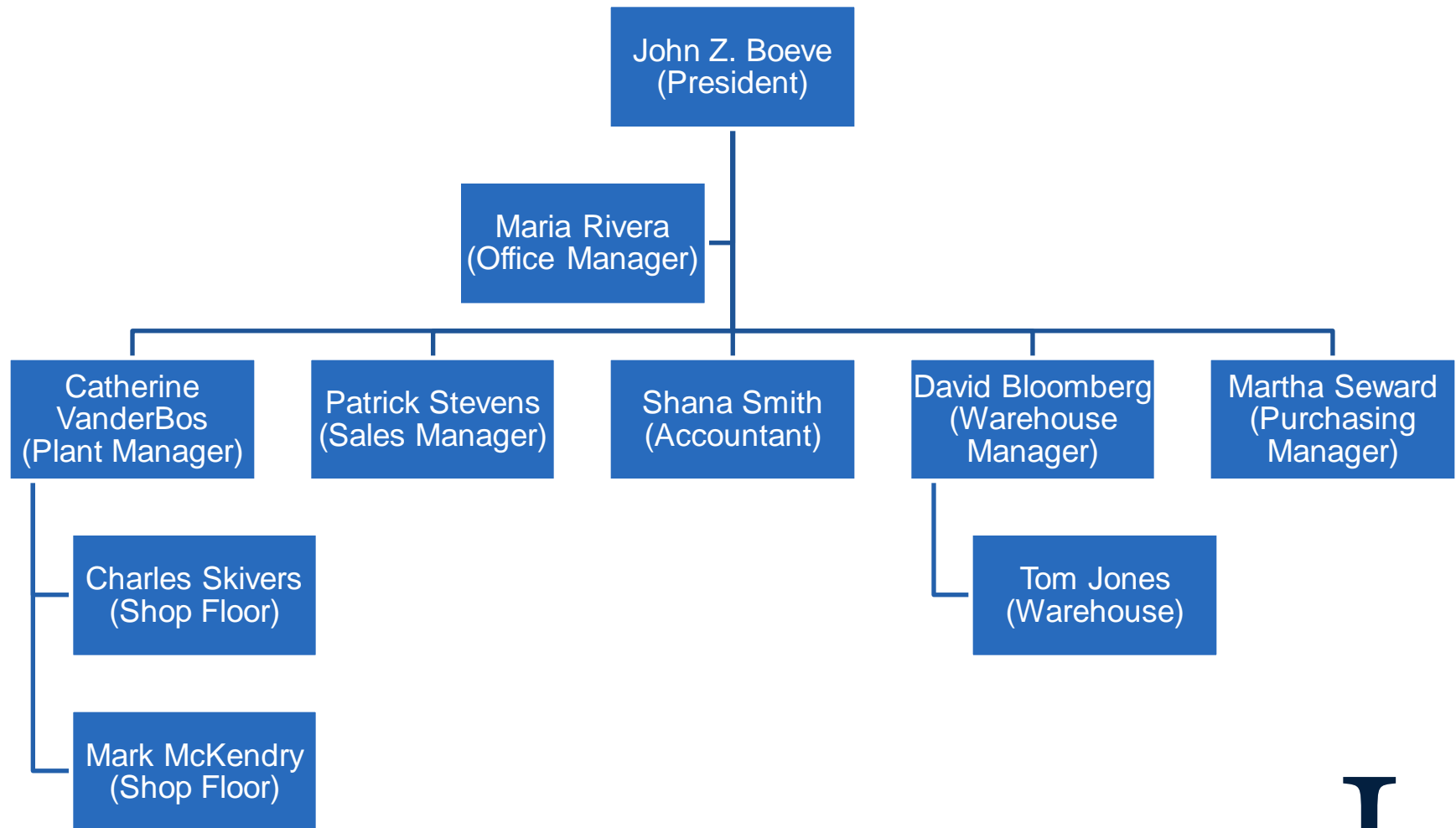
The two worlds of software
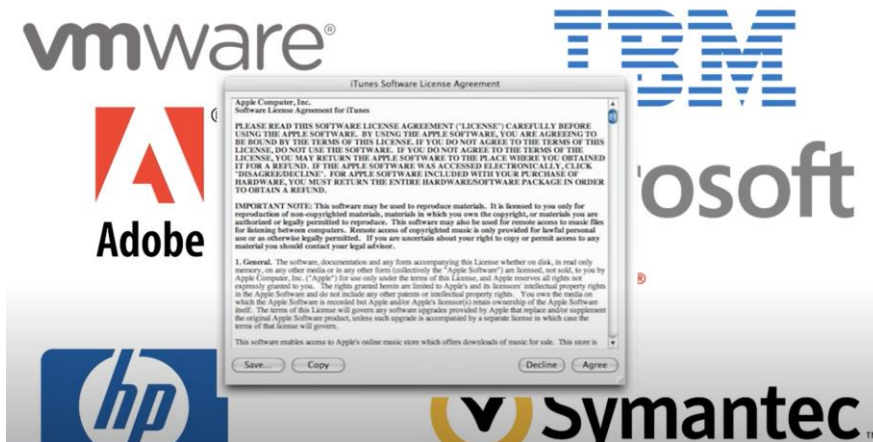
*Closed-source
aka proprietary*

*Open-source
aka non-proprietary*

Free Open-Source Software (OSS)

— OSS is a type of software that gives users rights to run, copy, distribute, change and improve it as they see it, without them asking permission from or make payments to any external group or person

— OSS gives you the freedom to:
 — Study the code
 — Improve the program
 — Run the program anytime, for any purpose on any machine
 — Redistribute

— Examples:
 — Java, Linux, OpenOffice, MySQL, Moodle, Apache, Odoo, etc.

Linux Distributions!
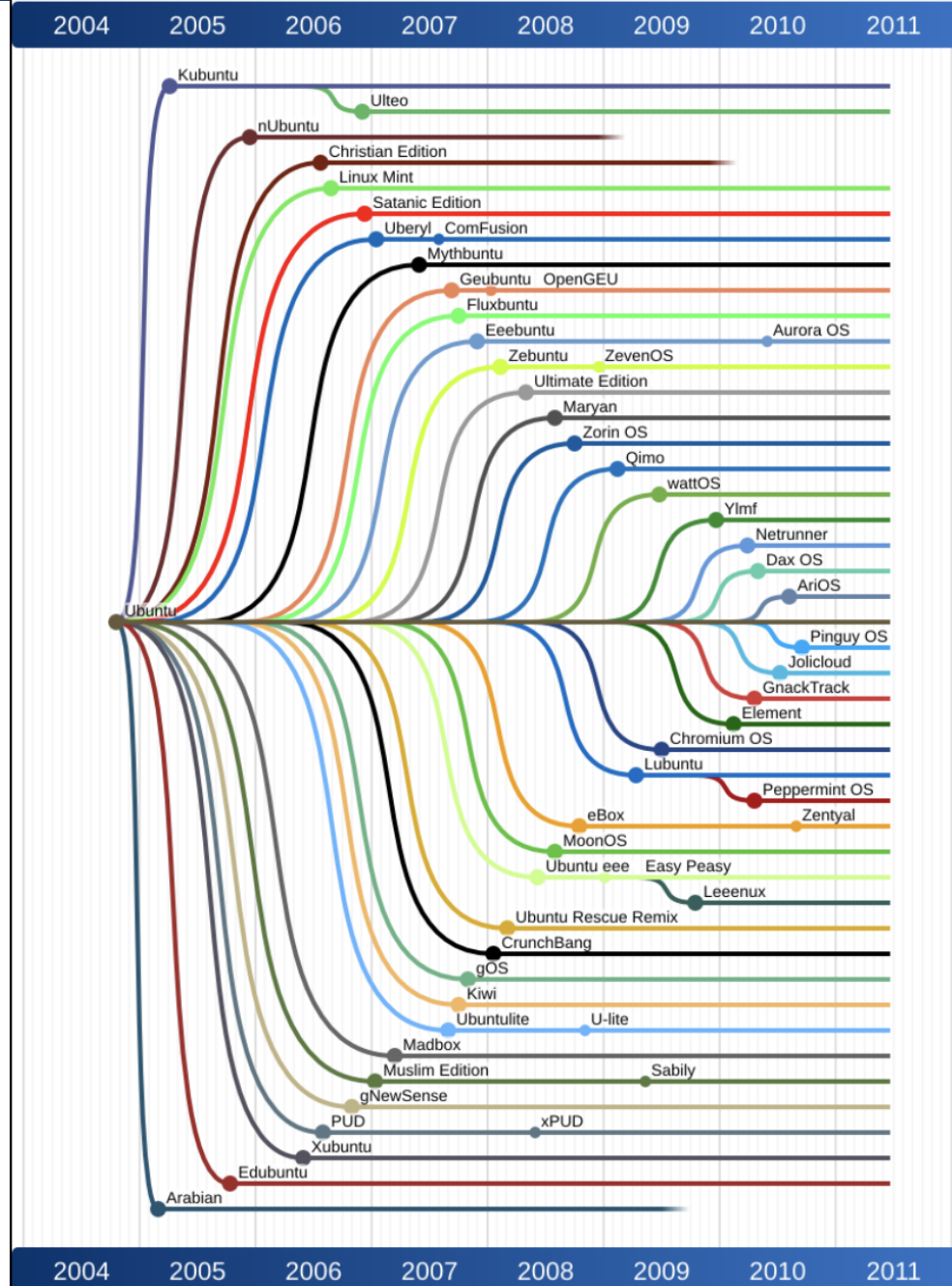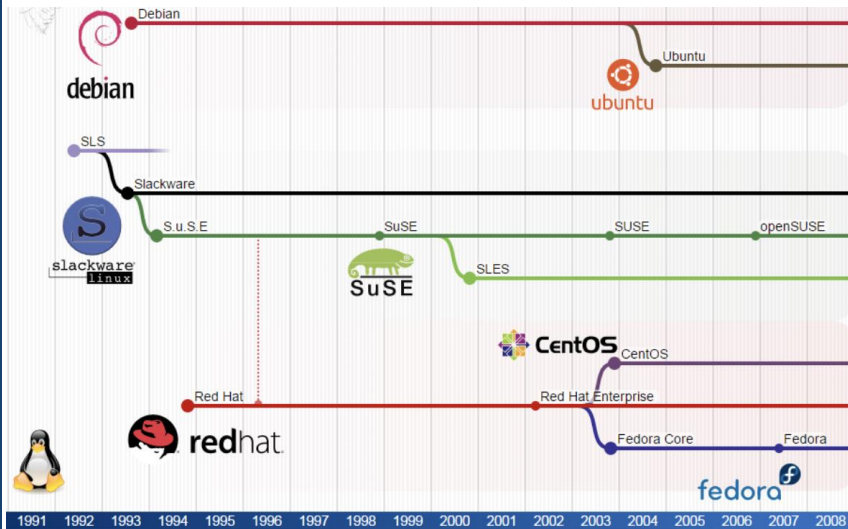
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Types of ERP Vendors

— There are mainly 2 options for companies to acquire ERP System in the market:

  — Commercial Vendors

  — Open-Source Vendors

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Commercial versus open-source vendors

Commercial	Open-source
License & implementation costs are high	No License Cost, only support service charges
Lengthy process from RFP to Go	Agile Implementation
Not best fit for local industry	Specifically designed for SME's
No Customization Leading to use of 3rd party Solution	Easily and Rapidly customized
Development is complex and slow	(Community) Development is rather quick
Migration to new version has a different cost	No migration Cost on new version
Adding Modules requires extra costs	no cost on adding new modules
Use of proprietary hardware machines for installation	Enabling use of commodity hardware rather than proprietary machines
Vendor lock-in	Avoid vendor lock-in

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Open-source ERP Products: January 2024

— According to https://opensource.com/tools/enterprise-resource-planning

   — E.g., Adempiere; Apache OFBiz; Dolibarr; ERPNext; Metasfresh; Odoo; Tryton

— According to https://wperp.com/68181/best-open-source-erp-solution/

   —E.g., WP ERP, Dolibarr, ERPNext, ERP5, Metasfresh, BlueSeer, MixERP, Apache OFBiz, EasyERP, Odoo, Tryton

CONVERSATIONAL SYSTEMS

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Conversational Systems*

— Starting 2016, chatbots have emerged as one of the hottest topics in the ICT industry

— They have also been called "***the new apps***"

— There is an exponential growth in the interest in chatbots, in areas such as *customer service*, owing to the promise of bots to always be available to address customer requests cheaply, quickly, and consistently

* Source: Chatbots in Customer Service, Accenture Interactive, 2016.

What is a chatbot?

— *Conversational Systems are intelligent machines that can understand human language and conduct a conversation (written or verbal) with a human, such as a website visitor or a customer*

— *A chatbot is a software program which you can talk to via messaging apps, chat window, or voice. The bot replies using the same applications creating end-to-end conversation*

— Recent interest in chatbot is supported by:

  — ***Messaging services growth*** e.g., Facebook Messenger & WhatsApp users send over 60 billion messages per day, compared to 20 billion for traditional messaging (SMS)!*

  — ***Advances in AI*** applications

Components

— Chatbot is seen to include the below 3 essential components:

    — **UI (aka CUX for conversational user experience)**: a user interface module is essential, via which the bot interacts with humans

    — **NLU**: a natural language understanding module enables the chatbot to understand humans

    — **Integration**: integration with other systems, platforms, and services

Can the bot act on its own?*

— A European Telco used a chatbot in a pilot program in order to address common customer queries. The bot was able to resolve **82**% of the interactions on its own, rising to 88% of interactions when combined with humans

— This level of performance reached after only 5 weeks of training the bot on complex queries received by human agents

* Source: Chatbots in Customer Service, Accenture Interactive, 2016.

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Scope?

— Nowadays, chatbots are used more than ever before

— They are used in countless applications, such as:

    — Customer Service: automation of call centres 24/7

    — Product advisor

    — Virtual assistant

    — Frequently asked questions (FAQ)

    — Conversational help

    — Clinical services

    — Talk to your: Car; Mobile; Device!

— ***They simply span all industries!***

Chatbot Types

— **Type I**: Operates based on a set of rules. It can only respond to specific commands. If you do not use the right command or keywords, the chatbot does not know what you mean!

— **Type II**: Uses AI's machine learning techniques to provide better response. AI-powered chatbots can:

  — Understand language, as well as commands

  — Constantly learn from user interactions

  — Chat in a way similar to humans

  — Store and categorize the information it receives from each interaction

  — Assess information to identify information value

  — Know where to store & access information

"By 2022, 70% of white-collar workers will interact with conversational platforms on a daily basis" Gartner*

- Gartner: https://www.gartner.com/reviews/market/enterprise-conversational-ai-platforms
- Products:
  - FB Messenger
  - IBM Watson
  - Yellow.ai
  - Cognigy.ai
  - Kore.ai
  - ***Google (Dialogflow)***
  - Boost.ai
  - Laiye
  - Oracle
  - One reach
  - …

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Q & A

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