2014 SUPPLY CHAIN MANAGEMENT FOR
EFFICIENT CONSUMER RESPONSE CONFERENCE

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Innovation and Reinvention the New Business Model of SCM for Chief Executive Customer

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Agenda

I. Master Data? Data Warehouse? Data mining? BIG Data?

II. Current operational flow, in a postal service and distribution of advertising materials enterprise

III. Proposal of data mining for a private postal service organization and distribution of advertising materials

I.
Master Data?
Data Warehouse?
Data mining?
BIG Data?

Master Data?

- **Master Data** (Database) is an organized collection of data containing information of considerable value used as **support for key enterprise processes** - information about customers, suppliers, partners, products, materials, employees, accounts etc. - and is the **core of every transaction, application and organizational decision**.

Information support for key enterprise processes

- Census data Number of inhabitants, Households data;
- Detailed information of addresses (postal number, block number, number of stairs, houses, etc..)
- Information about customers' profile and their geographical distribution
- Postal data areas level (street name, number of blocks, number of stairs, etc..)

Grounding core for organizational decisions

- Historical records of the business customer behavior
- Information on market trends and on the business customers' markets
- Financial information
- Information on other stakeholders (partners, suppliers, competitors, customers' clients, staff, shareholders)
- Information on operational activity (productivity, efficiency, cost, etc..)
- Descriptions of existing internal processes and operational processes

Data warehouse?

Data warehouse (**DW**, **DWH**), or an **enterprise data warehouse** (**EDW**), is a database used for reporting and data analysis. Integrating data from one or more disparate sources creates a central repository of data, a data warehouse (DW). The data stored in the warehouse is uploaded from the operational systems (such as marketing, sales, etc.).

So the data warehouse is an informational environment that:

- Provides an integrated and total view of the enterprise
- Makes the enterprise's current and historical information easily available for decision making
- Makes decision-support transactions possible without hindering operational systems
- Renders the organization's information consistent
- Presents a flexible and interactive source of strategic information

So what's the difference between Master Data and Data Warehouse?

- The primary difference between Master Data and Data Warehouse is that while master data is designed (and optimized) to record , the data warehouse is designed (and optimized) to respond to analysis questions that are critical for your business.
- Another main difference is that while master data is critical data that is stored in disparate systems spread across your Enterprise, data warehouse integrates data from this disparate sources and creates a central repository of data.

Data mining?

Analysis process of large amounts of data (big data and master data) and extracting relevant information from them using mathematical and statistical methods.

"nontrivial extraction of implicit information, previously unknown and potentially useful, from owned data"

"science of extracting useful information from large data volume or from databases"

- **Data mining**, regarding the planning of economic resources, is the statistical and logical analysis of large volumes of transaction data, looking for patterns that can aid decision-making process.
- **Big data mining** is a kind of “over-writting" with the participation of all users. And in this way it becomes more relevant and at the same time can evolve more quickly and efficiently.

Data mining?

Data mining is an important component of analytic customer relationship management. The goal of analytic customer relationship management is to recreate, to the extent possible, the intimate, learning relationship that a well-run small business enjoys with its customers.

Data Mining is actually the analysis of data.

The purpose of data mining, also known as knowledge discovery, is to allow businesses to view these behaviors, trends and/or relationships and to be able to factor them within their decisions. This allows the businesses to make proactive, knowledge-driven decisions.

The main difference between data warehousing and data mining is that data warehousing is the process of compiling and organizing data into one common database, whereas data mining is the process of extracting meaningful data from that database. Data mining can only be done once data warehousing is complete.

Big Data?

What is it?

- Big data is about much larger volumes, so large current databases struggle to handle it.
- A very large quantity of data, with high velocity, that does not fit with the database structures owned by the enterprise.

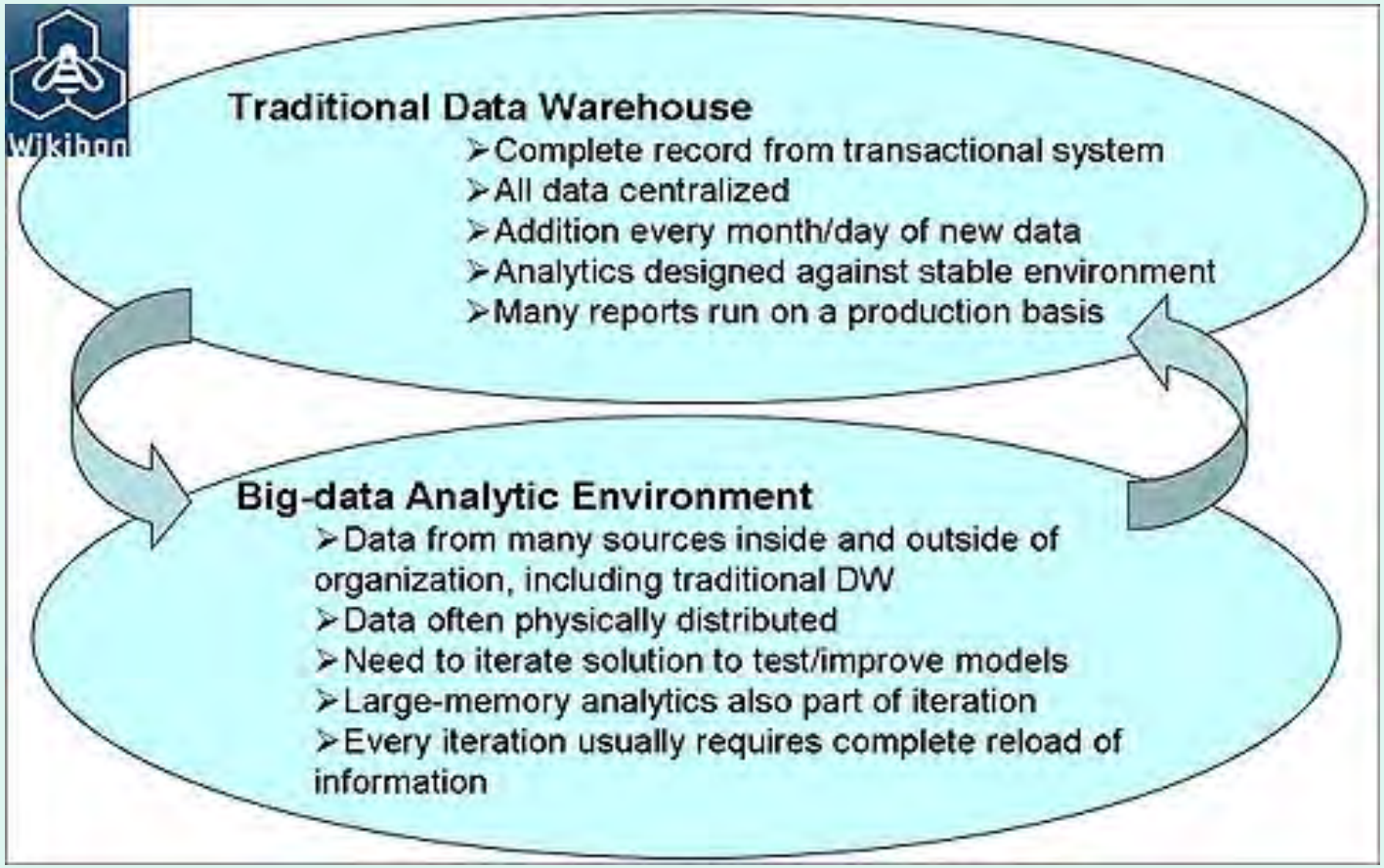
To gain values from this data, you must choose an alternate path to process it.

Big Data analysis

- An opportunity for the enterprise to see structure where apparently doesn't exist and to analyze information otherwise impossible to correlate and filter. The analysis conclusions can lead to effective changes about how the enterprise's business is delivered.

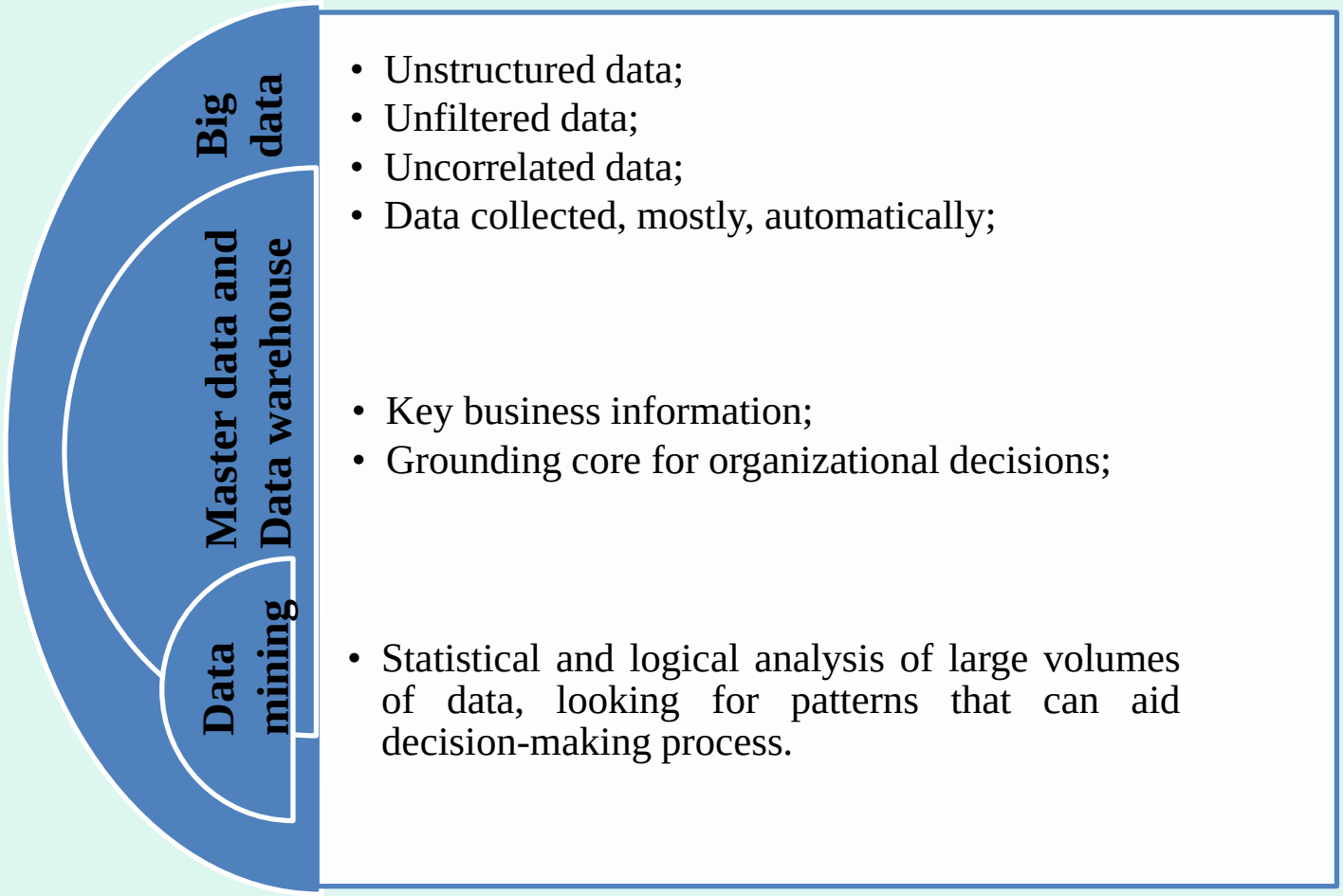
Almost every enterprise discovers that is not enough just to handle information volumes that are larger and larger, in real time, in their systems, but also to analyze these informations so it can rapidly make suited decisions in order to efficiently compete on the market.

Comparison of Traditional DW & Big Data Analytical Characteristics



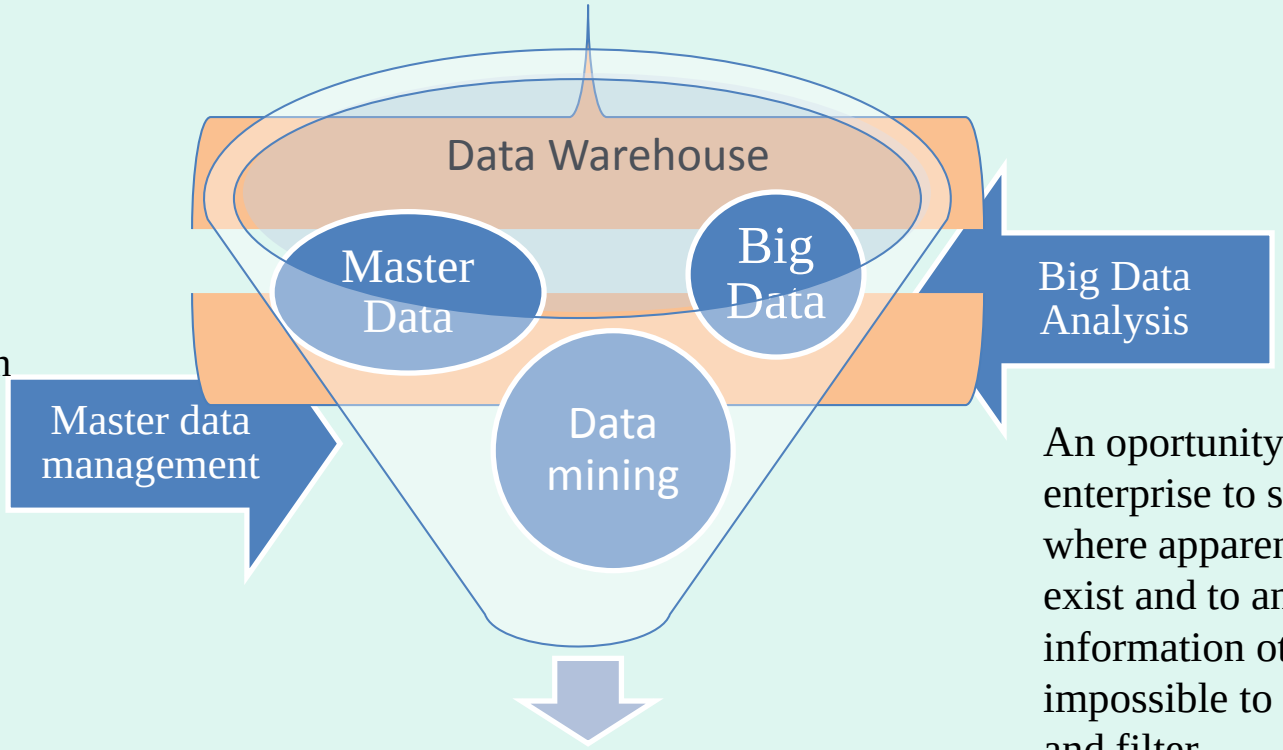
- Source: Wikibon 2011

Big Data - Master Data/Data Warehouse - Data mining



Big Data - Master Data/Data Warehouse - Data mining

Holistic identification of enterprise's key data and keeping them in a centralized way

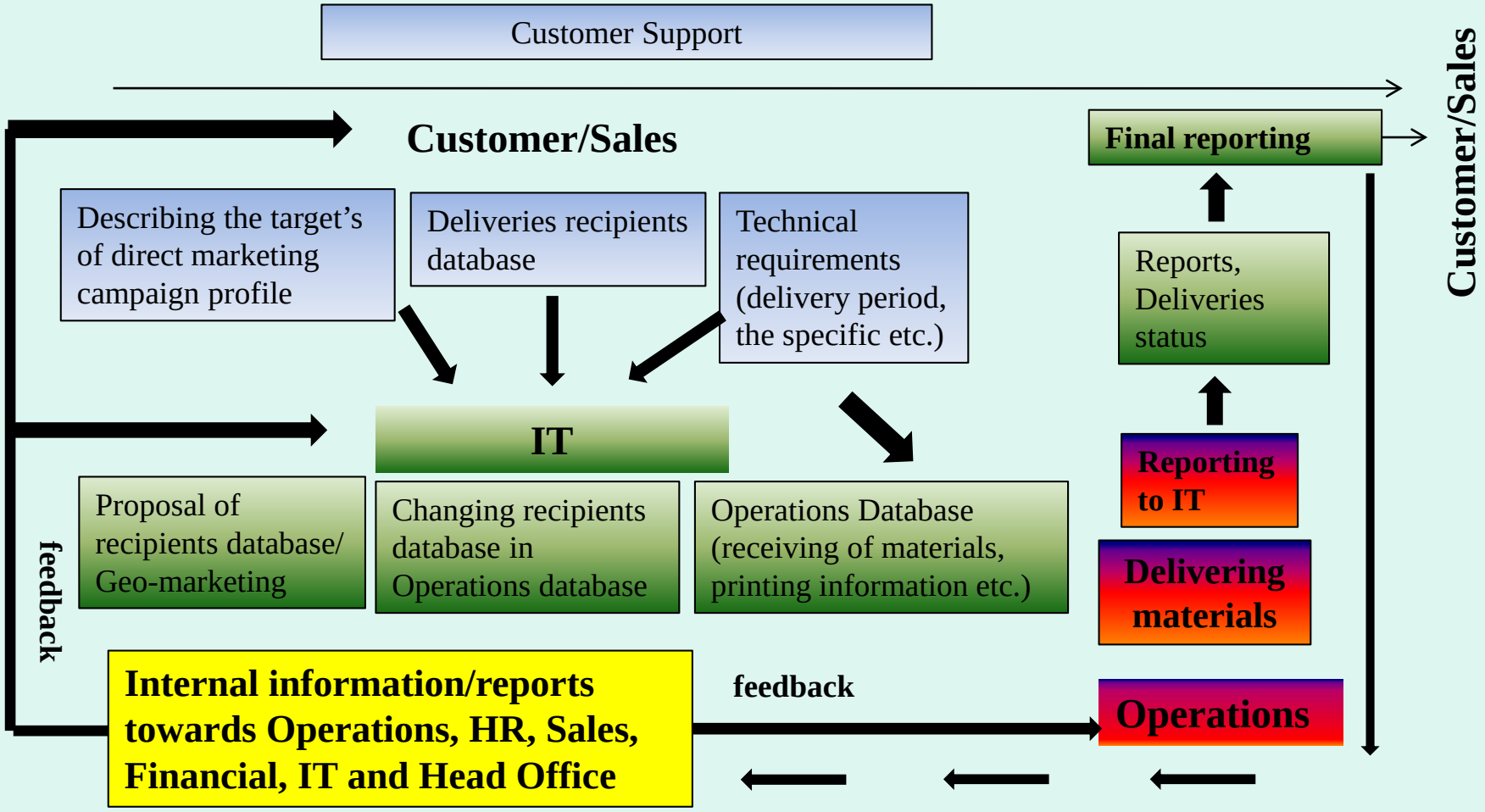


An oportunity for the enterprise to see structure where apparently doesn't exist and to analyze information otherwise impossible to correlate and filter

Useful information and data

II.
Current operational flow, in a postal service and distribution of advertising materials enterprise

Short description of the flow for postal services and direct-mailling



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Main process limits

Sales/ Customer

- No real time deliveries tracking tool;

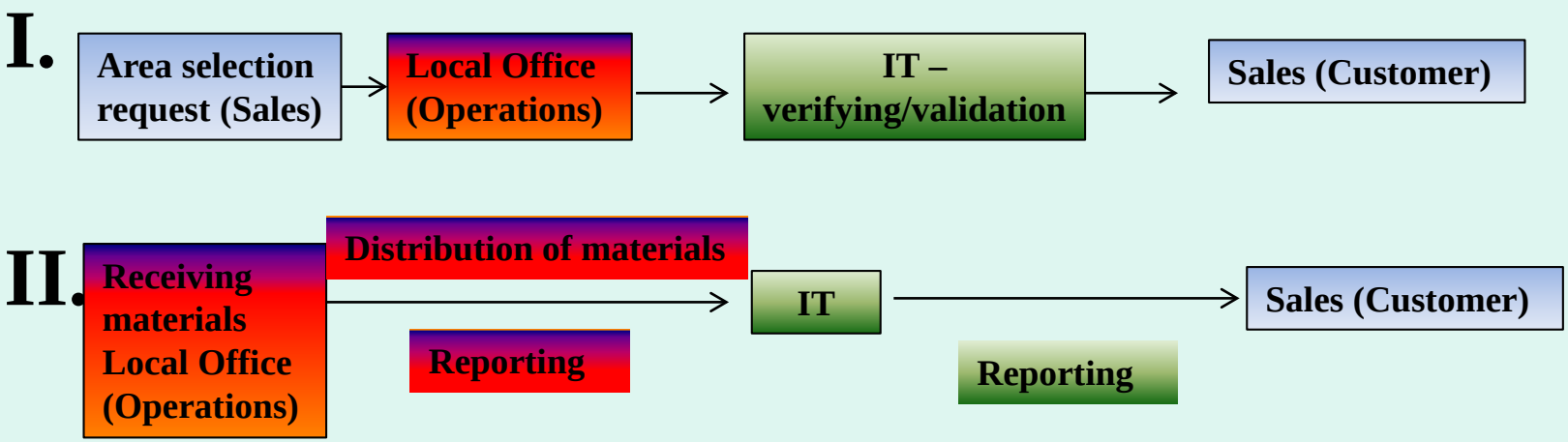
Operations

- Requests for partial or final reporting are time consuming;
- Sometimes there is no electronic database of the recipients;
- Materials are not printed with codes used in Operations or are not sorted properly, according to Operations instructions, so there is a disruption in the process to correct deficiencies;
- Reporting software obsolete and redundant;

IT

- Receiving inaccurate or incomplete databases;
- Often delays in Operations reporting lead to delays in IT reporting;
- Requests for reporting by the customer's model and not by the standard reporting format, again, strongly disrupts the process.

Short description of the flow for distribution of advertising materials (drop-mail)



Main process limits

Sales/ Customer

- Poor recognition of areas selection;
- No real time deliveries tracking tool;

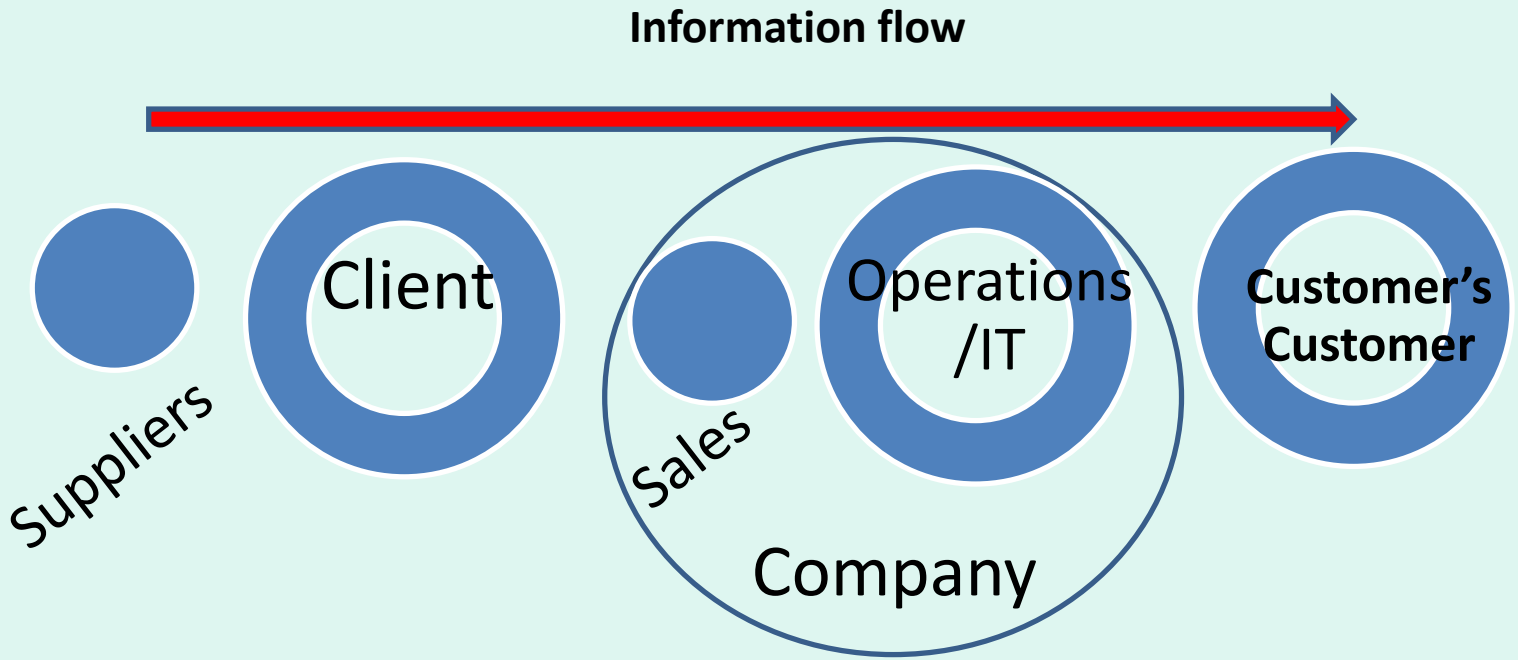
Operations

- The customer proposal of areas selection does not fits the data existing in Operations;
- Requirement such as short term for distribution involves additional resources for a short period of time or postponing other distributions;
- Reporting software obsolete and redundant;

IT

- Delayed or incorrect areas selection received from Operations;
- Delays in reporting of distribution;
- Requests for reporting by the customer's model and not by the standard reporting format, again, strongly disrupts the process;
- Demands creating vectorized maps of selections for all locations that are time consuming

Inter-organizational Information Flow



III.
Proposal of data mining for a private postal service organization and distribution of advertising materials

Premises

Ideas are taking shape that our enterprise's services development strives to become obsolete. It will be replaced by customer relations and conversation.

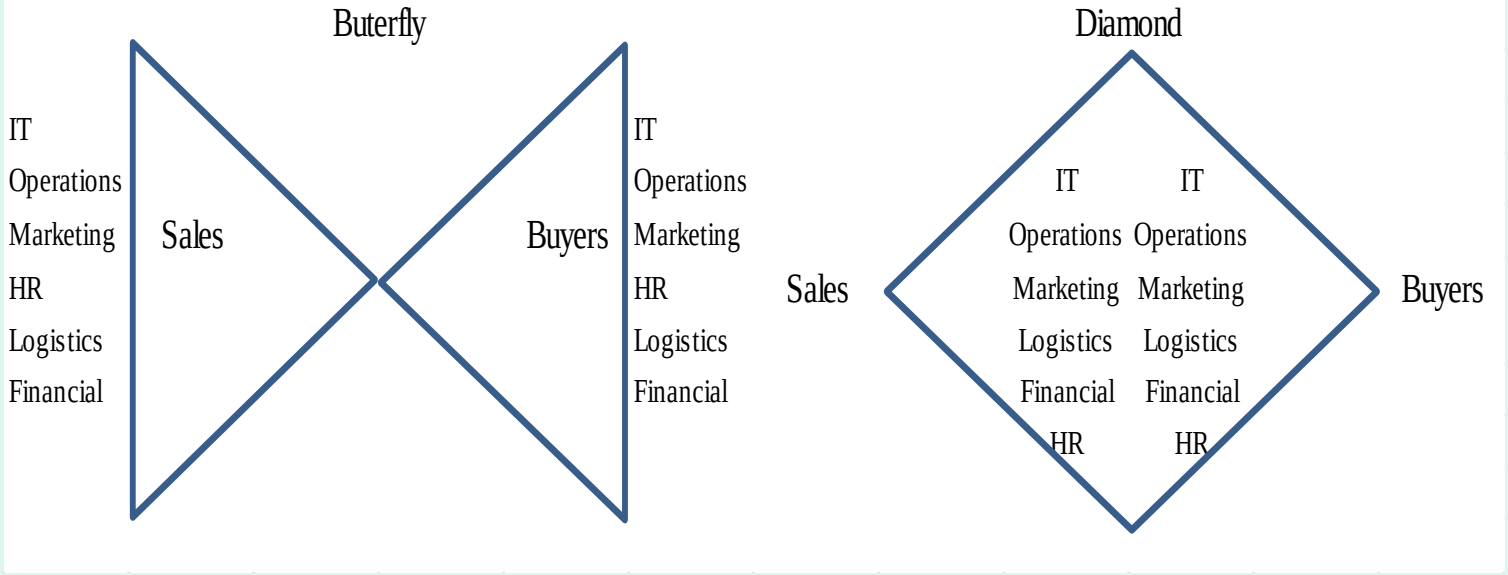
For professional services firms as in our case, the difference will be made by converting non-engaged customers into engaged customers.

The possibility of offering a "self-service" platform, this self-reliance, is part of the value proposition.

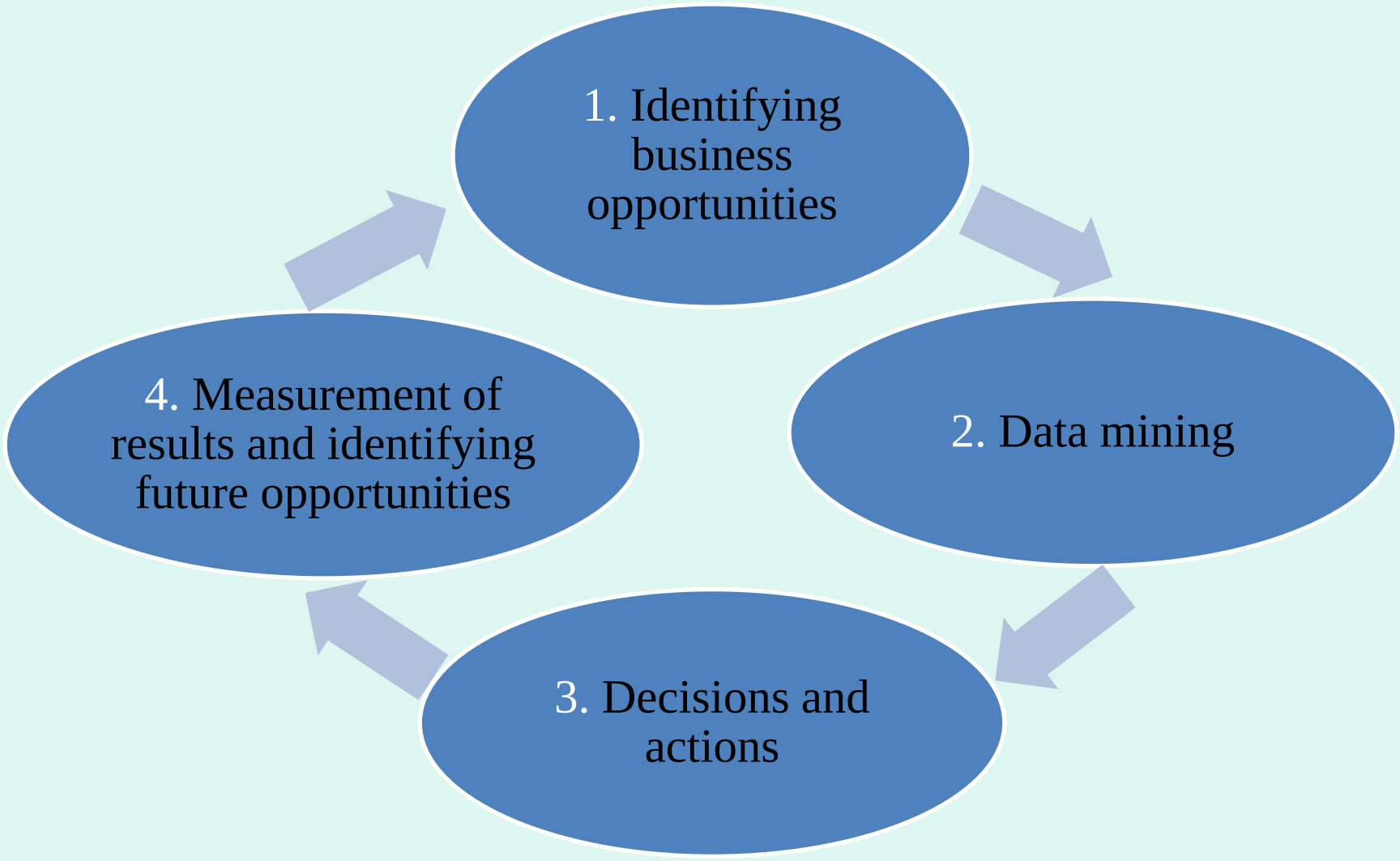
Engaging customers

The diamond diagram (win-win model) represents the desired model which creates connection between organizations across functional areas and skill sets. It can so deliver better alignment across the organizations and more opportunities for the creation of value.

From the philosophy win-lose (butterfly) to the philosophy win-win (diamond)



Steps in using data mining in a private postal service organization and distribution of advertising materials



Steps in using data mining in a private postal service organization and distribution of advertising materials

1. Identifying business opportunities

What is to be solved by data mining, which are the objectives and expected results?

Sales/ Customer

- Selection of target areas for direct marketing campaigns as defined in Operations;
- Obtaining immediate Operations information on selected areas for distribution
- The possibility of real time tracking of deliveries and distribution status

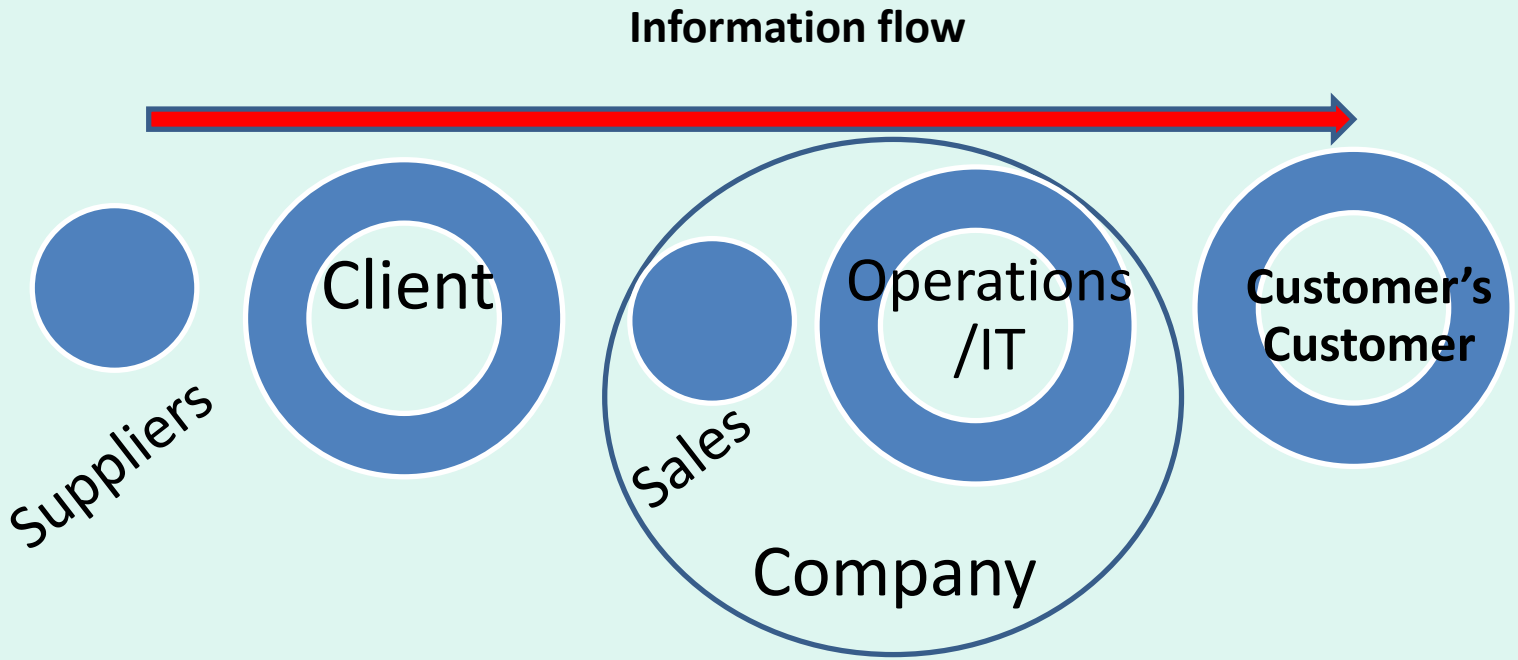
Operations

- Compatibility between selections coming from Sales/ Customer
- High compatibility between customer requirements and operational capacity of the company (increase operational productivity)
- Automate reports;

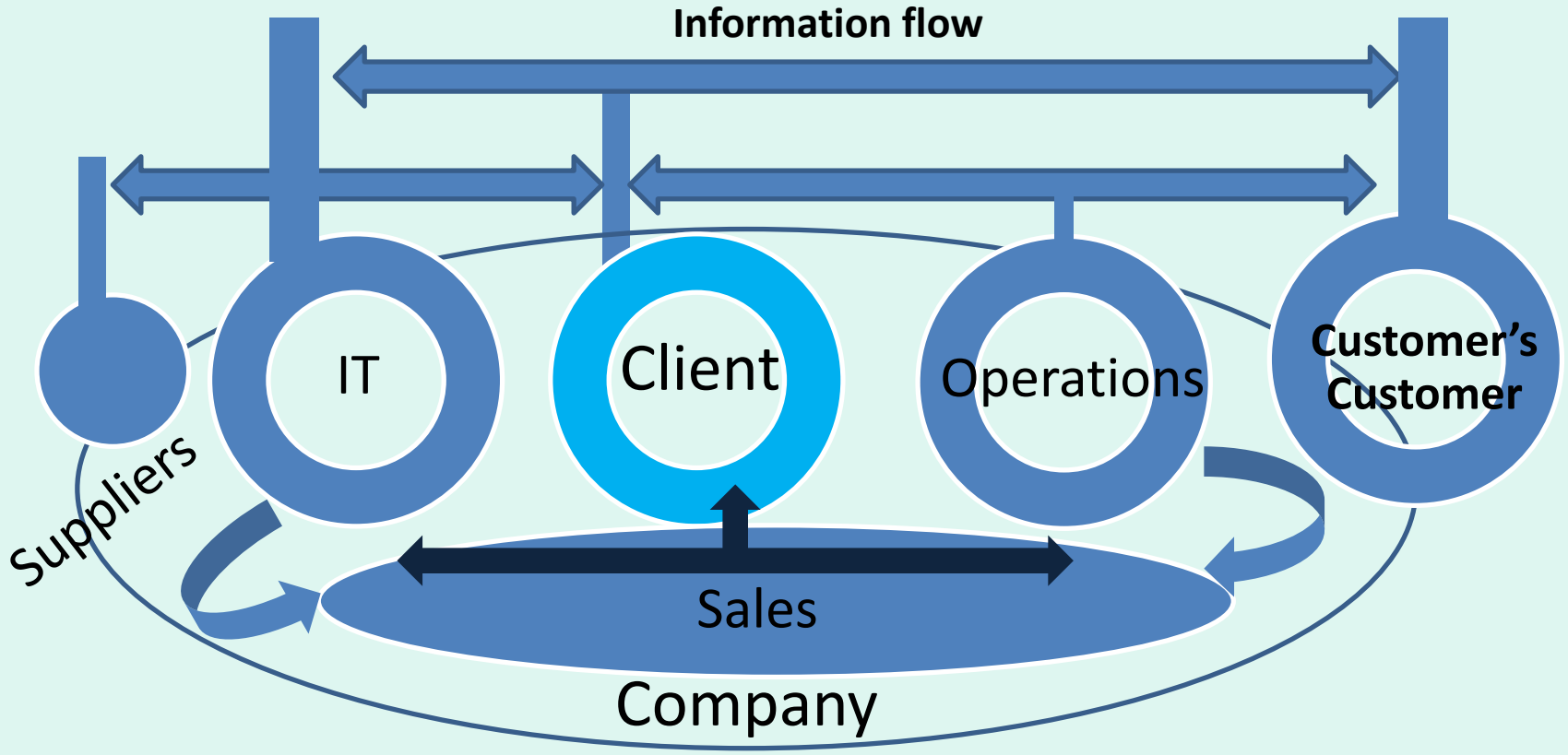
IT

- Automate and centralized reporting of all information (HR, Operations, Sales, Customer, IT, Financial, Head Office)
- Automate reports from Operations

Inter-organizational Information Flow



Proposed inter-organizational Information Flow



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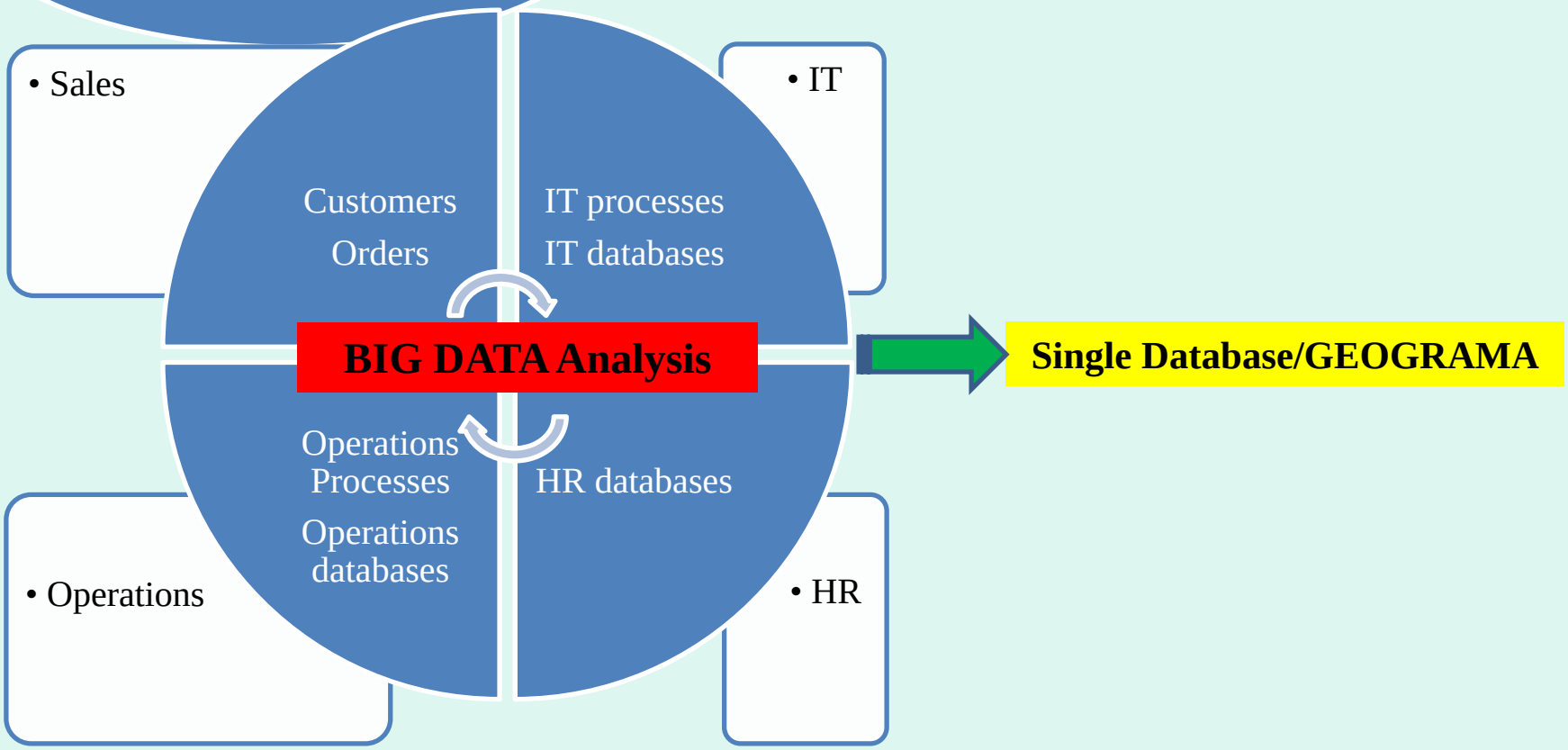
2. Selecting and extracting the necessary information (data mining)

Extraction and placing in a common ground – Single Database - for all of the data to be used



Steps in using data mining in a private postal service organization and distribution of advertising materials

3. Decision making and action taking

Actions undertaken, to explore the data, in the structure and content of it.
Create an online application that will perform the actual exploration

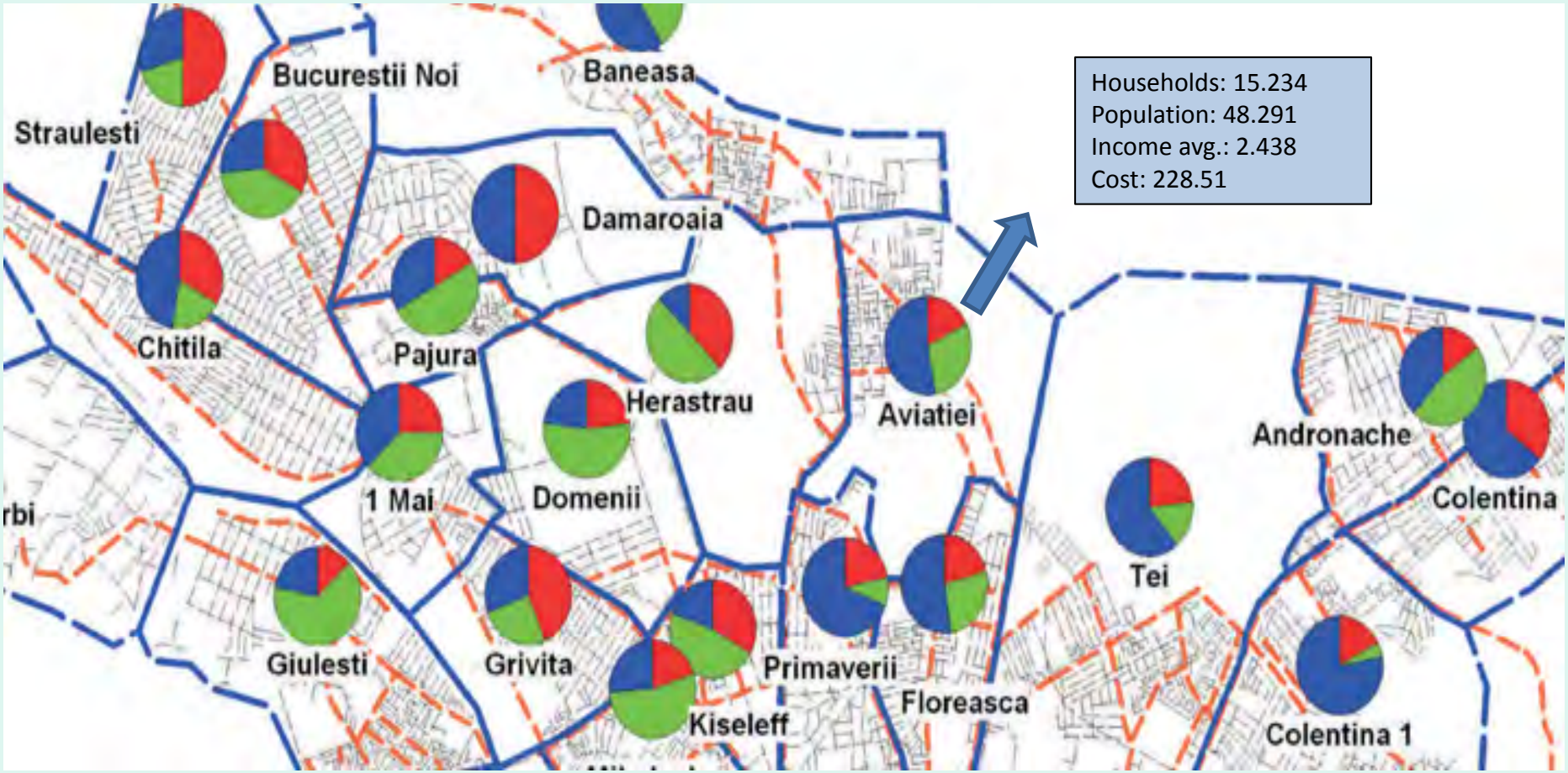
Actions undertaken :

- Creating a Single Database with all the master data and integrating it in an application (Single Reporting System – SRS) which will coordinate all the departments and will:
  - **automatically collect and centralize the reporting of each department**;
  - automatically collect and centralize customer requests and queries;
  - **provide access to all Parties to "part" of their data and information processing**, allowing immediate update of them;
- Geo-coding addresses (giving geographic coordinates to identify each postal address);
- Making Geograma (graphical representation of Single Base) and the **creation of distribution areas vectorized maps for major cities**.

Create an online application that allows:

- **Customers, based on Geograma, to target areas of greater interest for direct marketing campaigns** or direct mailing and instantly to obtain information about (the number of households, household type, estimated total cost, etc..) and can quickly place a pre command;
- Operations validates/invalidates/change the pre-order and Sales automatically receives the answer;
- Sales turns pre-order in firm order;
- **Customers to track in real-time the status of each delivery**.

Steps in using data mining in a private postal service organization and distribution of advertising materials



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Steps in using data mining in a private postal service organization and distribution of advertising materials

By developing this application online :

- Sales/Customers can more easily identify target areas and costs imposed by each;
- Sales/Customers can track real-time status of each shipment.

And by linking the application with the Single Reporting System – SRS:

- Operations no longer receives selections from the customer that are not compatible with the operational processes;
- Operations automates its reporting processes for direct marketing campaigns and direct mailing (increasing the efficiency)
- IT does not have any more the role of "intermediary" between Operations and Sales (carrying selection areas between the two departments, redundant reports, etc..)
- IT receives in real-time Operations reports and can make them available to other departments (HR, Financial, Head Office, Sales)

Steps in using data mining in a private postal service organization and distribution of advertising materials

4. Measurement of results and identifying future opportunities

After developing the SRS and the online application for pre-ordering, we will validate their functionality by performing several tests, followed by a period of parallel functioning with existing operational processes for finding violations that may occur.
Of particular importance we consider integration and deployment of the model and its results throughout the enterprise's entire information system and decision-making process.

Other data mining methods available:

- Development of geomarketing services;
- Development of database management services.

Other benefits :

- Lower cost of data processing;
- Reduce operational system load;
- Reduce informational system load.

Q&A
Proposals?