Useful Business Measurements and Targets

Product Development Engineering

**Error Measurements**
- Percent of drafting errors per print
- Percent of errors in cost estimates
- Number of off-specs approved
- Cost of input errors to the computer
- Percent of error free designs
- Percent of errors found during design review
- Percent of reports with errors in them
- Data recording errors per month
- Number of errors in publications reported from the plant and field
- Number of off specs accepted
- Percent of bills of material that are released in error
- Number of products that pass independent evaluation error free

**Time Measurements**
- Number of times a print is changed
- Time to correct a problem
- Time required making an engineering change
- Cycle time to correct a customer problem
- Number of days for the release cycle

**Late/On-Time Measurements**
- Percent of prints released on schedule
- Percent of meetings starting on schedule
- Number of missed shipments of prototypes
- Number of days late to pre-analysis
- Percent of corrective action schedules missed
- Percent of requests for engineering action open for more than two weeks

**Accuracy/Performance Measurements**
- Simulation accuracy
- Accuracy of advance materials list
- How well product meets customer expectations
- Field performance of product
- Percent of evaluations that meet engineering objectives
- Percent of special quotations that are successful
- Percent of total problems found by diagnostics as released
- Effectiveness of regression tests
- Number of unsuccessful pre-analyses

Miscellaneous Measurements
- Percent of repeat problems corrected
- Cost of engineering changes per month
- Percent of test plans that are changed (changed test plan)
- Spare parts’ cost after warranty
- Number of meetings held per quarter where quality and defect prevention were the main subject
- Person-months per released print
- Customer cost per life of output delivered
- Number of problems that were also encountered in previous products
- Number of restarts of evaluations and tests

Industrial/Plant Engineering

**Error Measurements**
- Percent of error in time estimates
- Percent of error in purchase requests Scrap and rework due to calibration errors
- Number of mechanical/functional errors in industrial design artwork
- Number of errors found after construction had been accepted by the company

**Time Measurements**
- Percent of manufacturing time lost due to bad layouts
- Hours lost due, to equipment downtime
- Number of hours used on unscheduled maintenance
- Number of hours used on scheduled maintenance
- Repeat call hours for the same problem

**Late/On-time Measurements**
- Percent of facilities-on schedule
- Percent of equipment -maintained on schedule
- Percent of equipment overdue for calibration

**Cost Measurements**
- Percent deviation from budget
- Maintenance-cost/equipment cost ratio
- Percent variation to cost estimates

**Miscellaneous Measurements**
- Changes to layout
- Accuracy of assets report
- Percent-of total floor space devoted to storage
- Percent of engineering action requests accepted
- Number of unscheduled maintenance calls
Useful Business Measurements and Targets

Manufacturing and Test Engineering

Error Measurements
Percent of tools that are reworked due to design errors
Number of process changes per operation due to errors
Percent error in manufacturing costs
Percent error in test equipment and tooling budget
Number of errors in operator training documentation
Percent of errors that escape the operator’s detection
Percent error in yield -projections
Percent error in output product quality
Percent of drafting errors found by checkers

Accuracy Measurements
Percent of process operations where sigma limit is within engineering specification
Percent of tools that fail certification
Percent of testers that fail certification
Percent of designed experiments needing revision
Percent correlation between testers

Utilization Measurements
Labor utilization index
Asset utilization
Percent of manufacturing used to screen products
Equipment utilization

Scheduling Measurements
Percent of equipment ready for production on schedule
Percent of meetings starting on schedule
Percent of tools and test equipment delivered on schedule
Percent of action plan schedules missed

Miscellaneous Measurements
In-process yields
Time required solving a problem
Number of delays because process instructions are wrong or not available
Percent of changes to process specifications during process design review
Number of waivers to manufacturing procedures
Percent of tools and test equipment on change level control
Percent functional test coverage of products
Percent projected cost reductions missed

Number of problems that the test equipment cannot detect during manufacturing cycle

Manufacturing/Shipping

Error Measurements
Tune and/or claiming errors per week
Percent of parts not packed to required specifications
Errors per 100,000 solder connections
Percent of shipping errors
Percent of products error-free at final test
Percent of time log book filled out correctly

Defect Measurements
Scrap and rework cost
Percent of product defect-free at measurement operations
Defects during warranty period
Replacement parts defect rates
Percent of products defective at final test

Time/Scheduling Measurements
Percent of jobs that meet schedule
Percent of unplanned overtime
Percent of daily reports in by 7:00 a.m.
Percent of late shipments
Time between errors at each operation

Employee/Labor Measurements
Suggestions per employee
Percent of jobs that meet cost
Percent of employees trained to do the job they are working on
Number of accidents per month
Performance against standards
Labor utilization index
Percent of operators certified to do their job

Miscellaneous Measurements
Percent of shipments -below plan Complaints on shipping damage
Percent of output that meets customer orders and engineering specifications
Percent of utilities left improperly running at end of shift
Number of security violations per month
Percent of control charts maintained correctly
Percent of invalid test data

Forecasting Measurements

Error Measurements
Percent error in sales forecasts
Number of forecasting assumption errors
Useful Business Measurements and Targets

**Miscellaneous Measurements**
- Number of upward pricing revisions per year
- Number of project plans that meet schedule, price and quality
- Number of changes in product schedules

**Production Control Measurements**

**Error Measurements**
- Percent of errors in stocking
- Percent of errors in purchase requisitions
- Percent of errors in work-in-process records versus audit data
- Number of bill-of-lading errors not caught in shipping

**Time/Scheduling Measurements**
- Percent of errors in purchase requisitions
- Percent of errors in work-in-process records versus audit data
- Number of bill-of-lading errors not caught in shipping

**Miscellaneous Measurements**
- Number of items exceeding shelf life
- Percent of products that meet customer orders and inventory turnover rate
- Cost of rush, shipments
- Spare-parts availability in crib
- Cost of inventory spoilage

**Marketing Measurements**

**Error Measurements**
- Percent error in market place
- Errors in orders
- Errors per contract
- Percent of correctly dialed phone numbers

**Customer-Related Measurements**
- Response time to customer inquiries
- Number of new customers
- Percent of time customer expectations are identified
- Percent of time customer expectation changes are identified before they impact sales
- Percent of customers called back as promised
- Number of complimentary letters
- Percent of customer letters answered in two weeks
- Percent of complaint reports received

**Quality Assurance Quality Measurements**
- Percent error in reliability projections
- Number of errors detected during design and process reviews
- Errors in reports
- Percent of errors in defect records
- Percent error in predicting customer performance
- Number of off specs approved

**Sales Related Measurements**
- Percent of quota attained
- Percent of proposals accepted
- Inquiries per $10,000 of advertisements
- Percent of repeat orders
- Number of new business opportunities identified
- Percent reduction in residual inventory
- Percent of changed orders
- Number of revisions to market requirements statements per month

**Quality Assurance Quality Measurements**
- Percent of proposals submitted ahead of schedule
- Person-hours per $10,000 sales
- Percent of meetings starting on schedule
- Time required turning in travel expense accounts
- Percent of bids returned on schedule

**Miscellaneous Measurements**
- Percent of products that meet customer orders
- Inventory turnover rate
- Cost of rush, shipments
- Spare-parts availability in crib
- Cost of inventory spoilage

**Sales Related Measurements**
- Cost of sales per total costs
- Sales made per call
- Ratio of marketing expenses to sales

**Miscellaneous Measurements**
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**Time/Schedule Measurements**
- Time to correct a problem
- Time to identify and solve problems
- Receiving inspection cycle time
- Time required processing a request for corrective action
- Percent of reports published on schedule
- Number of audits performed on schedule
Useful Business Measurements and Targets

Percent of laboratory services not completed on schedule
Number of reject orders not dispositioned in five days

**Supplier Measurements**
- Percent of suppliers at 100 percent lot acceptance for one year
- Number of committed supplier plans in place
- Percent of correlated test results with suppliers
- Number of manufacturing interruptions caused by supplier parts
- Percent of qualified suppliers

**Comparison Measurements**
- Percent of quality assurance personnel to total personnel
- Percent of quality inspectors to manufacturing directs
- Percent of quality engineers to product and manufacturing engineers.
- Variations between inspectors doing the same job

**Miscellaneous Measurements**
- Percent of employees active in professional societies
- Number of engineering changes after design review
- Number of process changes after process qualification
- Cost of scrap and rework that was not created at the rejected operation
- Percent of lots going directly to stock
- Percent of problems identified in the field
- Number of complaints from manufacturing management
- Percent of field returns correctly analyzed
- Percent of improvement in early detection of major design errors
- Number of requests for corrective action being processed
- Percent of part numbers going directly to stock
- Percent product cost related to appraisal, scrap, and rework
- Percent skip lot inspection
- Number of problems identified in-process

**Procurement/Purchasing Measurements**

**Error Measurements**
- Errors per purchase order
- Routing and rate errors per shipment

**Percent of purchase orders returned due to errors or incomplete description**

**Time Measurements**
- Percent of supplies delivered on schedule
- Purchase order cycle time
- Number of times per year line is stopped due to lack of supplier parts
- Average time to fill emergency orders
- Average time to replace rejected lots with good parts
- Time to answer customer complaints
- Time required to process equipment purchase orders

**Cost Measurements**
- Percent decrease in parts costs
- Stock costs per total costs
- Actual-purchased materials cost per budgeted cost
- Percent projected cost reductions missed
- Cost of rushed shipments

**Miscellaneous Measurements**
- Percent of discount orders by consolidating
- Number of orders received with no purchase order
- Expediter per direct employees
- Number of items on the hot list
- Percent of suppliers with 100 percent lot acceptance for one year
- Tabor hours per $10,000 purchases
- Supplier parts scrapped due to engineering changes
- Percent of parts with two or more suppliers
- Percent of lots received on production line late
- Number of items billed but not received

**Information Systems Measurements**

**Error Measurements**
- Keypunch errors per day input correction on CRT
- Reruns caused by operator error
- Errors per thousand lines of code
- Percent error in forecast
- Percent error in lines of code required
- Number of coding errors found during formal testing
- Number of test case errors
- Number of documentation errors
- Number of error-free programs delivered to customer
Useful Business Measurements and Targets

**Number of process step errors before a correct package is ready**
**Percent of defect-free artwork**
**Number of errors found after formal test**

**Revision/Change Measurements**
**Number of changes after the program is coded**
**Number of test case runs before success**
**Number of revisions to plan**
**Number of revisions to program objectives**
**Number of revisions to checkpoint plan**
**Number of changes to customer requirements**
**Percent change in customer satisfaction survey**

**Miscellaneous Measurements**
**Percent of reports delivered on schedule**
**Percent of time required to debug programs**
**Rework costs resulting from computer program**
**Number of cost estimates revised**
**Percent of customer problems not corrected per schedule**
**Percent of problems uncovered before design release**
**System availability**
**Terminal response time**

**Accounting Measurements**

**Error Measurements**
**Percent of errors in reports**
**Errors in input to Information Services**
**Errors reported by outside auditors**
**Percent of input errors detected**
**Percent of errors in payroll**
**Percent data entry errors in accounts payable and general ledger**

**Time Measurements**
**Number of hours per week correcting or changing documents**
**Payroll processing time**
**Length of time to prepare and send a bill**
**Length of time billed and not received**
**Time spent correcting erroneous inputs**
**Machine billing turnaround time**
**Average number of days from receipt to processing Credit (turnaround time)**
**Travel-expense accounts processed in three days**

**Complaint Measurements**
**Number of complaints by users and Number of complaints about inefficiencies or excessive paper**

**Miscellaneous Measurements**
**Percent of late reports**
**Number of final accounting jobs rerun**
**Number of equipment sales miscoded**
**Amount of intracompany accounting bill-back activity**
**Number of open items**
**Percent of deviations from cash plan**
**Percent discrepancy in Material Review Board (MRB) and line scrap reports**
**Percent of shipments requiring more than one attempt to invoice**
**Number of untimely supplier invoices processed**

**Finance Measurements**

**Error Measurements**
**Percent error in budget predictions**
**Computer rerun time - due to input errors**
**Number of record errors per month**
**Number of errors found by outside auditors**
**Number of errors in financial reports**
**Percent of errors in travel advancement records**
**Percent of errors in expense accounts detected by auditors**

**Miscellaneous Errors**
**Computer program change cost**
**Percent of financial reports delivered on schedule**
**Percent of bills paid on time for company price break incentive**

**Personnel Measurements**

**Time Measurements**
**Number of days to answer suggestions**
**Number of employment requests filled on schedule**
**Number of days to fill an employment request**
**Time to process an applicant**
**Average time visitor spends in lobby**
**Time to get security clearance**
**Time to process insurance claims**
**Wait time in medical department**
**Number of days to respond to applicant**
Useful Business Measurements and Targets

**Employee Related Measurements**
Percent of employees who leave during the first year.
Number of suggestions resubmitted and approved
Personnel cost, per employee
Cost, per new employee
Turnover rate due to poor performance
Percent of employees participating in company-sponsored activities
Percent of complaints about salary
Percent of personnel problems handled by employees' managers
Percent of employees participating in voluntary health screening
Percent of offers accepted

**Miscellaneous Measurements**
Number of grievances per month
Management evaluation of management education courses
Opinion survey ratings
Percent of retirees contacted yearly by phone
Percent of training classes evaluated excellent
Percent deviation to resource plan
Percent of promotions and management changes publicized
Percent of error-free newsletters

**Clerical Measurements**
Errors per typed page:
Percent of coding errors on time cards
Pages processed error-free per hour
Administration errors (not using the right procedure)
Misfiles per week
Percent of phone calls dialed correctly
Percent of pages retyped
Percent of impressions reprinted

**Late Measurements**
Percent of action items not done on schedule
Percent of inputs not received on schedule
Period reports not completed on schedule
Number of times manager is late to meetings

**Security/Safety Measurements**

**Violation Measurements**
Security violations per audit
Safety violations by department
Percent of security violations

**Miscellaneous Measurements**
Percent of documents classified incorrectly
Percent of audits conducted on schedule
Percent of safety equipment checked per schedule
Safety accidents per 100,000 hours worked
Number of safety suggestions
Percent of clearance errors
Time to get classification clearance
Percent of sensitive parts located

**Management Measurements**

**Employee Related Measurements**
Percent of personnel turnover rate
Percent increase in output per employee
Percent of employee output that is measured
Percent employee absenteeism
Percent of employees promoted to better jobs
Number of job improvement ideas per employee
Ratio of direct to indirect employees
Number of professional employees active in professional societies (e.g. ASQ, APICS, SME)
Percent of managers active in community activities
Percent of employees taking higher education
Number of employees dropping out of classes
Percent of employees active in improvement teams
Number of hours per year of career and skill development training per employee
Percent of executive interviews with their employees
Percent of employees with development plans
Percent of employee time spent on first-time output
Department morale index

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Useful Business Measurements and Targets

**Cost Related Measurements**
- Percent variation from budget
- Dollars saved per employee due to new ideas and/or methods
- Warranty costs
- Scrap and rework costs
- Cost of poor quality
- Number of employees participating in cost-effectiveness

**Scheduling Measurements**
- Percent of target dates missed
- Percent of output delivered on schedule
- Percent of meetings that start on schedule
- Percent of appraisals done on schedule
- Number of tasks for which actual time exceeded estimated time

**Error Measurements**
- Percent error in planning estimates
- Percent error in personnel records
- Percent of time cards signed by managers that have errors on them
- Percent of employees who can detect and repair their own errors
- Data integrity

**Plan/Revenue Measurements**
- Volumes actual versus plan
- Revenue actual versus plan
- Number of formal reviews before plans are approved
- Percent revenue/expense-ratio below plan
- Revenue generated over strategic period
- Number of iterations of strategic plan
- Increased percent of market
- Return on investment
- Percent of time program plans are met
- Percent of suggestions with delinquent response or execution
- Percent of documents that require two management signatures
- Number of damaged equipment and property reports
- Number of decisions made by higher-level management than required by procedures
- Improvement in customer satisfaction survey
- Security violations per year

**Legal Measurements**
- Response time on request for legal opinion
- Time to prepare patent claims
- Percent of cases lost

**Miscellaneous Measurements**
- Result of peer reviews
- Percent of appraisals with quality as a line item that makes up more than 30% of the evaluation
- Percent of departments with disaster recovery plans
- Number of user complaints per month
- Percent of procedures less than ten pages
- Percent of changes to project equipment required
- Normal appraisal distribution
- Number of grievances per month
- Number of open doors per month
- Number of security violations per month
- Improvement in opinion surveys
- Number of procedures with fewer than three acronyms and abbreviations