

Term Project
ON
Management Dashboard –Key Insights

Submitted By:

Tanuj Jindal

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Under the Guidance of:

Dr. Vikas Gupta



DELHI SCHOOL OF MANAGEMENT

DELHI TECHNOLOGICAL UNIVERSITY

BAWANA ROAD DELHI 110042

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DECLARATION

I Tanuj Jindal student of EMBA 2014-2016 batch of Delhi School of Management, Delhi Technological University, Bawana road, Delhi-42 declare that term project “Management Dashboard –Key Insights” submitted in partial fulfilment of Executive MBA programme is the original work conducted by me.

The information and data given in the report is authentic to the best of my knowledge.

This Report is not being submitted to any other University for award of any other Degree, Award and Fellowship.

Tanuj Jindal

Place: New Delhi

Date: 22-04-2016

ACKNOWLEDGEMENT

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I am extremely thankful and pay my gratitude to my faculty **Dr.Vikas Gupta** for her/his valuable guidance and support on completion of this project.

I extend my gratitude to **Delhi School of Management, Delhi Technological University** for giving me this opportunity.

Thank You

Tanuj Jindal

CERTIFICATE

This is to certify that Major Project Report on “Management Dashboard – Key Insights” is a bonafied work carried out by Tanuj Jindal of **Delhi School of Management, Delhi Technological University** for Executive – Master in Business Administration.

He has worked under my guidance and supervision.

Dr.Vikas Gupta

Asst. Professor

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Abstract

Each company and firm to be safe in competitive environment should lead by good decision. For decision making the most important things are data. By gathering data, decision maker can analyze and make best decision. Firms can be intelligence if uses some approaches to make data to information then to knowledge. One the most important approaches is to use a BI platform for gathering and analyzing data.

In this project, we are trying to identify key insights into the management dashboard performance measures across various industries.

Introduction

In management information systems, a dashboard is "an easy to read, often single page, real-time user interface, showing a graphical presentation of the current status and historical trends of an organization's or computer appliances key performance indicators to enable instantaneous and informed decisions to be made at a glance."

In real-world terms, "dashboard" is another name for "progress report" or "report." Often, the "dashboard" is displayed on a web page that is linked to a database which allows the report to be constantly updated.

For example, a manufacturing dashboard may show numbers related to productivity such as number of parts manufactured, or number of failed quality inspections per hour. Similarly, a human resources dashboard may show numbers related to staff recruitment, retention and composition, for example number of open positions, or average days or cost per recruitment.

Dashboards often provide at-a-glance views of KPIs (key performance indicators) relevant to a particular objective or business process (e.g. sales, marketing, human resources, or production). The term dashboard originates from the automobile dashboard where drivers monitor the major functions at a glance via the instrument cluster. Dashboards give signs about a business letting the user know something is wrong or something is right. The corporate world has tried for years to come up with a solution that would tell them if their business needed maintenance or if the temperature of their business was running above normal. Dashboards typically are limited to show summaries, key trends, comparisons, and exceptions. There are four key elements to a good dashboard

1. Simple, communicates easily
2. Minimum distractions...it could cause confusion
3. Supports organized business with meaning and useful data
4. Applies human visual perception to visual presentation of information

A management reporting tool that is used to provide interactive summary of a management report. It consolidates, aggregates, and arranges measurements in a visual representation displayed on a single screen so information can be monitored at a glance.

Literature Review

Meaning of BI (Business Intelligence)

The processes and technologies needed to turn data into information then to knowledge and uses knowledge for plans to profitable business action. Essentially business intelligence is about finding business value from the data in business itself. Every organization has a collection of business systems that they have accumulated over the years. Each systems design to solve single problem like HR system, finance system and so on. The data in these systems designed to serve the system, not the business. Business intelligence tries to perform business analysis on something that crosses system lines and should combine data among many systems.

In an easy way business intelligence is some activities, tools, process, or solutions used to obtain the best information to support decision-making.

Many good products can help to implement BI but BI is not just a single product. Some technology like Data Warehouse, relational database, ETL tools and BI user interface use to support BI but BI not just a technology. Some methodology like BI pathway is essential for success but BI is not just methodology. BI is a combine product, technology, and methods to organize key information that managers need to control and improve profit and performance.

The main goal of BI are: access data from variety of data sources, transform data into information and then into knowledge, provide graphical interface to display important KPI's.

Type of Decision

Decision are categorize to structured, semi structured and unstructured.

Unstructured decision are no routine, important, novel, not well understood procedure and more common at higher levels of the firm. Structured decision are contract, repetitive, routine involved a define procedure and common prevalent at lower organization level. However, many decisions are semi structured usually.

The Decision Making Process

The decision making process has four stages: intelligence, design, choice and implementation.

Intelligence is problem discovery: what is the problem?

Design is solution discovery: what are the possible solutions?

Choice is choosing solutions: what is the best solution?

Implementation is solution testing: is the solution working? Can we make it work better?

Classical and Behavioral Management Methods

Managerial rolls in classical model are planning, organizing, coordinating, designing and controlling.

In addition, in behavioral model manager have five attributes:

1- Work on unrelenting pace (600 activities each day)

2- Fragmented: most activities last for less than nine minutes

- 3- Prefer current, specific and ad hoc information
- 4- Prefer oral forms of communication
- 5- Give high priority to diverse and complex web of contacts acts as an informal information system.

Managerial roles fell into three categories inter personal, informational, decisional.

Risk of Information System

Information technology does not always positive results for three reasons: information quality, management filters and organizational culture. Some information quality dimensions are:

Accuracy: means do not the data represent reality.

Integrity: means are the structure of data and relationships among the entities and attributes consistent.

Consistency: means are data elements consistently defined?

Completeness: are all the necessary data present?

Validity: do data values fall within defined ranges?

Timelines: are data available when needed?

Accessibility: are the data accessible, comprehensible and usable?

Foundation of BI

Introduction

An effective information system should have 3 features:

- Accurate that is free of error.
- Timely that is available any time for decision maker when it is needed.
- Relevant that is useful and suitable and fit to work.

So many business don't have accurate, timely and relevant information because their information system have been poorly organized and main tined.

Traditional File Environment

In most traditional company data file and system grow independently without a main plan each unit has own application with many file. For example , human resources department might have personnel file , payroll file , medical insurance , pension file , mailing list , and finance department might have also payroll file , pension file , and each department might have own computer program to operate. In this situation if this progress goes on for 5 or two years, the organization is saddled with 100 of programs and managed. The problems for this traditional file environment are: Data redundancy, Data inconsistency, Program-data dependence, Inflexibility, poor data security, Inability to share dada among application.

Database management system

By database management system (DBMS) many of these problems solve, some features for DBMS are: Permit organization to centralize data, Manage data efficiently, Provide access to the stored data by application, Interface between application program and physical data files. A DBMS reduce data redundancy it can help control organization to eliminate data redundancy entirely, but it can help control redundancy. A DBMS use some aspect in database called relational database and in this subject uses some aspects like record, key field, primary key and foreignkey. A database management system includes some capabilities like: Data definition, Data dictionary, Data manipulation Language, Data definition is about structure of the database content, Data dictionary is about table and feature of the field in each table, Data manipulation language is about add, change, delete in database, query and create report from database and use structured query language (SQL) for query from data in table. Often design the database it should be manages all data and it's better to centralize them so by distribution database it will possible. There are two main methods of distributing a database partition database and duplicate database in each location and each change will send to main server especially at night. In replicate databases: it duplicate in it's entirely for central database. This strategy requires updating the central database during off hours. All these aspect shows the foundation of business intelligence is DBMS and the strategy for distributing data among them.

System for Decision Making

They are many systems to help and support decision like MIS (Management Information System), DSS (Decision Support System), ESS (Executive Support System), and GDSS (Group Decision Support System).

In MIS typically create fixed, regularly scheduled report based on data extracted and uses firms low level transaction processing system (TPS).

In DSS support semi structured and unstructured problem analysis. It's usually model driven and uses "what if" and other kinds of analyses.

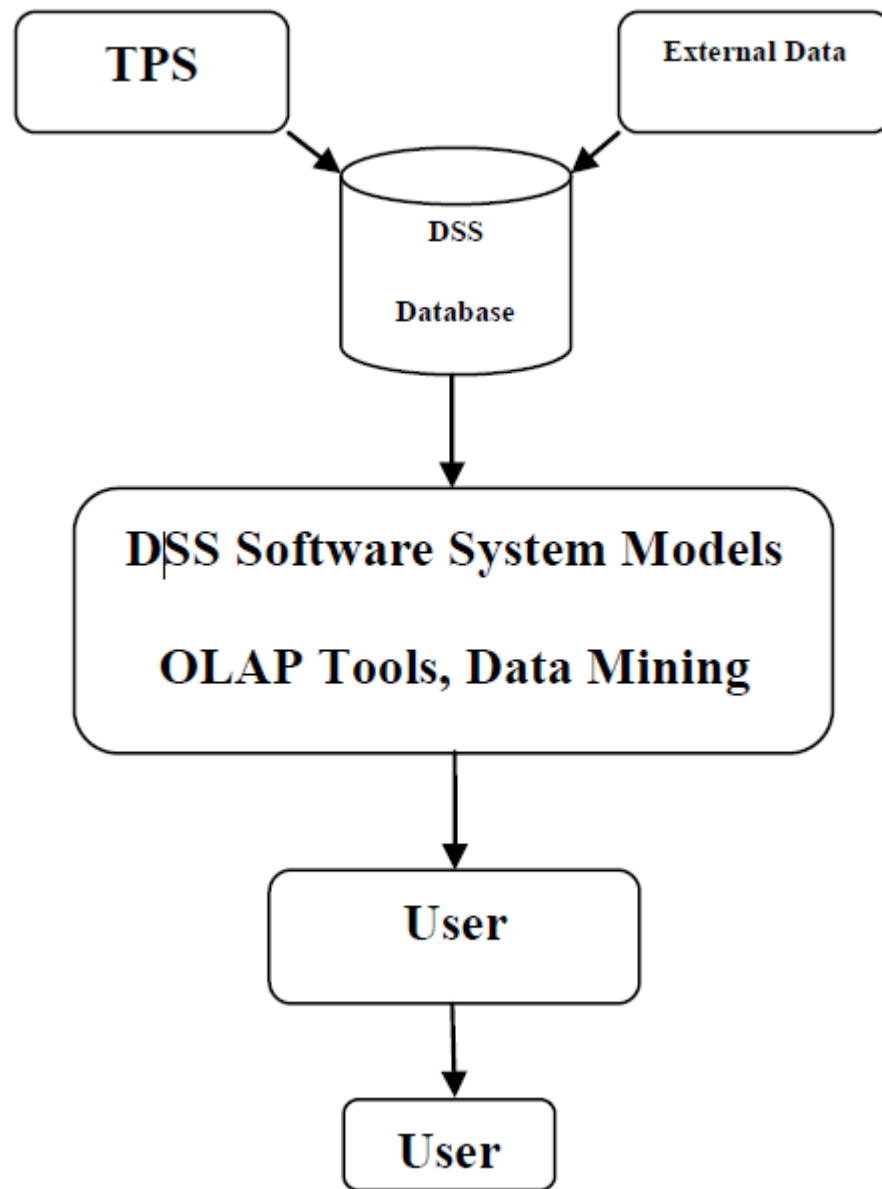


Figure 1: Decision Support System

Spreadsheet software is useful for helping managers to find the pattern of data. By Pivot table and Pivot chart in excel the pattern of data will be appeared.

In geographic information system (GIS) and data visualization uses some maps to show the pattern of distributed data among areas.

Web based customer decision support systems is a system to help the customer like car factory. With this system and data gathering from customer managers can make good decision by customer desired pattern.

ESS with unstructured and semi structured problems by focusing on information need for senior management help managers to make good decision. ESS should be able to tools like:

Drill down, uses OLAP tools

- Review organizational performance from a firm wide perspective by integrates data from system designed.
- Access to news, financial market database, economic information for many manager.

- Include tools for modeling, analysis and graphical tools for using by manager with minimum experience
- Have some facility for environmental scanning and have signed of problems in the organizational environment.

Is a computer based system and tools for collaboration and web based conferencing for a group of decision maker its focus on communication. GDSS make meeting by providing tools to planning, generating, organizing, evaluating ideas, establishing priorities and documenting meeting proceeding.

GDSS consist of three basic elements: hard ware, Software tools and people. Some software tools include:

- Electronic questioners aid the organization
- Electronic brain storming
- Survey tools
- Tools for voting or setting priorities
- Stakeholder identification and analysis tools
- Policy formation tools
- Group dictionaries document

BI Historical Development

The development of management information system and complexity level is showed in figure below:

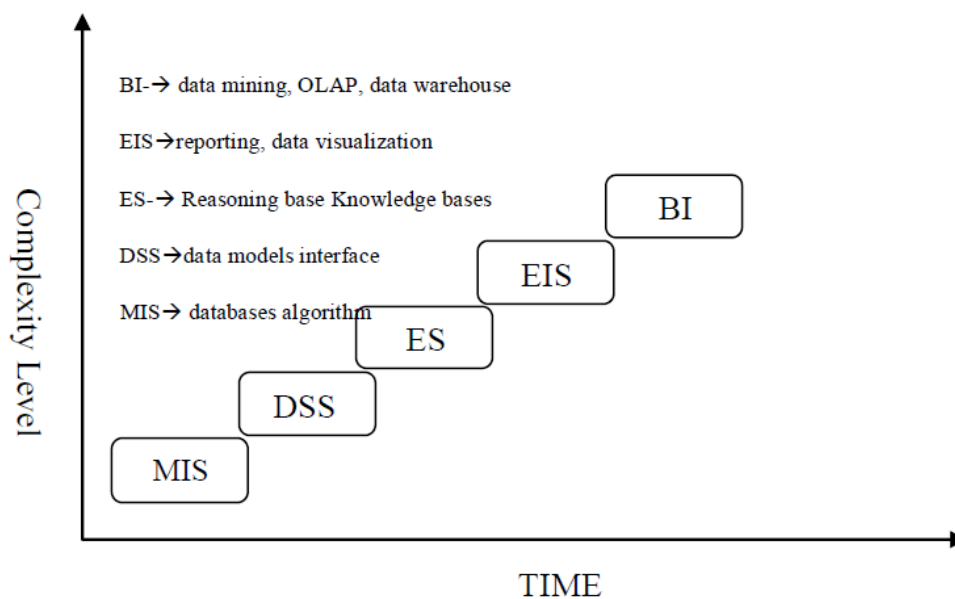


Figure 2: Development of MIS and complexity level

Objective

To conduct an insight into the key KPI's for various industries and building them into a dashboard which may be based on various BI tools available in the market.

These dashboards are useful for the top management and provide significant information for making key decisions for the organization.

Statement of the problem

The problems are:

- a) Not enough information with the Management to take decisions
- b) Information available is not a KPI and with records of data, decisions cannot be taken.
- c) No specific performance measure for decision making is available without dashboard.
- d) Manual intervention of majority of the data.
- e) Single view for the entire organization is not available.

Because of large volume of information and BI solution in a company is like a project with many times Financial, Production, HR, Healthcare, Customer select as a case study to provide place for filling and gathering their data and use them to creating dashboards.

BI Strategy

Strategy of the BI system development the most important motives that support implementation of BI system in enterprises include:

- transfer from instinct and intuition decision making to objectivism
- forecasting enterprise development
- matching operational activities with realization of strategic objectives
- implementing standard that are used as the basis for repetitive, regular business process
- unifying informational transfers in order to make them more transparent
- detecting detective informational from commonly accepted standard in short time
- shortening time that is necessary to analyse information
- automatic and rapid reporting and plan of forecasting

It is natural for enterprises to start BI with finance, then marketing, customer relations management, then logistic.

Development of the majority of BI is characterized by a top-down approach. First decision making by the board and top management is supported and then lower levels of management are involved.

Identify and preparation of data for the BI system. Identify sources of data uses to support business needs, some of data are in internal sources (intellectual resources, information technology resources) and external sources (customers, supplier, shareholder the instruction if this stages are:

Find data in IS

Find relation between data

Find the logical structure of data in system

Find places for generating error in data

Find limits of IS applicability.

BI and Knowledge Management

"BI systems are becoming increasingly more critical to the daily operation of Organizations. Data warehousing can be used to empower knowledge workers with information that allows them to make decisions based on a solid foundation of fact.

However, only a fraction of the needed information exists on computers; the vast majority of a firm's intellectual assets exist as knowledge in the minds of its employees. Nemati, Steiger, Iyer, and Herschel (2002) effectively argue that what is needed is a new generation of knowledge-enabled systems that provide the infrastructure needed to capture, cleanse, store, organize, leverage, and disseminate not only data and information but also the knowledge of the firm. They propose, as an extension to the data warehouse model, a Knowledge Warehouse (KW) architecture that will not only facilitate the capturing and coding of knowledge but also enhance the retrieval and sharing of knowledge across the organization. The knowledge warehouse proposed suggests a different direction for BI. This new direction is based on an expanded purpose of BI. That is, the role of BI in knowledge improvement. This expanded role also suggests that the effectiveness of a BI will, in the future, be measured based on how well it promotes and enhances knowledge, how well it improves the mental model(s) and understanding of the decision maker(s) and thereby how well it improves their decision making and hence firm performance. The need for the integration of KM and BI is clear."

BI Elements

Introduction

By using database it's possible to make good decision and if many databases and application are existed some especial capabilities like data warehouse and data mining and tools for all data from the application among company should transform to data warehouse and with some BI tools provide special report to decision maker.

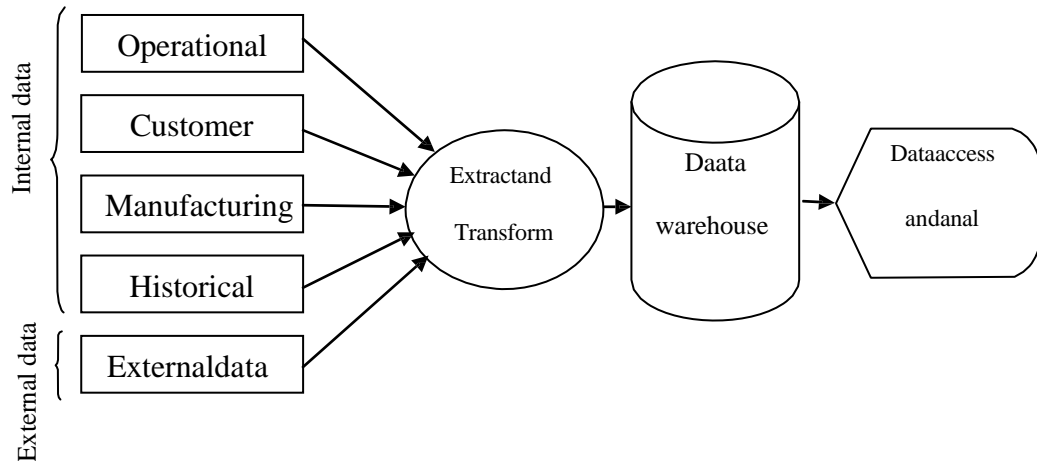


Figure 2: BI Platform

By BI tools the decision maker's behaviour will change and the pattern of customer taste and production will be appeared.

To answer some questions with multidimensional data analysis for example how many products sold in each of sale regions in each year and compare actual result with projected sales?

It needs online Analytical Processing (OLAP); OLAP enables users to obtain online answers to ad hoc queries in fairly time.

What is ETL?

In some books Loading data from all databases in company add to Extraction and transformation tasks to ETL process.

ETL is a process use in data warehouse that involves:

Extracting data from outside sources of database

Transforming quality to operational

Load data to end target in database and specially Extract:

Most data warehouses consolidate data from different source system. Some dataformats are:

Relational database(its more common)

Flat files

Informational management system(IMS)

Virtual storage access method(VSAM)

Indexed sequential access method(ISAM)

Fetch from through web spider

Fetch from screen scraping

The goal of extraction is to convert data to single format. Transformation:

Some transformation types are:

- Selecting certain column to load or select not null data (e.g. between ID_no , age , name, salary select just ID_no and salary)
- Translating coded values if in data sources store 1 for bachelor and 2 for master but in data warehouse store B for bachelor and M for master, it's called automated data cleaning.
- Encoding free form value (e.g. mapping "male" to "1")
- Deriving new calculated value (e.g. salary= base*day of work)
- Sort the data
- Join the data from multiple sources (lookup, merge...)
- Aggregating (total sales from each store)
- Generating substitute key values
- Transposing or pivoting (training multiple row to multiple column or vice versa)
- Splitting a column into a multiple column (e.g. comma separated list)
- Reject repeating columns into a separate detail table
- Lookup and validate relevant data
- Applying any form of simple or complex data validation Load:
- In this stage data loads to data warehouse depending on the requirement of the Organization. The frequency of updating is done on daily, weekly or monthly basis.

What is Data warehousing?

A data warehouse is a separate place of other databases in organization where hold organization's data for users to be able to access it. Data from all sources in systems though ETL process into the data warehouse and this information enable users to formulate their business question and the answers are returned faster and more easy than similar transaction systems.

A data warehouse is still relational database without fully normalized, entity-relation(ER) like OLTP systems. Over time querying information change to dimensional model. In dimensional model numeric measures are central such as sales revenue. Related measures are collected into fact tables and every time some measurable such as a sales transaction happens. The different ways of looking at these table such as product, Customer, or Time are called dimensions.

Every dimension table has some columns with descriptive columns are known as attributes. One or more central fact tables and a number of dimension tables can join to these fact table to create star schema for analyze them in different ways.

The most important dimension in data warehouse is Time. Time dimension allows users to summarize the information in the fact tables. By Time dimension user can look at totals for the current calendar year to compare the percentage improvement over the previous fiscal period.

In ETL Fact table loading usually involves appending a new set of records and updates to Fact records are relatively uncommon in practice. In some cases Data Marts can reduce Data Warehouse loading and data cleaning process. Data Mart is like Data Warehouse in special department such as "Marketing Data Mart" or "Finance Data Mart" and this projects are depend on vision of the company.

What is Data Mining?

To compare traditional database queries and OLAP and query oriented data analysis and data mining

How many units of product number 403 were shipped in February 2007?

Compare sales of product 403 relation to plan by quarter and sales region for the past two year.

Some question more than finding hidden pattern and more about forecasting and guide for decision making.

The first question is solved by traditional database query. The second question is solved by OLAP and query oriented the third question is for data mining approach.

Some type of information obtainable from data mining includes:

- Associations
- Sequences
- Classification
- Clusters

Some occurrences linked to single event. For instance in supermarket search cola drink are (in 65 percent) linked to purchasing corn chips , and by promotion it can be more until to 85 percent.

Sequences:

Some event is linked over time. For example buying refrigerator after two weeks of buying a new house in 65 percent of time and buying an Owen, one month after buying a new house in 45 percent of time.

Classification:

Recognize patterns that the group to which an item belongs. For instance manage and find pattern of leaning steady customer in credit card and telephone business.

Clustering:

Work in manner similar to classification when no groups have yet been defined. For instance discovering group of customer based on demographics and types of personal instrument.

Forecasting:

It uses a series of existing values to forecast what other values will be.

BI Tools

Introduction

Finding BI tools should be according to enterprise need and the ability of BI product. Some ERP equip to BI tools and some other BI tools should buy independency and are open source.

Designing and implementing the BI system

Designing and implementing the BI system depends on the system complexity and level of popularity one of the most important in BI system is data warehouse. So for updating data warehouse it is necessary to create mechanisms of data import. And after creating data warehouse should be provide reporting for two groups of reports.

One of them is systematically updated and another is for advanced user with some possibilities to create their own reports.

Exploring and discovering new informational needs

The role of BI is casting new light on the role of information and competences in enterprise and by innovation and centre of knowledge management in IT department provide better cooperation and decision rapid application development (RAD).

Market vendor of BI

They are many BI vendors like Tableau, Qlik, Business Objects, SAS, Cognos, Microsoft, Hyperion Solution, Oracles, Micro strategy, SAP, SPSS, Information Builder, IBM, Actuate, and Teradata(NCR).

In BI market there are two segments:

Query, reporting and analysis (QRT)

Advanced analysis include data mining such technology like: neural network, clustering, rule induction.

BI Vendors

By surfing in internet can find many solution and software for BI and there are many vendors to supply BI solution, below table shows the tools and last version of software's and Vendor Company:

Table 1: Tools and Vendor Company in BI

BI Tool	Vendor
Oracle BI Enterprise	Oracle
Business Objects	SAP
Microsoft BI tools	Microsoft
SAS Enterprise BI	SAS Institute
Microstrategy	Microstrategy
IBM Cognos	IBM
QlikView	Qlik Tech

Tableau	Tableau
BizzScore Suite	EFM
Web Focus	Information
SAP Netweaver BI	SAP
Actuate	Actuate
Style Intelligence	IntelSoft
Pentaho BI Suite	Pentaho

BI Tools and Selecting Progress

Selecting BI tools is a process:

- Create a business intelligence strategy
- Selecting BI tools begins with defining a BI strategy with the overall business strategy.
- Define criteria in business term
- After strategy is cleared the criteria should be defined like 'people like to keep track of history' in this example BI tool has to standard support for slowly changing dimension out of the box. Or 'business needs to have more critical information with customer and vendor' so this BI tool should performs well with a huge number of users having a robust infrastructure with load balancing and clustering.

Functions & Industry KPI's

Financial Metrics

1. **Profit:** This goes without saying, but it is still important to note, as this is one of the most important performance indicators out there. Don't forget to analyze both gross and net profit margin to better understand how successful your organization is at generating a high return.
2. **Cost:** Measure cost effectiveness and find the best ways to reduce and manage your costs.
3. **LOB Revenue vs. Target:** This is a comparison between your actual revenue and your projected revenue. Charting and analyzing the discrepancies between these two numbers will help you identify how your department is performing.
4. **Cost Of Goods Sold:** By tallying all production costs for the product your company is selling, you can get a better idea of both what your product markup should look like and what your actual profit margin is. This is key in determining how to outsell your competition.
5. **Day Sales Outstanding (DSO):** Take your accounts receivable and divide them by the number of total credit sales. Take that number and multiply it by the number of days in the timeframe you are examining. Congratulations—you've just come up with your DSO number! The lower the number, the better your organization is doing at collecting accounts receivable. Run this formula every month, quarter, or year to see how you are improving.
6. **Sales by Region:** Through analyzing which regions are meeting sales objectives, you can provide better feedback for regions that are underperforming.
7. **LOB Expenses vs. Budget:** Compare your actual overhead with your forecasted budget. Understanding where you deviated from your plan can help you create a more effective departmental budget in the future

Cash flow KPIs	Description
Working Capital	Measures an organization's financial health by analyzing readily available resources that could be used to meet short-term obligations.
Operating Cash Flow	The amount of cash generated by regular business operations.
Cash Rotation (365/cash cycle)	The number of times the cash comes back to the organization for a period of one year.
Cash Flow from Investing Activities	Shows the change in an organization's cash position by investments, gains, or losses.

Cash Flow from Financing Activities	Demonstrates an organization's financial strength. Formula: $(\text{Cash Received from Issuing Stock or Debt}) - (\text{Cash Dividends and Reacquisition of Debt/Stock}) = (\text{Cash from Financing Activities})$
Cash Flow	The total amount of money being transferred into and out of an organization.
Cash Conversion Cycle	Demonstrates the amount of time it takes for money invested in the organization to come back to the organization in the form of increased revenue.
Accounts Receivable Turnover	The rate at which an organization collects on outstanding accounts. Formula: $(\text{Net Credit Sales}) / (\text{Average Accounts Receivable}) = (\text{Accounts Receivable Turnover})$
Accounts Receivable	The amount of money an organization is owed by its customers.
Accounts Payable Turnover	The rate at which an organization pays off suppliers and other expenses. Formula: $(\text{Total Supplier Purchases}) / (\text{Average Accounts Payable}) = (\text{Accounts Payable Turnover})$
Accounts Payable	Shows the amount of money an organization owes its suppliers.
#/% Invoices Past Due	Invoices that remain unpaid after their due date.
Cost KPIs	
Total Expenses	Consists of the total costs an organization incurs during a reporting period (including marketing, sales, and operating costs).
SG&A	The costs of operating an organization—including sales and general and administrative expenses—are collectively referred to as SG&A.
Sales Expenses	Costs incurred by the sales department—including salaries and commissions.
Marketing Expense	Encompasses the total costs incurred by the marketing department, including advertising, salaries, research, and surveys.
Inventory Turnover	The number of times an organization is able to sell its on-hand in-stock inventory in a given period. Formula: $(\text{Sales}) / (\text{Inventory}) = (\text{Inventory Turnover})$

Cost Per Unit	The price to produce, store, and sell one unit of a particular product including fixed and variable costs of production. Formula: $([\text{Variable Cost}] + [\text{Fixed Cost}]) / (\text{Number of Units Produced}) = (\text{Cost Per Unit})$
Cost Per Hire	The average cost of hiring a new employee, including advertising fees, employee referrals, travel expenses, relocation expenses, and recruiter costs. Formula: $(\text{Total Hire Expenses}) / (\text{Number of New Hires}) = (\text{Cost Per Hire})$
COGS (Cost of Goods Sold)	Represents the cost of materials and direct labor used to produce a good.
Average Annual Expenses to Serve One Customer	This is the average amount needed to serve one customer. Formula: $(\text{Total Expenses}) / (\text{Total Customers}) = (\text{Average Annual Expenses to Serve One Customer})$
Customer Acquisition Cost	The cost to acquire one new customer
Cost per Click	Measures the cost of a pay-per-click advertising campaign (such as Google AdWords).
Percentage of Cost of Workforce	The cost of the workforce as compared to all costs of a company measured by summing all salaries and dividing by the total company costs within a given time period. Formula: $(\text{Total Workforce Costs}) / (\text{Total Company Costs}) = (\text{Percentage of Cost of Workforce})$
Healthcare Expense per Current Employee	The total price of health care costs divided out among all employees provides an understanding of the comprehensiveness of a company's health care plan.
Debt KPIs	
Quick Ratio/Acid Test	Shows the ability of an organization to meet any short-term financial liabilities, such as upcoming bills. Formula: $([\text{Current Assets}] - [\text{Inventories}]) / (\text{Current Liabilities}) = (\text{Quick Ratio})$
Price-Earnings Ratio (P/E)	An equity valuation multiple that compares an organization's share price to its per-share earnings. Formula: $(\text{Market Value Per Share}) / (\text{Earnings Per Share}) = (\text{Price-Earnings Ratio})$
Debt to Equity Ratio	Measures how an organization is funding its growth using shareholder investments. Formula: $(\text{Total Debt}) / (\text{Shareholders' Equity}) = (\text{Debt to Equity Ratio})$
Debt Level	The amount of debt that an organization currently has

Current Ratio	Measures the ability of an organization to pay all of debts over a given time period. Formula: $(\text{Current Assets} / \text{Current Liabilities}) = (\text{Current Ratio})$
Bad Debt	Debt that is not collectible, and is often written off as an expense.
Investment KPIs	
Savings Levels Due to Improvement Efforts	Many organizations look at investing in improvement efforts, such as merging operations (or even companies). This KPI looks at the dollar value of the savings achieved as a result of investments.
Return on Innovation Investment	Can be calculated by looking at the revenue from new products, or the number of new products meeting a certain threshold. This is typically only reviewed by organizations that have created an innovation department or budget.
Inventory Assets	The cost of merchandise purchased or manufactured but not yet sold, may be a good leading indicator of preparedness for growth or even slowing growth.
Innovation Spending	The amount of money that an organization spends on innovation. Some organizations have this budgeted as a percentage of research and development, and others have different accounting terms. Ultimately, if you use this measure, you are valuing innovation as a key strategic thrust.
Break Even Time	The time it takes an organization to break even from an investment in a new product or process. If the costs are high up front, this measure can help you understand how long it will take to recoup these expenses.
% Investment in...	Used for measuring investments in different lines of business. You might measure the percentage of your investment in organic products vs. total investment in all products overall. Formula: $(\text{Amount of Investment} / \text{Total Capital Spent}) = (\text{Percentage of Investment})$
# of Key Capital Investments that Meet or Exceed ROI Expectations	Can be based on the plan for investments, or on the results of past investments. Useful for organizations that invest in many capital projects
Profitability KPIs	

Sales Growth	The change in an organization's sales from one reporting period to another. Formula: $([Current\ Sales] - [Past\ Sales]) / (Past\ Sales) = (Sales\ Growth)$
ROI (Return on Investment)	Shows the efficiency of an investment. Formula: $([Gain\ from\ Investment] - [Cost\ of\ Investment]) / (Cost\ of\ Investment) = (ROI)$
ROE (Return on Equity)	The amount of net income an organization generates compared to the amount of shareholders' equity. Formula: $(Net\ Income) / (Shareholders'\ Equity) = (ROE)$
ROA (Return on Assets)	Indicates how profitable an organization is relative to total assets. Formula: $(Net\ Income) / (Total\ Assets) = (ROA)$
Return on Capital Employed	Measures an organization's profitability and the efficiency with which its capital is employed.
Program Profitability	Tracks the profitability of an individual program.
Operating Profit Margin	Measures income after variable costs of production are considered. Formula: $(Operating\ Income) / (Net\ Sales) = (Operating\ Profit\ Margin)$
Net Profit Margin	The percentage of an organization's revenue that is net profit. Formula: $(Net\ Profit) / (Revenue) = (Net\ Profit\ Margin)$
Net Profit	The amount of money an organization makes after taking out all expenses and other costs. Formula: $(Income) - (Expenses) = (Net\ Profit)$
Gross Profit Margin	The percentage of revenue that is profit after the cost of production and sales is considered. Formula: $(Gross\ Profit) / (Revenue) = (Gross\ Profit\ Margin)$
Gross Profit	An organization's profit after the cost of production and sales is considered. Formula: $(Revenue) - (COGS) = (Gross\ Profit)$
Economic Value Added (EVA)	An estimate of an organization's economic profit.
Average Capital Employed	Shows profitability compared to investments made in capital.
Customer Lifetime Value	The net profit an organization anticipates gaining from a customer over the entire length of a relationship helps determine the costs/benefits of acquisition efforts.

Customer Lifetime Value / Customer Acquisition Cost	The ratio of customer lifetime value to customer acquisition cost should ideally be greater than one, as a customer is more profitable if the cost to acquire is greater than the profit they will bring to a company. Formula: $(\text{Net Expected Lifetime Profit from Customer}) / (\text{Cost to Acquire Customer})$
Human Capital Value Added (HCVA)	By taking all non-employee related costs away from revenue and dividing the result by the number of full-time employees, one can deduce how profitable the average worker in an organization is. Formula: $([\text{Revenue}] - [\text{Employee-Related Costs}]) / (\text{Number of Full-Time Employees}) = (\text{HCVA})$
Revenue KPIs	
Sales Volume	The amount of sales in a reporting period, expressed in the number of units sold.
Sales Forecast Accuracy	The proximity of the forecasted quantity of sales to the actual quantity of sales.
ROI of R&D	The revenue generated by investing money into research and development. Formula: $([\text{Gain from Investment}] / [\text{Cost of Investment}]) = (\text{ROI of Research \& Development})$
Revenue per FTE (Full time employee)	Demonstrates how expensive an organization is to run. Formula: $(\text{Revenue}) / (\text{Number of FTE}) = (\text{Revenue per FTE})$
Revenue Growth Rate	The rate at which an organization's income is increasing. Formula: $([\text{Current Revenue}] - [\text{Past Revenue}]) / (\text{Past Revenue}) = (\text{Revenue Growth Rate})$
Revenue	The total income an organization receives. Formula: $(\text{Price of Goods}) \times (\text{Number of Goods Sold}) = (\text{Revenue})$
Operating Income	The profit from operations after removing operating expenses. Formula: $(\text{Gross Income}) - (\text{Operating Expenses}) - (\text{Depreciation \& Amortization}) = (\text{Operating Income})$
Net Income	The amount of sales after subtracting discounts, returns, and damaged goods. Formula: $(\text{Revenue}) - (\text{Expenses}) = (\text{Net Income})$

EBT (Earnings Before Taxes)	Shows how much an organization has made after considering COGS, interest, and SG&A expenses, but taxes are subtracted. Formula: $(\text{Revenue}) - (\text{COGS}) - (\text{Interest}) - (\text{SG\&A}) = (\text{EBT})$
EBITDA	Measures revenue after expenses are considered and interest, taxes, depreciation and amortization are excluded. Formula: $(\text{Revenue}) - (\text{Expenses Excluding Interest, Depreciation \& Amortization}) = (\text{EBITDA})$
Average Annual Sales Volume Per Customer	This is the average amount of sales per customer, expressed in currency. Formula: $(\text{Total Sales}) / (\text{Total Customers}) = (\text{Average Annual Sales Volume per Customer})$
Asset Utilization	Total revenue earned for every dollar of assets an organization owns. Formula: $(\text{Total Revenue}) / (\text{Total Assets}) = (\text{Asset Utilization})$
Share of Wallet	Measures the portion of a customer's total spending that goes toward the company's products and services.
EBIT	An indicator of a company's profitability with expenses removed and interest and tax excluded. Formula: $(\text{Revenue}) - (\text{COGS}) - (\text{Operating Expenses}) = (\text{EBIT})$

Customer Metrics

1. **Customer Lifetime Value (CLV):** Minimizing cost isn't the only (or the best) way to optimize your customer acquisition. CLV helps you look at the value your organization is getting from a long-term customer relationship. Use this performance indicator to narrow down which channel helps you gain the best customers for the best price.
2. **Customer Acquisition Cost (CAC):** Divide your total acquisition costs by the number of new customers in the time frame you're examining. Voila! You have found your CAC. This is considered one of the most important metrics in e-commerce because it can help you evaluate how cost effective your marketing campaigns have been.
3. **Customer Satisfaction & Retention:** On the surface, this is simple: make the customer happy and they will continue to be your customer. Many firms argue, however, that this is more for shareholder value than it is for the customers themselves. You can use multiple performance indicators to measure CSR, including customer satisfaction scores and percentage of customers repeating a purchase.
4. **Net Promoter Score (NPS):** Finding out your NPS is one of the best ways to indicate long-term company growth. To determine your NPS score, send out quarterly surveys to your customers to see how likely it is that they'll recommend your organization to someone they know. Establish a baseline with your first survey and put measures in place that will help those numbers grow quarter to quarter.
5. **Number of Customers:** Similar to profit, this performance indicator is fairly straightforward. By determining the number of customers you've gained and lost, you can further understand whether or not you are meeting your customers' needs.

Life Cycle KPIs	Description
Conversion Rate	Helps determine the success of a particular customer interaction by tracking the percentage of interactions that result in a sale. Formula: $\frac{\text{(Interactions with Completed Transactions)}}{\text{(Total Sales Interactions)}} = \text{(Conversion Rate)}$
Cross-Selling Rate	Measures a brand's ability to sell a consumer product related to the one they have purchased, thereby expanding wallet share. This rate can be measured in additional products sold or additional revenue gained from these products.

Customer Churn Rate	Indicates the percentage of customers that fail to make a repeat purchase or discontinue service during a given period. Formula: $(\text{Number of Customers Lost in a Given Period}) / (\text{Number of Customers at the Start of the Period}) = (\text{Customer Churn Rate})$
Customer Lifetime Value	The net profit a company anticipates gaining from a consumer over the entire length of the business relationship. This can help to determine the costs and benefits of acquisition efforts.
Customer Lifetime Value / Customer Acquisition Cost	The ratio of a customer's lifetime value to the cost to acquire a customer. This ratio should ideally be greater than one, as a customer is not profitable if the cost to acquire is greater than the profit they will bring to a company. Formula: $(\text{Net Expected Lifetime Profit From the Customer}) / (\text{Cost to Acquire the Customer}) = (\text{Customer Lifetime Value} / \text{Customer Acquisition Cost})$
Customer Profitability Score	Determines which customers make the most or least substantial contributions to profit. Companies can use this to determine where they will allocate marketing spending and investments.
Customer Retention Rate	Measures the portion of consumers who remain loyal customers from the beginning to the end of a reporting period. Formula: $(1 - (\text{Customers Lost in a Given Period} / \text{Number of Customers at Start of a Period})) = (\text{Customer Retention Rate})$
Early Repeat Rate	Measures the portion of consumers who make a second purchase within a set amount of time after their first purchase. This could be a good indicator of how well companies are converting their one-time buyers into more loyal customers. Formula: $(\text{Number of Customers Who Make a Second Purchase Within X Amount of Time}) / (\text{Total Customers Who Made a Purchase During the Time}) = (\text{Early Repeat Rate})$

Lifecycle Distribution Status	Measures where customers fall within the various stages of the customer life cycle. With this measurement, companies can evaluate how many customers they have in each particular stage and the rate at which they are moving.
Rate of Adoption	The rate (determined by length of time) at which an innovation is adopted by a given population.
Renewal Rate	A good indicator of whether clients find a service useful. If this rate is low, companies may need to determine why clients are not renewing the service. Formula: $(\text{Clients Who Renew}) / (\text{Clients Whose Previous Licenses Came to Expire}) = (\text{Renewal Rate})$
Up-Selling Rate	The rate at which customers are converted from purchasing a product to purchasing a more expensive version from the same product family, which increases wallet share.
Winback Rate	Tracks the percentage of churned customers who are successfully "won back" into making a purchase during a given period. Formula: $(\text{Churned Clients Who Repurchase}) / (\text{Churned Clients}) = (\text{Winback Rate})$
Referral Conversion Rate	Measures the portion of referral invitations that are accepted by their recipients. Formula: $(\text{Converted Referrals}) / (\text{Total Referral Invitations Sent}) = (\text{Referral Conversion Rate})$
Numbers & Rates KPIs	
Average Number of Referrals Per User	A higher number of referrals per user is likely to lead to more sales, increasing the profitability of each customer. Formula: $(\text{Number of Referrals}) / (\text{Number of Users}) = (\text{Average Number of Referrals per User})$
Bounce Rate	Measures the number of visitors that access a company website and leave before visiting any other pages.

Click-Through Rate	Monitors how many people click on links in an email. This is a good way to gauge the success of an email campaign and the quality of an email's content.
Client Summit Attendance	Counts the number of people who attend a client summit event. It could be measured as a percentage of a specific attendance target or of the total client base.
Contact Volume by Channel	Keeps track of the number of support requests received via phone and email. This allows the organization to not only compare which method customers prefer but also to track the number of support requests month-to-month.
Customer Complaints	Helps companies determine whether innovations and changes are effective in improving the customer experience with their product.
Direct Traffic	Traffic to a company's website that occurs when visitors type in the URL directly (i.e. actively seeking it out).
Indirect Traffic	Measures website traffic that stems from indirect sources, such as clickable email campaigns and social media referral links
Number of Reads on Company Blog Articles	Helps companies determine whether visitors find their content useful and which content performs better than others.
Number of Social Media Followers	Indicates the level of customer engagement a brand has.
Number of Support Requests per Product	Allows a company to determine which products their customers find easier (and harder) to use.
Open Rate	Tracking the number of opened and unopened emails allows companies to evaluate whether their email campaign strategy is successful or not.
Rank on Search Engines	Can indicate whether a search engine optimization (SEO) process is effective.
Rate of Referrals	Can help illustrate customers' level of satisfaction with a product or service. Formula: (Number of Referrals in Period) / (Units of Time in Period)

	(Rate of Referrals)
Redemption Rate	Provides companies with vital consumer behavior information. Formula: $(\text{Reward Points Redeemed} / \text{Reward Points Offered}) = (\text{Redemption Rate})$
Repeat Customer Rate	Indicates whether a product or service inspires repeat purchases from customers. Formula: $(\text{Customers That Have Purchased More Than Once} / \text{Unique Customers}) = (\text{Repeat Customer Rate})$
Search Volume for Brand	Can help companies gauge brand awareness. Determined by the number of times that consumers search a brand using search engines.
Sessions per Day	Tracks how many times a customer is using a service or product per day.
Share of Wallet	Measures the portion of a customer's total spending that goes toward the company's products and services.
Visit Frequency	If a visitor makes frequent trips to the company website or location, it demonstrates interest in the product or service, which can provide a company with more consumer insights.
Number of Customer References	The number of customers that brands can rely on to refer others to a product or service. The more customer references, the better.
Number of Customers	Allows companies to track the size of their customer base over time.
Number of Customers per Employee	Indicates the workload per employee and how much bandwidth a company has available for each customer. Formula: $(\text{Number of Customers} / \text{Number of Employees Serving Those Customers}) = (\text{Number of Customers per Employee})$
Number of New Customers	Allows companies to track the growth rate of their customer base.

Number of New Marketing Leads	Determines how many marketing leads are in each <i>period</i> , as opposed to the <i>total</i> number of leads. Formula: (Total Leads) - (Leads at the Beginning of Each Period) = (Number of New Marketing Leads)
Number of New vs. Repeat Site Visits	Allows companies to differentiate their website traffic and generate insights on prospective customers. Formula: $([1] - [\text{Website Visits by Repeat Visitors}]) / (\text{Total Website Visits}) = (\text{Number of New vs. Repeat Site Visits})$
Time per Website Visit	Can indicate how engaged a visitor was with website content during their visit.
Brand Attitude Index	Customers' attitudes about a brand can include how positive or negative the customer feels about the brand, as well as how strongly they feel about their conviction.
Satisfaction KPIs	
Comparison of Product with Customer Expectations	The product or service should meet or exceed customer expectations in order to retain customers.
Customer Effort Score	The less effort the customer must expend in order to complete their task or goal with your product, the more they will want to use the product.
Customer Satisfaction Index	Helps gauge a company's success at meeting customers' needs.
Customer Satisfaction with a Particular Feature	Can be used to hone in on customers' opinions about a specific feature of a product.
Customer Satisfaction with the Buying Process	If a buying process is satisfactory for customers, they may be more likely to remain loyal to the product.
External Benchmark Survey Ratings	Compares one organization's customer satisfaction with its competitors' customer satisfaction.
Intention to Repurchase	This is the equivalent of a likelihood to repurchase, and many times this is self-reported in a survey of the customer near the time of their original purchase.

Net Promoter Score	Determines how likely customers are to recommend a brand to others, generally represented on a 1-10 scale. A score that qu promoters (usually 9-10) and detractors (ur would need to be determined in order to ca this metric. Formula: (Number of Promoter (Number of Detractors) = (Net Promoter Sc
Percent of Customers Who Are "Very" or "Extremely Satisfied"	Determining this metric opens up an oppor for further surveying into what makes these particular happy customers so satisfied. For (Customers Who Consider Themselves "Ve "Extremely" Satisfied) / (Total Survey Respondents) = (Percentage of Customers Are "Very" or "Extremely" Satisfied)
Satisfaction with Interaction	Indicates customers' average ratings of thei satisfaction with an individual service inter This is normally determined right after the interaction has occurred. Formula: (Sum of response rates from customers who rate the satisfaction on a 1-5 scale) / (Total Survey Respondents)
Satisfaction with Services Offered	May provide insight into which products or services are doing well and whether to exp product offering.

HealthCare KPI's

Life Cycle KPIs Operations	Description
Patient Wait Time	Calculates the average amount of time a patient must wait between checking in and seeing a provider. It can help with staffing and scheduling and provide insight into patient satisfaction.
Average Number of Patient Rooms in Use at One Time	Shows how well space is used to treat patients and helps determine if more or less space is needed in the facility.
Staff-to-Patient Ratio	Indicates the use and capacity of staff resources. This can affect the quality of patient care.

Percentage of Appointments Cancelled/Missed	Helps determine how many appointments can be scheduled during a certain time frame.
Bed/Room Turnover	Demonstrates how fast patients are moving in and out of the facility. It affects the efficiency of the facility and should be considered when looking at patient satisfaction.
Admission Rate	Enables organizations to know how many patients they have coming in. The growth or decline in this number can help with decision-making regarding marketing, hiring, equipment, and space.
Readmission Rate	Calculates the rate of patients who come back to the facility shortly after they were seen. If high, it can indicate a lack of staff, experience, or attention during treatment.
Occupancy Rate	Indicates the use and capacity of the facility and can help determine if more space is needed.
Average Length of Stay	Shows how quickly medical staff are able to diagnose and prescribe treatment that does not require further stay. Also helps the facility predict how many patients they can bring into the facility during a specific time frame.
Number of Patients Served Per Month	Tracks the number of individuals receiving care each month.
Percentage of Patients Leaving Against Medical Advice	Accounts for the number of patients leaving against a healthcare provider's advice over the total number of patients hospitalized.
Number of Beds	Shows the capacity of the organization and how many patients it can hold. You may need to break down into different units/bed types.
Discharge Process Time	Measures the time it takes for patients to get discharged from the facility and for beds to open up. Keeping a low discharge process time means beds open up faster.
Equipment Utilization Rate	Accounts for the number of days the equipment was actually available compared to the days the equipment was expected to be available.

Number of New Patients	Measures the number of unique individuals who were first-time patients during the reporting period.
Operational Certifications	Shows the number of third-party certifications held by the organization that are related to its processes and that are valid.
Percentage Adherence to Treatment Plan	Calculates the percentage of patients that listen to and follow the health provider's treatment plan.
Response Times For Patient Transport Service	Measures the amount of time the transportation takes to travel to and from a medical facility.
Average Minutes Per Surgery	Demonstrates efficiency with scheduling. You may need to also track the average time for different procedures since they may vary widely.
Operating Room Turnaround Time	Calculates the time it takes to clean and prep the operating room before procedures, impacting the number of procedures scheduled.
Hazardous Materials Usage	Shows the amount of hazardous materials that are used in the healthcare facility. You can track the amount of hazardous materials as well as the cost to managing the materials.
Communication Between Primary Care Physician, Procedurals, & Patient	Determines how frequently various parties are in communication with one another, increasing the quality of care for the patient.
Average Lab Test Time	Measures the average amount of time it takes to run a test in the laboratory.
Staff Overtime	Demonstrates the amount of time that staff is needed to work over their normal hours. May indicate that the facility has too many or too little staff resources.
Vacancy Rate	Shows the average rate at which beds in the facility are vacant.
Energy Usage	Measures the amount of energy the facility uses. This affects the overhead costs of the organization.
Finance	
Average Insurance Claim Processing Time &	Averages the amount of time and money

Cost	an organization spends processing insurance claims. When low, it indicates that the facility receives payment faster and there is less cost to the patient.
Total Expenditures—All Sources	Accounts for the total amount of money that the organization spends. It can be broken up into different products and services or shown as a total amount.
Average Cost Per Discharge	Averages the cost that the facility incurs for a patient's entire stay.
Total Operating Margin	Demonstrates an organization's operating efficiency. It also affects the organization's pricing strategy.
Claims Denial Rate	Provides insight into the effectiveness of the organization's revenue cycle. A low claims denial rate means that the organization has more time to focus on patient care and spends less time on paperwork.
Indirect Expenses	Records the overhead expenses that supplement the direct operations of the facility. They can affect the pricing of services.
Labor Cost	Compiles the total cost of salaries, wages, and employee benefits. It affects the price of treatment for patients as well as the satisfaction of employees.
Patient Transactions	Tracks the number of patient transactions during the reporting period.
Average Treatment Charge	Shows the average amount that a facility charges a patient for a treatment. It can be broken down by treatment or shown as an average of all treatments or treatment categories.
Permanent Employee Wages	Records the value of wages (including bonuses) paid to all full-time employees during the reporting period.
Third-Party Revenue	Records revenue earned from the government and other third parties, such as insurance companies.
Medicine Costs	Shows the amount that the organization is spending on medicines used to treat patients.

Equipment Maintenance Costs	Measures the cost to maintain equipment throughout the facility.
Percentage of Patients Without Medical Insurance	Calculates the percentage of patients that do not have any kind of medical insurance.
Percentage of Patients With Public Insurance	Calculates the percentage of patients that have public insurance.
Percentage of Patients With Private Insurance	Calculates the percentage of patients that have private insurance.
Communications	
Number of Press Releases Released	Tracks the number of press releases your organization sends to the media so that you know how much exposure you're receiving from news sources.
Number of Media Mentions	Keeps track of how often you're mentioned in the media. This could include the news as well as social media. You may want to consider tracking positive and negative mentions separately.
Number of Fact Sheets Developed	Counts the total number of materials created, which supply information to patients and act as a marketing tool.
Overall Patient Satisfaction	Calculates satisfaction levels by combining several factors. It can be a great marketing tool for your organization if it's high. A low number could signal a problem with other operations or services.
Number of Patient Complaints Filed	Logs the number of complaints filed by patients before, during, or after their period of care.
In-Patient Satisfaction With Physician	Communicates the level of satisfaction among patients admitted to the healthcare facility.
Outpatient Satisfaction With Physician	Communicates the level of satisfaction among patients who receive care without being admitted to a hospital.
Percentage of Patients That Found Paperwork to be "Clearly Written & Straightforward"	Demonstrates whether a healthcare organization has ensured that written materials have clear instructions that patients can understand easily and respond to.

Percentage of Medical Documentation Translated	Demonstrates what lengths are taken to accommodate diverse populations.
Money Spent in Marketing & Advertising	Includes money spent increasing awareness of the organization, including services that are offered, ratings, and patient testimonials.
Number of Website Hits	Displays the amount of traffic going to an organization's website.
Percentage Increase in Subscriptions to Newsletter	Calculates the percentage increase in newsletter readership, demonstrating the level of interest in the healthcare facility's operations and events.
Internal	
Number of Employees That Participate in Internal Training	Indicates that your organization cares about the qualifications and training of your workforce.
Trainings Per Department	Tracks the amount of training that each department provides or requires of their staff.
Percentage of Employees That Find Internal Training Useful	Shows the effectiveness of your internal training. If it is low, it may indicate that changes need to be made to internal training so that it benefits the organization and employees.
Average Monthly Full-Time Equivalents	Affects the cost of your workforce and how many patients you are able to treat.
Employee Turnover Rate	Shows how steady the workforce is for the organization and can affect the level of care and effectiveness of the facility.
Employee Satisfaction	Gauges the satisfaction level of employees, which can majorly impact turnover rates.
Total Number of Training Hours	Calculates the total number of training hours provided to employees.
Percentage of Electronic Health Records	Demonstrates how technologically advanced an organization's record system is.
Referrals	Shows number of patients that were referred to another facility. It may indicate that the facility is losing revenue

	to other providers and needs to hire more specialized employees or acquire new equipment.
Number of Mistake Events	Gauges the number of mistakes that are made in the organization. You can track by mistake category. Can indicate the effectiveness of employees and equipment.
Impact of Mistakes	Shows how crucial the mistakes that employees make are and can help determine what steps need to be made to further prevent mistakes.
Patient Confidentiality	Measures the number of times a patient's confidential medical records were compromised and seen by an unapproved party.
Advocacy/Policy	
Charitable Donations	Tracks the dollars spent on donations to other organizations. This could include advocacy groups, research organizations, or other healthcare organizations.
Adolescent Obesity Outreach Campaigns	Demonstrates the amount of time and dollars spent on educating adolescents on the causes and effects of obesity.
Corporate & Foundation Giving	Shows the value raised from corporate and foundations' gifts.
Planned Giving	Shows the amount raised from individuals' gifts or commitments, usually a part of an estate or financial plan.
Public Support	Calculates the money raised from local, state, and federal government funding.
Total Fundraising Expenses	Shows a total dollar value of expenses incurred for fundraising events and campaigns.
Gross Funds Raised	Indicates the effectiveness of fundraising campaigns for donations to another organization or for funds raised for internal use.
Cost to Raise a Dollar	Calculates the money spent to raise a dollar for the organization's mission by dividing the fundraising expenses by gross funds raised.

Number of Partnerships With Advocacy Groups	Counts the number of relationships established with other organizations. A high number of partnerships can increase the impact of campaigns and policy events.
Public Health	
State Funds	Shows the amount of monetary support the organization is receiving from the state.
Childhood Immunizations	Demonstrates the number of children who have received immunizations.
Adolescent Lead Occurances	Indicates the number of children who have been affected by lead in their environment.
Childhood Obesity Rates	Shows the occurrence of obesity in children.
Number of Educational Programs	Indicates the time and effort put into educating the public. This can be broken down into the type of program as well as the target audience for each program.
Amount of Education Resources	Measures the amount of resources that the facility provides to the public on public health-related issues. This may include fact sheets, videos, training guides, etc.
Number of Cancer Screenings	Calculates the number of screenings performed for patients.
Prevalence of Mental Illness	Demonstrates the degree to which mental illnesses affect the population.
Number of HIV Cases	Shows the prevalence of HIV within a community.
Tobacco Usage Rates	Exhibits the percentage of the population that uses tobacco.
Number of Preterm Births	Counts the number of preterm births (under 37 weeks) that have occurred in the region.
Emergency	
Patient Wait Times by Process Step	Shows the amount of time a patient must wait during their visit to the emergency area of the facility.
Arrival to Bed	Calculates the amount of time a patient must wait before they are taken from the waiting room to a bed.

Care	
Patient vs. Staff Ratio	Demonstrates the number of staff available per patient. May indicate whether the facility is overstaffed or understaffed.
Post-Procedural Death Rate	Shows how many deaths occur at the facility following a procedure.

Human Resource KPI's

Compensation KPIs	Description
Percentage of Cost of Workforce	The cost of the workforce as compared to all costs can be measured by summing all salaries and dividing by the total company costs within a given period.
Salary Competitiveness Ratio (SCR)	Used to evaluate the competitiveness of compensation options. Can be determined by dividing the average company salary by the average salary offered from competitors or by the rest of your industry.
Human Capital Value Added (HCVA)	Used to determine how profitable the average worker in an organization is. Can be determined by taking all non-employee related costs away from the revenue and dividing the result by the number of full-time employees.
Healthcare Expense per Current Employee	Provides an understanding of the comprehensiveness of a company's health care plan. Can be determined by taking the total price of health care costs divided by all employees.
Culture KPIs	
Employee Satisfaction Index	This is a key metric underlying talent retention. Using a company-wide survey can be helpful in gauging employee happiness.
Number of Employee Satisfaction Surveys	Helps understand how much effort is being put into maintaining and improving employee happiness.
Percent of Employees Trained in Company Culture	Evaluates the importance and understanding of company-wide organizational culture.
Percent of Vacation Days Used	Helps show the company attitude toward a healthy work-life balance. Determined by observing the number of vacation days used as compared to those unused.
Employment KPIs	
Absenteeism Rate	Gives perspective on the amount of labor and productivity lost due to sickness and otherwise unpredicted leave. Formula: (Total number of lost workdays due to absence) / (Number of available workdays in an organization) = (Absenteeism rate)
Number of Full Time Employees	Keeps tabs on the growth of the company workforce over time.

Number of Contractors	Examines the growth in associated workers over time. Can be compared to the number of full-time workers to better understand workforce trends.
Average Tenure	The average length of time that an employee spends with the company helps determine employee satisfaction and talent retention.
Voluntary Termination Rate	Determined by taking the number of <i>employee-led</i> resignations from the company over the total number of terminations in a given time period.
Involuntary Termination Rate	Determined by taking the number of <i>employer-led</i> resignations from the company over the total number of terminations in a given time period.
New Hire 90-Day Failure Rate	Helps determine how successful the talent acquisition process is at finding the right fit for jobs.
First Year Voluntary Termination Rate	Reflects on how welcoming the company is to new hires. A high percentage suggests that the right people are being hired, but not embraced.
Average Time to Fill a Job Vacancy	Tracks how efficient the hiring process is in terms of time resources used to fill a vacant spot.
Hiring Process Satisfaction Rate	Provides perspective on how well the process works from the employee's perspective.
Cost Per Hire	Acknowledges the amount of resources invested into acquiring the best talent. Can be determined by averaging the total marketing, hiring process, and referral (if necessary) costs per hire.
Effectiveness of Training	Helps the company understand how comfortable new hires feel after their training vs. before. Typically determined through a post-training survey.
Training Cost per Employee	Helps to measure the amount invested in onboarding new hires.
Percent of Employees Trained	Helps a company see how quickly new hires are being onboarded.
Diversity Rate	Keeps track of how successfully the organization is creating an environment that fosters an open and accepting community.

Attrition Rate	Helps a company figure out how successful they are at retaining talent. Determined by dividing the number of employees who left the company in a given period by the average number of employees in that time period.
Average Time to Find a Hire	Helps track the efficiency of the hiring process.
Candidates Interviewed per Hire	Determined by calculating the total number of candidates interviewed by the total number of hires in a particular hiring period.
Performance KPIs	
Percent of Job Candidates who Meet Job Criteria	Helps in evaluating the effectiveness of job postings in reaching top candidates.
Rate of Internal Job Hires	Shows the effectiveness of organizational talent development.
Rate of Internal Referral Hires	Allows managers to see the value added when current employees help to identify and acquire talent.
Performance of New Hires	The performance of new hires can be compared to that of other employees. Typically done by evaluating performance reports.
Employee Productivity Rate	Helps to measure workforce efficiency over time. Can be determined by taking the total company revenue and dividing it by the total number of employees.
Suggestions per Employee	Evaluates employee engagement in improving business processes, and reflects on the openness of a company to employee input.
Percentage of Workforce below Performance Standards	This measure keeps tabs on the amount of low-performing employees in an organization.

Manufacturing KPI's

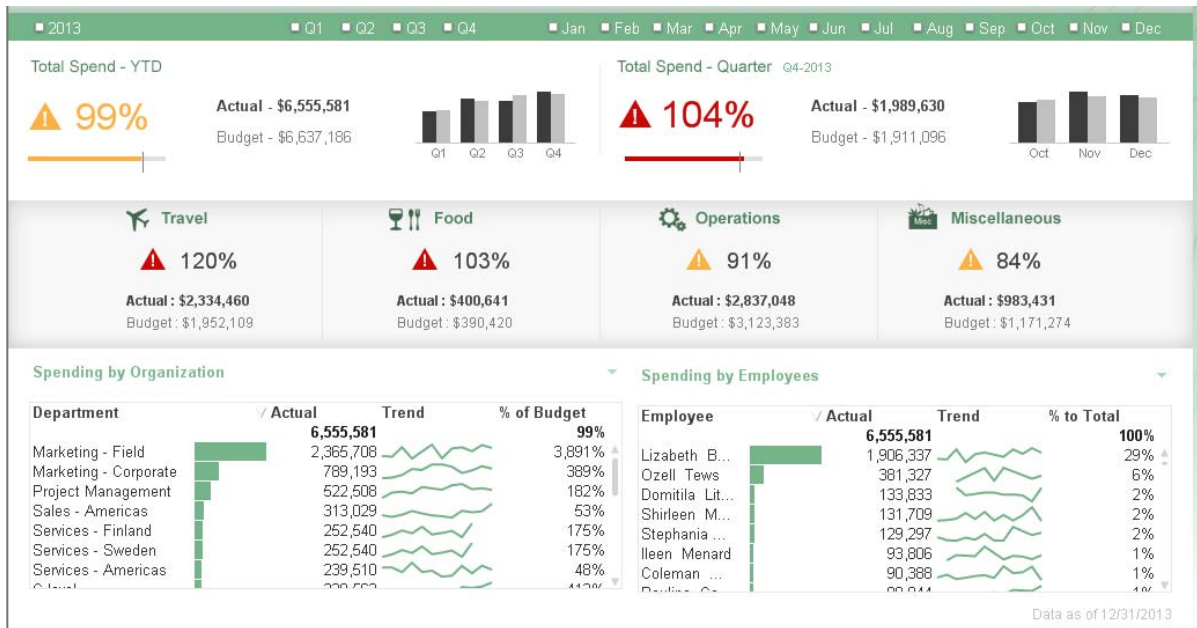
KPI NAME	KPI DEFINITION
Production Attainment	Actual production (units or volume produced) divided by target production over a certain period of time, as a percentage.
Downtime as a Percentage of Uptime	Total amount of time a machine has spent not in operation over a certain period of time divided by the total amount of time a machine has been in operation over the period of time, as a percentage.

Customer Satisfaction Index (ACSI)	A customer survey scale from 0 - 100, derived from a combination of 3 questions (0 - 10) measuring different aspects of customer experience. This metric was developed and is maintained by the American Customer Satisfaction Index (ACSI) group.
Materials and Components Expense as a Percentage of Plant Revenue	Total materials and components-related expense divided by the total revenue generated by the plant, or production facility, over the same time period, as a percentage.
First Pass Yield (FPY)	The difference in units produced (output) by a manufacturing process over a certain period of time compared to the units that went into production (input) over the same period of time – i.e., output vs. input.
Capacity Utilization Rate	Actual manufacturing output divided by the potential manufacturing output, as a percentage.
Inventory Turns	An indication of how many times a company's inventory is sold and replaced over a set period of time. Can be calculated by dividing the cost of goods sold (COGS) by the average dollar value of inventory on hand during a defined selling period (monthly, quarterly, annually).
Scrap Expense as a Percentage of Plant Revenue	The total dollar value of units that are scrapped due to errors or defects divided by the total revenue generated by the plant, or production facility, over the same time period, as a percentage.
COGS as a Percentage of Plant Revenue	Total cost of goods sold (COGS) divided by the total revenue generated by the plant, or production facility, over the same time period, as a percentage.
Inventory Turns (Work-In-Process Only)	The total cost of goods sold (COGS) divided by the average dollar value of work-in-process products/goods over the same period of time.
Inventory Turns (Raw Materials Only)	The total cost of goods sold (COGS) divided by the average dollar value of raw materials, goods or products on hand over the same period of time.
Machine Uptime	The average amount of time manufacturing equipment are in operation divided by the total amount of time in which the manufacturing equipment is scheduled for usage over the same period of time, as a percentage.
Inventory Turns (Finished Goods Only)	The total cost of finished goods sold divided by the average dollar value of finished goods on hand over the same period of time.
Cycle Time: Manufacturing Process	The average number of days required to process a manufacturing work order from receipt of the customer's order at the appropriate manufacturing facility until the product is ready for packaging, including both standard and customized products
Part Sales as a Percentage of Plant Revenue	The total revenue generated by selling parts (including change or replacement parts/components) divided by the total revenue generated by the plant over the same period of time, as a percentage.

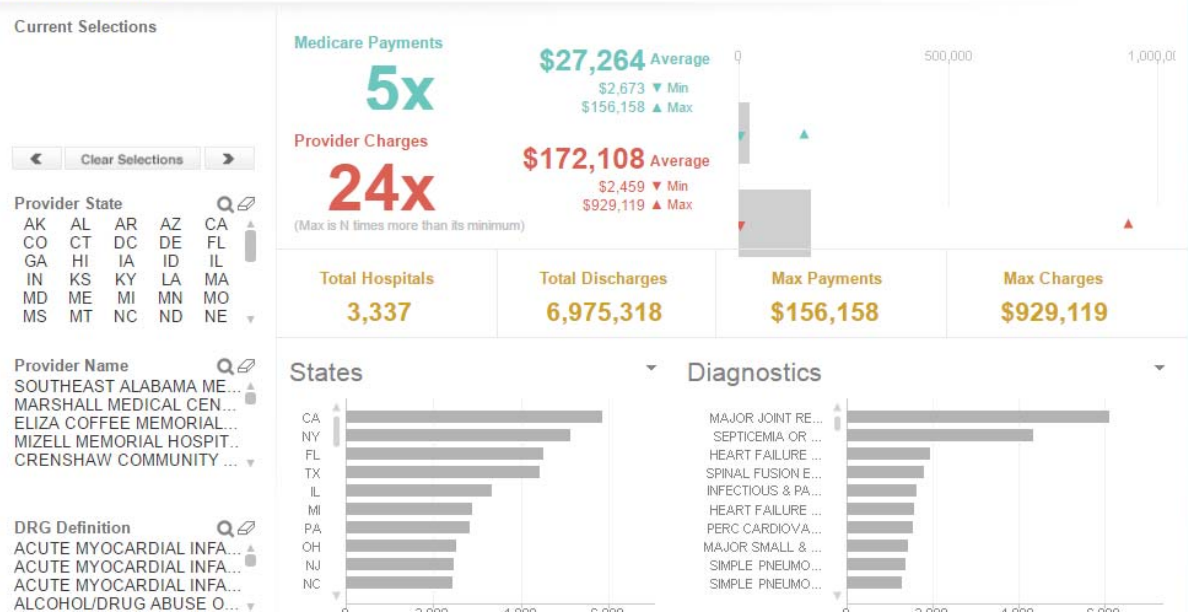
Capital Equipment Expense as a Percentage of Plant Revenue	Total capital equipment-related expense divided by the total revenue generated by the plant, or production facility, over the same time period, as a percentage.
Equipment Warranty Expense as a Percentage of Plant Revenue	Total equipment warranty-related expense divided by the total revenue generated by the plant, or production facility, over the same time period, as a percentage.
Inventory Shrinkage	The total cost related to inventory shrinkage (broken, pilfered, spoiled, or stolen inventory) divided by the total value of inventory on hand, as a percentage.
Days on Hand: Finished Goods	The total value of finished goods in the company's inventory divided by the average value of finished goods sold in a single day.
Days on Hand: Raw Materials	The total value of raw materials in the company's inventory divided by the average value of raw materials used in a single day.
Employee Training Expense as a Percentage of Plant Revenue	Total employee training-related expense divided by the total revenue generated by the plant, or production facility, over the same time period, as a percentage.
Sales & Marketing Expense as a Percentage of Plant Revenue	Total sales and marketing-related expense divided by the total revenue generated by the plant, or production facility, over the same time period, as a percentage.
Equipment Sales as a Percentage of Plant Revenue	The amount of revenue generated through the sales of plant equipment sales divided by the total revenue generated by the plant, or production facility, over the same period of time, as a percentage.
General & Administrative Expenses as a Percentage of Plant Revenue	Total general and administrative-related expense divided by the total revenue generated by the plant, or production facility, over the same time period, as a percentage.
Overall Equipment Effectiveness (OEE)	A measurement of production function availability (uptime), performance and quality in a single metric/KPI that assesses the overall efficiency of the entire production operation, expressed as Availability times Performance times Quality.
Average Hourly Wage: Manufacturing & Production Employees	The average hourly wage for dedicated manufacturing and production employees (factory floor workers) working for the company
Service Sales as a Percentage of Plant Revenue	The total revenue generated from service (maintenance, machine repair, etc.) sales divided by the total revenue generated by the plant over the same period of time, as a percentage.
Inventory Turnover	The average number of days required to sell and replace a company's inventory, from the time the inventory is replenished until it is depleted.
Machine Time as a Percentage of Order Lead Time	The total amount of machine time required to produce a single product divided by total customer order cycle time (time from when the order is placed to when the product is received by the customer), as a percentage.

Plant Revenue per Machine	The total revenue generated by the plant, or production facility, over a certain period of time divided by the total number of manufacturing machines in the facility.
Machine Utilization	The amount of time a machine is in operation over a certain period of time (i.e., 24 hours, etc.), as a percentage.
Average Starting Hourly Wage: Manufacturing & Production Employees	The average starting hourly wage for dedicated manufacturing and production employees (factory floor workers) working for the company.
Number of Manufacturing Sites	The total number of manufacturing sites managed by the company, domestically and/or internationally, at a certain point in time.
Average Hourly Wage: Production Setup Employees	The average hourly wage for dedicated production setup employees working for the company. Setup employees prepare the line for production runs.
Production Run Setup Time	The total amount of time required to setup an operational production run, from the completion of the last unit of a run until the completion of the first unit of the next run.
Total Inventory Value	The total dollar value of the company's inventory at a certain point in time. Total inventory value includes raw materials, components/parts, replacement parts, in-process goods and finished goods.

Snapshots of management dashboard using BI tools



Dashboard

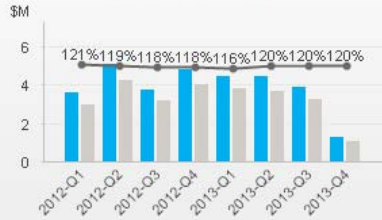


COMPLETED WORK ORDERS

2012 2013 Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec

COST

Variance : **118.7%**
 Actual Tot. Cost : 31,134,539
 Actual Std. Cost : 26,221,633



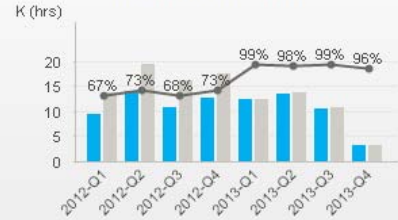
SCRAP

Scrapped Total : **16.7%**
 Produced : 17,558,269
 Scrapped : 2,929,393
 (Target : 17%)



RUNTIME

Variance : **79.0%**
 Actual Runtime (Hours) : 86,903
 Std Runtime (Hours) : 110,003

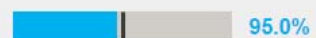


OPEN WORK ORDERS

Total Open Workorders
1,938

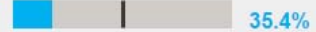
COST

Actual Tot. Cost : 961,078
 Actual Std. Cost : 1,011,138



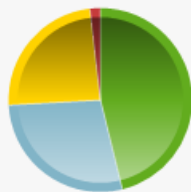
RUNTIME

Actual Runtime (Hours) : 2,575
 Std Runtime (Hours) : 7,282



Total Assets Under Management
\$ 116,468,127,293

Investment Mix



Equity

Percentage of holdings
46%

Value
\$ 53,781,150,715

Fixed Income

28%

\$ 32,575,569,426

Alternatives

24%

\$ 27,997,638,717

Multi-Asset

2%

\$ 2,113,768,435

Highest assets invested

AMP International Equity Index Tracking
 \$ 5,093,120,853

TD Asset Management Inc. and TDAM USA
 \$ 1,978,782,635

UK PROPERTY UNIT TRUST
 \$ 1,551,190,944

Mirae Asset Securities
 \$ 645,651,737

Lowest assets invested

Terra Forvaltning AS
 \$ 0

GROUPE OFI AM
 \$ -758,618

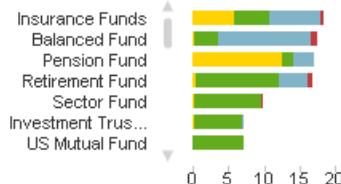
GOOD GROWTH INSTITUT für globale
 \$ -1,193,808

Cope Engineering (Radcliffe) Ltd 1974
 \$ 1,665,419

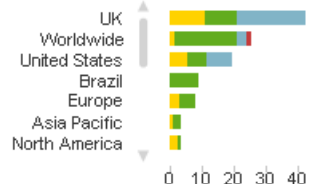
Assets by Investor



Assets by Fund Type



Assets by Region



Conclusion and summary

The management dashboard KPI's refer to the decision making capabilities of the top management in order to build the business and be competitive in the market.

The single view of the data across the organization helps in minimizing the gaps in the manual data and showcase a clear picture of the organization.

Information is available in the clear way so that the decisions can be made and results can be seen with the implementation of the decisions.

Also, identifying the key measures related to the organization is of much importance and depending on that decisions can be made.

References

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