Supply Chain
Key Performance Indicators
There are over 700 KPI measures available to organizations today covering finance, sales and marketing, operations, HR etc. But what are the best ones for your organization? KPIs are about processes, not goals.

Halo’s data analysis tools let your whole organization, from business users to data analysts, work with your data the way they want to discover the information they need without tasking your IT department with extra work.

Moreover, because Halo provides data integration across departments and systems, essentially everything your business collects — big data, small data, on prem, off prem, you name it — you have the ability to develop business insights that follow your entire business process, not just pieces of it.

Halo self-service data analysis tools let users create on-demand and scheduled reports in just minutes with little or no training required, delivering the best possible combination of performance and easy access to your analytics and KPIs.

As part of a metrics survey published by MESA International and LNS Research1, 28 manufacturing metrics were identified as being the most utilized by discrete, process, and hybrid/batch manufacturers. Below, we’ve grouped these metrics with the associated top-level area of improvement/goal for each.

### Improving Customer Experience and Responsiveness

1. **On-Time Delivery to Commit** – % of time that manufacturing delivers a completed product on the schedule that was committed to customers.

2. **Manufacturing Cycle Time** – Measures the speed/time it takes for manufacturing to produce a given product from the time the order is released to production, to finished goods.

3. **Time to Make Changeovers** – Measures the speed/time it takes to switch a manufacturing line or plant from making one product over to making a different product.

### Improving Quality

4. **Yield** – Indicates a percentage of products that are manufactured correctly and to specifications the first time through the manufacturing process without scrap or rework.

5. **Customer Rejects/Return Material Authorizations/Returns** – A measure of how many times customers reject products or request returns of products based on receipt of a bad or out-of-specification product.

6. **Supplier’s Quality Incoming** – A measure of the percentage of good quality materials coming into the manufacturing process from a given supplier.
Improving Efficiency

7. Throughput – Measures how much product is being produced on a machine, line, unit, or plant over a specified period of time.

8. Capacity Utilization – Indicates how much of the total manufacturing output capacity is being utilized at a given point in time.

9. Overall Equipment Effectiveness (OEE) – This multi-dimensional metric is a multiplier of Availability x Performance x Quality, and it can be used to indicate the overall effectiveness of a piece of production equipment, or an entire production line.

10. Schedule or Production Attainment – A measure of what percentage of time a target level of production is attained within a specified schedule of time.

Reducing Inventory

11. WIP Inventory/Turns – A commonly used ratio calculation to measure the efficient use of inventory materials. It is calculated by dividing the cost of goods sold by the average inventory used to produce those goods.

Ensuring Compliance

12. Reportable Health and Safety Incidents – A measure of the number of health and safety incidents that were either actual incidents or near misses that were recorded as occurring over a period of time.

13. Reportable Environmental Incidents – A measure of the number of health and safety incidents that were recorded as occurring over a period of time.

14. Number of Non-Compliance Events / Year – A measure of the number of times a plant or facility operated outside the guidelines of normal regulatory compliance rules over a one-year period. These non-compliances need to be fully documented as to the specific non-compliance time, reasons, and resolutions.

Reducing Maintenance

15. Percentage Planned vs. Emergency Maintenance Work Orders – This ratio metric is an indicator of how often scheduled maintenance takes place, versus more disruptive/unplanned maintenance.

16. Downtime in Proportion to Operating Time – This ratio of downtime to operating time is a direct indicator of asset availability for production.

Increasing Flexibility and Innovation

17. Rate of New Product Introduction – Indicates how rapidly new products can be introduced to the marketplace and typically includes a combination of design, development and manufacturing ramp up times.

18. Engineering Change Order Cycle Time – A measure of how rapidly design changes or modifications to existing products can be implemented all the way through documentation processes and volume production.
Reducing Costs and Increasing Profitability

19. Total Manufacturing Cost per Unit Excluding Materials – This is a measure of all potentially controllable manufacturing costs that go into the production of a given manufactured unit, item or volume.

20. Manufacturing Cost as a Percentage of Revenue – A ratio of total manufacturing costs to the overall revenues produced by a manufacturing plant or business unit.

21. Net Operating Profit – Measures the financial profitability for all investors/shareholders/debt holders, either before or after taxes, for a manufacturing plant or business unit.

22. Productivity in Revenue per Employee – This is a measure of how much revenue is generated by a plant, business unit or company, divided by the number of employees.

23. Average Unit Contribution Margin – This metric is calculated as a ratio of the profit margin that is generated by a manufacturing plant or business unit, divided into a given unit or volume of production.

24. Return on Assets/Return on Net Assets - A measure of financial performance calculated by dividing the net income from a manufacturing plant or business unit by the value of fixed assets and working capital deployed.

25. Energy Cost per Unit – A measure of the cost of energy (electricity, steam, oil, gas, etc.) required to produce a specific unit or volume of production.

26. Cash-to-Cash Cycle Time – This metric is the duration between the purchase of a manufacturing plant or business unit’s inventory, and the collection of payments/accounts receivable for the sale of products that utilize that inventory – typically measured in days.

27. EBITDA – This metric acronym stands for Earnings Before Interest, Taxes, Depreciation, and Amortization. It is a calculation of a business unit or company’s earnings, prior to having any interest payments, tax, depreciation, and amortization subtracted for any final accounting of income and expenses. EBITDA is typically used as top-level indication of the current operational profitability of a business.

28. Customer Fill Rate/On-Time delivery/Perfect Order Percentage - This metric is the percentage of times that customers receive the entirety of their ordered manufactured goods, to the correct specifications, and delivered at the expected time.

Sales and Employee KPIs

Forget dashboards crammed with widgets and confusing, unnecessarily complicated graphics. Halo offers a clean, uncluttered interface, designed to let you see what’s important without useless special effects and visual distractions. Halo is also completely customizable and 100% mobile which lets you optimize your dashboards for any and all the devices you’re using — desktop, laptop, tablet and smartphone. Typical KPIs include cost of goods sold, cost of sales, sales v. target, comp plan, sales conversion rates, employee turnover, and lost time due to injury.
If You Don’t Capture the Data, You Can’t Measure It!

Halo offers tabbed browsing that lets you see your data from multiple angles within a single clickable interface. Great for division managers, executives and other decision-makers, Halo tabs let you browse across multiple cubes and follow your entire business process - customers, sales, open orders, AP/AR, financial analysis, and more - with just a single selection.

A Single Repository with Open Access

One of the basic foundations of Halo is freeing you to use your business data the way you want. Halo Data Warehousing builds a common repository that allows you to work with your information with a myriad of information access and visualization tools. And not just Halo’s Dashboard and Reporting, but Microsoft Analysis and Reporting Services, Excel Pivot Tables, and hundreds of third-party applications. No matter how your team chooses to work with your enterprise data, Halo Data Warehousing ensures everyone has the same set of metrics, rules and assumptions to help them meet common goals.

Flexible and Scalable

With Halo Data Warehousing, you don’t need advanced skills in scripting, SQL or MDX query languages. Halo’s wizard-driven interface lets you walk through the data extraction, dimension and cube design process with nothing more than a few mouse clicks needed to create production-quality data marts and custom cubes.

Halo Data Warehousing also allows you to build in your own custom business logic so you can analyze your data your way, not someone else’s. Best of all, Halo Data Warehousing handles all of the heavy lifting for you, generating clean, fully self-documented projects that can be copied, distributed, deployed and archived with ease.

Data Aggregation and Analysis Features

• Intuitive wizards and quick-click interface; no programming skills or specialized training required.

• Advanced SQL conversion engine: Create source AS400, Oracle and SQL Server syntax for common operations.

• Interactive, easy-to-use development and debugging environment.

• Stores everything in a single file for exceptional portability and extensibility.

• Extended ETL (Extract Transform Load) environment, from extraction through cube building and schedule automation.

• Creates and maintains a ‘single version of the truth’ for multiple reporting interfaces.
Bad Data = Bad BI

For some organizations — especially those with line-of-business applications in place for a while, lots of different manually entered spreadsheets, or big data sets collected from multiple sources — the bad data problem can be so daunting it takes millions of dollars and years of work to get it to a quality level that would make any analysis trustworthy. Little wonder that so many companies choose to ignore the problem (and suffer the consequences. Here's a few business intelligence facts you may be startled to learn (or completely unsurprised):

- On average, 40%+ of corporate data is incomplete, missing or erroneous;
- 80% of all BI projects ultimately fail; lack of trust in the data is a key culprit;
- On average, for every $1 spent on BI software, $4 is spent cleaning data.

Halo helps tackle the problem of bad data by providing a suite of integrated data quality tools. With Halo Data Quality you can profile your data, perform pattern analysis, clean and enrich it quickly, easily and without spending tens (or hundreds of thousands of additional dollars on third-party data quality systems, staff training and support.

Integrated Data Quality Tools

It's no secret that bad data makes for bad BI, but getting that data cleaned up can be an expensive problem. Fortunately Halo can help with built-in data quality tools which include:

- **Data Profiling**
  Performs data structure identification and pattern analysis to capture statistics and flag data quality issues. A great tool for getting a sense of the condition of your data across multiple systems, databases and dimensions.

- **Data Parsing and Cleansing**
  These tools parse data fields and automate the data formatting for consistent layout. They can also correct and modify the data to meet business rules, government or industry standards (e.g., Zip Code or postcode formats), and specific organization requirements.

- **Data Monitoring**
  The gatekeeper tool, Halo Monitoring analyzes new data being brought into Halo Data Warehousing, detecting errors, missing information and inconsistencies. Bad data is passed to the parsing and cleaning tools for correction.

- **Data Enrichment**
  Add new information like geocodes, images, document hyperlinks, etc. to your data so you can visualize your information on live maps, build catalogs, cross-reference information, and other useful data analysis and/or business process requirements.

Together Halo Data Quality ensures that even when errors occur in the systems in your organizations (and they are bound to), all of the data that the Halo Platform uses to generate your KPIs, reports and dashboards, is the most accurate and up to date it can be.

Supply Chain Analytics for Manufacturing

With Halo, manufacturers are able to leverage all available data throughout the entire manufacturing process achieving a holistic view, enabling data-driven decisions based on data that accurately reflects the state of the manufacturing process. This also extends across the breadth of the supply chain.