**About this research note:**

Strategy & Planning notes define the critical decisions and actions surrounding successful adoption of a specific technology, tool, or process.

# How to Create an Enterprise IT Metrics Program

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Like any other IT project, metrics have to be properly designed, collected, piloted, and deployed. This implies an iterative approach that encompasses feedback, assessment, communication, and change management. The key to a successful implementation of IT metrics is adopting the top-down approach to metrics development.

# Executive Summary

As enterprise technology evolves, so too does the need to measure and control IT quality and effectiveness. In light of internal and external business drivers, metrics are increasingly being used as powerful management tools that maintain and improve IT quality and effectiveness.

This research note takes an in-depth look at creating an IT metrics program for the enterprise. Key topics discussed include:

- » The definition of metrics, how they're used, and what a good metric looks like.
- » The many different types of metrics available for IT management.
- » The objections to, and pitfalls of, metrics.
- » How to integrate metrics into organizational workflows.

If implemented correctly, a metrics program holds much promise for aligning IT with the business and dramatically improving efficiencies. Avoid a metrics meltdown by following best practices for staff and resource measurement.

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# Planning Point

As the enterprise's technology infrastructure evolves, and the number of business applications increases, so too does the need to measure and control the quality and effectiveness of IT. The responsibility rests on IT to better align itself with the business, and to better implement and operate computer systems and services. With economic uncertainty and budget cuts as the norm, IT is under relentless pressure to deliver more and better services at lower cost. Metrics therefore are increasingly being viewed as powerful management tools that can be used to maintain and improve IT quality and effectiveness.

Metrics are defined as the measurement of activities, processes, deliverables, or resources that are typically part of any quality improvement plan. IT metrics in particular adopt a technology management perspective by applying a fundamental concept to the IT function: in order to manage something, it is necessary to measure it first. IT metrics are used to help estimate projects, measure the progress and performance of IT staff and regularly scheduled IT activities, assess software quality, and many other things. Generally, any IT process that contributes to the organization's goals and needs to be assessed can be measured and managed using metrics.

This report defines IT metrics and provides a basic glossary of terms as a means of getting started. The business case for IT metrics is then presented and the criteria for good metrics are explained. Next, this report proposes a system for deploying an IT metrics program within the enterprise, and presents some best practice metrics for many common focus areas of IT. Finally, this report identifies and addresses some pitfalls that can stand in the way of a successful IT metrics implementation.

## What Is an IT Metric?

An IT metric quantifies the component activities of a process, person, or product via a predefined system of measurement. IT metrics are simple calculations or formulas that seek to measure and manage IT processes like software development, application maintenance, production operations, security, staffing ratios, and so on. Such metrics express:

- » What exactly is being measured.
- » Specific units of measurement (e.g. percentages, ratios, indexes, numbers).
- » How it is to be measured.
- » Which data source(s) will be used to collect the measurements.

There is also the notion that the definition of a metric should also include how that metric will be used and by whom, in order to facilitate improved processes, products, and decision-making. This, however, is a decision that must be made by management on a case-by-case basis.

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To be useful, metrics must always include a point of comparison, such as internal or industry benchmarks, regulatory guidelines, internal history data, or other data. Certain metrics are only meaningful within the enterprise itself, but others – and obviously those meant to be compared with industry benchmarks – can be standardized across an entire industry. Some financial and accounting metrics (e.g. return on investment, turnover ratio) can be applied to many industries, though accountants typically argue that they only have meaning when compared within a single industry or a set peer group of organizations.

Metrics can be directly observable (i.e. raw) or can be derived from one or more directly observable occurrences, sometimes using mathematical modeling or manipulation. Examples of raw metrics include the number of source lines of code in a software program. A derived metric might be number of lines of source code produced per project or per staff day.

## Enabling Better Management Control

IT has evolved to the point where its activities and services are becoming subjected to objective measurement. Since IT is embedded in ever-increasing amounts of critical processes, executives are demanding that more science be applied in order to better understand IT performance and effectiveness, and to ensure that company dollars are being spent appropriately. As such, business executives demand that IT prove its value to the organization by demonstrating quantifiable measures of control.

Additionally, IT management has a vested interest in collecting and analyzing metrics from their own departments. Staffing levels, application performance, virtualization ratios, and other metrics can all assist CIOs and IT professionals in managing people and assets more effectively. The ability to do so can have a positive impact on the IT budget. IT metrics are used in each part of the management process, namely:

- » Planning: cost estimation, resource planning, budgeting, scheduling, asset acquisition.
- » Organizing: to determine adequate staffing levels in various areas of IT activity.
- » Controlling: determine the status and progress of projects, processes, and deliverables.
- » Qualifying: determine the quality of products, services, and processes.
- » Directing: identify areas for improvement at the individual, team, and department level.

## What Makes a Good Metric?

Good metrics are SMART: specific, measurable, attainable, repeatable, and time-dependent. Metrics must be specific and detailed in order to be useful. For example, "Server Performance" is a bad metric, as it's unclear what this actually means and how it would be measured. A far more specific and measurable metric is "Peak Daily CPU Utilization % for Server ACCT0101." This definition is clear and the means to measure it are straightforward.

Furthermore, a metric is only attainable if it is realistic. Aiming for "100% Uptime for Server ACCT0101" may be a laudable goal, but even fault-tolerant servers experience the occasional problem, however minor. A more attainable metric might be 98% average uptime over one month. Metrics only have meaning when they are repeatable and can be consistently captured and measured over time. Metrics must be presented within the context of time (e.g. average daily rate, peak value over a month, or a ratio captured every month-end).

Good metrics must be valid, meaning that they indeed measure the activity that they are supposed to measure. Reliability is also key, meaning that metrics are characterized by the quality of their underlying data, and are designed in such a way as to accurately convert that data into a validated and accurate metric. For each metric under consideration, it is crucial to determine if and how the activity associated with that metric can actually be measured. Even where data is measured and captured, there should be a provable relationship between what is measured and what you want to know, which then can be expressed in a model.

In many cases, IT metrics should be comparable across the enterprise's business and operating units. They must also be relevant to corporate goals and objectives. No matter how valid a measure is, it must also be relevant to the business in order to have any credibility with management. Finally, metrics must be cost-effective to collect and analyze. The bottom line here is that metrics must deliver:

- » Functionality: measuring what they need to and providing the means for better understanding and control.
- » Consistency: translating well across business units and operations.
- » Cost Effectiveness: delivering greater value than the cost of collecting, analyzing, and disseminating them.

## Dovetailing with Current Benchmarking Initiatives

Business executives and unit managers are probably already studying benchmarks or best practices for key business processes. It is difficult to justify why IT should not be benchmarked as well. In fact, benchmarking IT only solidifies the importance of information technology in the enterprise. Like most other business processes, IT is also worth measuring.

## Making Better Sourcing Decisions

It is rare to find a management team that has not been approached by onshore or offshore service providers with compelling arguments for why they should provide technology services to the enterprise (typically including a pitch for lower costs and better service). Without a robust system of IT metrics and appropriate feedback mechanisms in place, it may be difficult to support or refute some of these arguments. Metrics allow management to see how IT funds are being spent and what the results are in concrete terms, and will provide a basis for comparison for any outsourcing or co-sourcing proposals.

## Common Objections to Metrics

The introduction of any new measurement process inevitably brings with it a host of objections. Some of these objections may be totally legitimate, while others may be addressed with proper education and implementation. An example of the former is the concern that many managers will have about how their departments and staff could be assessed against a new suite of metrics. This issue can be quite complex and must be resolved between management and human resources. Other common objections are discussed below:

» **Costs:** *"We don't have budget for a metrics program."* It is true that there will be implementation costs for a metrics program, but ongoing costs should not be high. Any method of measurement does have costs (labor, software if necessary), but metrics provide tangible benefits; some provide risk containment/mitigation benefits and others may provide direct financial benefit by pointing out areas of excessive cost or inefficiency. If collected and applied properly, IT metrics meet both of these objectives. In regulated environments, it is also important to note that some level of IT metrics may actually be required as part of a compliance program. This, of course, factors into any cost-benefit decision.

» **People:** *"We have good IT staff and managers. We don't need metrics to tell us that."* Good people are the backbone of any organization, and the best metrics system in the world cannot make up for the lack of skilled, competent, dedicated staff. It may even be the case that business management is in close communication with IT and is very much in the loop. This argument makes most sense in a static environment, where people and management do not change much. However, change is more the rule than the exception in today's business environment. Staff and management roles are more fluid than ever before, and even stable organizations can undergo mergers or acquisitions. This being the case, it becomes important to institutionalize a system of measurement, feedback, analysis, and acting upon metrics so that IT's value and effectiveness is demonstrated.

» **Size:** *"We're just a small company – IT metrics are too over the top for us."* There are two points here. First, small companies often become larger companies, so the control system that IT metrics provide can help manage that growth. Second, while it may be possible to chug along without metrics for a while, it is likely that problems in IT service will arise. Rather than have the business take drastic steps in such instances, it is better for IT to be proactive in anticipating and reacting to problems.

# Key Considerations

## *Creating Efficiencies Across All of IT*

As demonstrated in the metrics lists below, practically any IT function can be measured and have metrics applied. The following represent some of the IT management areas that can benefit from metrics:

» IT budget planning (operational and capital)

» Staffing levels

» Staff activities

» Outsourcing

» Technology complexity

Then, of course, there are the IT operational areas that can benefit from metrics:

» Server performance

» Storage management

» Network performance and availability

» Application development processes

» Project management

» IT security incidents

» Disaster recovery and business continuity

» Data center operations

» Help desk efficiency

## Typical Metrics

Traditional metrics can be either generic or specific, and can be applied to most organizations, regardless of industry or size. The metrics presented in the appendix are intended as guidance or useful examples to get IT started on a metrics program. It is important to customize the actual metrics to fit the organization. Not all of them will apply, and some that are not listed here may be needed. Also, the categories below may be more broad (or more specific) than IT requires. Finally, please note that these are not customized metrics.

The key point in applying ready-made metrics or developing new metrics is to start first from high-level goals and objectives (what IT wants to measure), then drill down into the metrics needed to achieve this.

## A Note on Presentation

It is important at this point to distinguish between the values of the metrics and how these will be presented to the end users of metrics (typically IT management, business management, auditors, regulators, control personnel, and quality control teams). As with most management tools, the higher the management level that will use the information, the higher the quality of data presentation is warranted. The CEO, CFO, and COO may not be interested in the uptime of each individual server, but they may need to know about uptime by overall business system (e.g. uptime of financial application systems versus research and development environments).

One of the best ways to do this is to build metrics according to a top-down approach, starting from what metrics users need to know and getting more specific from there. Think about a drill-down presentation style, whereby an executive may simply wish to see a high-level dashboard, while the next level of managers may want to see the categories underneath, and finally, auditors and quality personnel may want to see the individual metrics that make up these categories.

# Recommendations

1. **Identify a sponsor.** As with many initiatives that have a perceived lack of benefits, or could effect unwanted cultural change, executive buy-in is the key to success. It is inevitable that many who will be involved with a metrics implementation effort – those involved in collecting and interpreting data, and those whose projects and functions will be measured – will question the value or motives of this effort. Some may even work against it, overtly or otherwise. For that reason, it is critical that a high-level executive sponsor visibly supports the metrics program. The sponsor may even choose to incentivize key stakeholders in order to ensure the success of the program.

2.  **Approach metrics like any other IT project.** A metrics implementation should be approached with project management rigor. A project team must be put together, a project plan and schedule written, mission statements drafted, and even a steering committee formed. The project team must include not only IT staff involved in generating the metrics and underlying data, but also representatives of the key end users of the metrics. Risks to successful completion of the project should be identified and managed. The status of the metrics project should be communicated regularly to involved parties and sponsors.

3.  **Align metrics with the organization's goals.** In order for the metrics program to demonstrate IT value and effectiveness, it is very important to tie IT metrics to business goals. Such goals may include:

    »   Cost reduction across all IT areas.

    »   Higher service quality.

    »   Key financial ratio objectives.

    »   Lower operational risks and errors.

    »   Meeting schedules on projects.

    »   Meeting deliverables on projects.

    »   Return on investment for key IT projects.

    »   Revenue enhancement.

    »   New product development.

    »   End-user satisfaction.

    »   Regulatory compliance.

4.  **Determine which metrics to use and how they will be generated.** Based on the specific objectives above that map closest to organizational goals, IT must next determine which metrics should be implemented and from which sources the source data will be collected. Steps to take include:

    »   Determine and document the activities and processes to be measured.

    »   Determine and communicate the measurement goals of the metrics.

    »   Consider initial top-level metrics areas – not specific metrics – that may be required (e.g. software quality, security, performance, etc.).

    »   Prioritize the metrics development, with the most urgent needs being met first (e.g. to meet headcount reduction goals, application development quality problems, etc.).

- » Consider exactly which data points are to be measured.

- » Decide how the metric will be generated.

- » Choose or build a technology solution for tracking, measuring, and reporting metrics. Some very basic metrics can be calculated using a simple spreadsheet.

- » Clearly express what is to be achieved by the measurement, or how the metric will be used for measurement purposes.

- » Determine what targets, thresholds, or benchmarks the metric will be compared against.

- » Investigate whether any measures are already available (you may end up using some available metrics and some custom-developed ones).

- » Collect data using the agreed-upon collection method and data sources.

- » Metrics calculations must accurately reflect the reality of the situation.

5. **Assess the effectiveness of metrics and make adjustments.** Assess the effectiveness, validity, timeliness, and reliability of these metrics by sharing these first ones with the project team, particularly the end users of the metrics. Do the metrics meet their objectives? Are metrics easy to interpret and use? Are they cost effective? Metrics that are not achieving these objectives should be revised, discarded, or replaced with alternate metrics.

6. **Define a feedback and communication process.** As with any management tool, metrics are useless if they are not communicated to those who can use them. Therefore, it is important to define how these will be communicated and presented. What is important is to consider the end-user audience when making these decisions. Those who need to see the detailed, raw metrics may prefer text- and numeric-based outputs, whereas executives may want to see higher-level indicators or benchmarks in graphical format. When graphics like charts or diagrams are used to communicate metrics, they should clearly show the metrics of interest with titles, legends, and labels, but with no excessive detail or color to distract the user. In both cases, it is becoming increasingly expected that metrics be presented not just in report format, but online in a browser-compatible format over the corporate intranet or secure Internet connection. This interface should enable reports of these metrics to be easily generated and printed. Finally, the ability within the user interface to drill down from a top-level metric category to the details of each individual metric should be considered.

7. **Institute a pilot program.** The prior step may in fact be iterative if certain metrics need adjustment or replacement. After gaining consensus from the project team, pilot these metrics. A pilot in this sense could mean a rollout of select metrics only, or a rollout of metrics to select business units or entities only. Closely monitor and use these metrics, making adjustments to data sources, collection techniques, models, or even choice of metrics as needed.

When the pilot program is declared a success the remaining metrics should be rolled out across the IT organization (with the backing of the project sponsor, of course). When doing so, make sure to support the implementation effort with training, as end users need to understand how to interpret and use these metrics.

8. **Make the appropriate changes.** Determine which changes to IT processes, organization, tools, controls, and so on are needed to address metrics that fall short of benchmarks and targets. If metrics are not used to focus on the need for change, then they will be only of limited use.

9. **Document the metrics program.** Throughout the steps outlined above, various aspects of the metrics program should be documented. First, a statement describing the IT metrics program should be written. This will contain a description of the data sources of the metrics, data collection methods, metrics measurement models, and any software used in collecting, calculating, and presenting metrics. Next, update any quality system documents with the necessary metrics information. Finally, create interoffice memos, e-mail, or other communications materials to formally announce the development and implementation of the metrics program, and to let personnel know of their responsibilities under the metrics program.

10. **Beware of lack of clarity or support.** Organizations that approach metrics from a bottom-up perspective – without goals being clearly defined – often have trouble defining and benefiting from these metrics. Metrics implemented in such a manner are usually no more than a simple accounting of events without context (e.g. total number of servers). Such metrics are nearly impossible to align with business objectives and their value is even more difficult to communicate. A system of poorly developed IT metrics is unlikely to have the sustained backing of an executive sponsor, which will make it even harder to roll out and use metrics.

    » It is also necessary to be clear and transparent about what metrics data will be used for. What will be benchmarked? Processes? Divisions? Departments? People? Who will have access to the metrics? What will they use them for? If personnel are suspicious of the objectives of the metrics program, expect to meet stiff resistance.

    » Finally, make it known when metrics will be collected and used. Metrics collected too soon or too late are at best of limited use and at worst misleading. An example of this is a staffing ratio that fails to take into account a large or long-term project that will eat up two FTEs for an entire year.

    » There is no substitute for gaining executive sponsorship up front. Ask the sponsor and key stakeholders what they are expecting to gain out of metrics, and then communicate this to the organization. The metrics sponsor and senior management must stay committed to the program, or it is unlikely the rest of the organization will be motivated to use the metrics or see any value in them.

11. **Avoid doing too much too soon.** Any new technique that generates intelligence for the business can create a lot of excitement. But this excitement can lead some in the project team to want to try every available metric, develop new ones, or fine-tune the ways metrics are measured, all without regard to business value. Sometimes, overachievers may attempt to measure too much, or try to use many metrics where just one or two will do the job. Furthermore, metrics can be devised without having the required underlying data to calculate these metrics on a regular basis, or without the tools to calculate and track them. Such misguided decisions can draw out the metrics implementation effort and make it harder to link metrics to business goals. It will also bloat the costs of the metrics program.

   » One way to avoid this is to smart small and run the pilot program mentioned earlier. Also, keep stakeholders and the sponsor involved: they need to make sure the project team keeps its eye on the ball.

12. **Don't reinvent the wheel.** It is possible that certain metrics are being used in the organization already. If any units of the organization have endorsed quality programs, they will provide or dictate many of the metrics that IT should use. These metrics can be a starting point for your metrics program.

   » That said, this is not to suggest a bottom-up approach, as it is still important to start with high-level goals and objectives. In fact, many audit, regulatory, and quality methodologies spell out several of these objectives (though primarily as they relate to control objectives). Rather, once these objectives are clarified, IT can leverage existing metrics to whatever extent possible.

13. **Data manipulation is a real threat.** Once personnel realize that they and their projects, resources, or budgets may be evaluated or impacted based upon metrics, the potential motivation to subvert these metrics in order to make them appear more favorable may arise. Data sources can be filtered or controlled in order to do this. Project progress metrics can be inflated by picking low-hanging fruit and completing easy tasks early (also known as sandbagging). Alternatively, resource usage can be skewed by neglecting to measure the work of certain project resources.

   » To counter these trouble spots, it is essential that the data sources and calculation methods for metrics be agreed upon up front, documented, and auditable by an objective or independent party. Metrics that seem too good to be true (e.g. 100% uptime over a month) should probably be investigated by management or others.

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# Bottom Line

Like any other IT project, metrics have to be properly designed, collected, piloted, and deployed. This implies an iterative approach that encompasses feedback, assessment, communication, and change management. The key to a successful implementation of IT metrics is adopting the top-down approach to metrics development.

# Appendix: Typical Metrics

| IT Area | Description | Example Metrics |
|---|---|---|
| **Financials** | Financial metrics specific to application development can also be incorporated into the organization's program. | » IT budget as % of company revenue<br>» IT budget to total FTE ratio<br>» IT budget to total IT FTE ratio<br>» % change in IT budget from previous fiscal year<br>» % of IT budget dedicated to contractors<br>» % of IT budget dedicated to training |
| **Operational Expenditures** | Operational expenditures (aka OPEX) – or operational budget – refers to ongoing IT spending, during the fiscal year, on routine daily operations of the IT department (i.e. keeping the lights on). | » Operational budget as % of revenue<br>» Operational spend per company FTE<br>» Operational spend per IT FTE<br>» Operational spend per PC<br>» % of operational budget growth over last fiscal year<br>» % of operational budget spent on hardware maintenance/upgrades<br>» % of operational budget spent on ongoing software licenses |

| IT Area | Description | Example Metrics |
|---|---|---|
| | | » % of operational budget spent on ongoing software maintenance<br>» % of operational budget spent on supplies/consumables<br>» % of operational budget spent on data communications<br>» % of operational budget spent on technical services<br>» % of operational budget spent on consulting<br>» % of operational budget spent on outsourcing<br>» % of operational budget spent on IT staff<br>» % of operational budget spent on IT contractors<br>» % of operational budget spent on IT training |
| **Capital Expenditures** | Capital expenditures (aka CAPEX) – or capital budget – refer to one-time IT spending, during the fiscal year, on one-time purchases, projects, or acquisitions. | » Capital budget as % of revenue<br>» Capital spend per company FTE<br>» Capital spend per IT FTE<br>» Capital spend per PC<br>» % of capital budget growth over last fiscal year<br>» % of operational budget spent on consulting<br>» % of operational budget spent on outsourcing<br>» % of operational budget spent on IT contractors |

| IT Area | Description | Example Metrics |
|---|---|---|
| | | » % of capital budget spent on new hardware<br><br>» % of capital budget spent on new software |
| **IT Staff Activity** | IT staff activity metrics are designed for IT departments with well-defined job roles. While some activities may be divided between several employees, the amount of time spent on such tasks must be tallied up to represent a percentage of one FTE. | » % of IT FTEs performing project management activities<br><br>» % of IT FTEs performing planning and administration activities<br><br>» % of IT FTEs performing IT security activities<br><br>» % of IT FTEs performing business analysis activities<br><br>» % of IT FTEs performing end-user training activities<br><br>» % of IT FTEs performing development activities<br><br>» % of IT FTEs performing maintenance activities<br><br>» % of IT FTEs performing testing/QA activities<br><br>» % of IT FTEs performing Web development activities<br><br>» % of IT FTEs performing Web design activities<br><br>» % of IT FTEs performing help desk administration and support activities<br><br>» % of IT FTEs performing PC administration and support activities<br><br>» % of IT FTEs performing network administration and support activities<br><br>» % of IT FTEs performing database |

| IT Area | Description | Example Metrics |
|---|---|---|
| | | administration and support activities |
| | | » % of IT FTEs performing storage administration and support activities |
| | | » % of IT FTEs performing server administration and support activities |
| | | » % of IT FTEs performing system administration and support activities |
| **Application Development** | Application development metrics are used to measure aspects of the software development lifecycle, from requirements definition, to design, to coding and testing. These metrics include measurement of software quality. While there are very detailed coding metrics available specific to coding languages (e.g. C++, Java, etc.), only general metrics are presented. | » FTEs dedicated to application development as % of total IT FTEs<br>» FTEs dedicated to application maintenance as % of total IT FTEs<br>» Total development FTEs divided by total app maintenance FTEs<br>» # of break/fix defects within 30 days of release divided by total development costs<br>» Average number of feature requests per month<br>» Average time from request to approval/rejection<br>» Average time from approval to release |
| **Data Center** | Data center metrics are designed for IT departments with well-defined tasks and activities that focus exclusively on data center operations. Typically it is mid to large-sized enterprises that would be able to capture and measure | » % of IT workforce distribution by role (e.g. database administrators, systems admins)<br>» % of installed equipment vs. % of utilization<br>» Average # of applications per server<br>» Average # of servers per system administrator |

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| IT Area | Description | Example Metrics |
|---|---|---|
| | data center tasks. | » Average # of end users per system administrator<br>» % of server utilization<br>» % of processor utilization<br>» % of services hosted or collocated<br>» Virtual to physical server ratio<br>» Average outage duration per server instance<br>» Power usage effectiveness (PUE) = Total power capacity of facility ÷ total IT equipment power usage |
| Storage | Storage metrics are intended for IT departments with well-defined tasks and activities that focus exclusively on storage and storage management. | » One-time storage spend per installed GB (may be included in capital budget metrics)<br>» Ongoing storage spend per installed GB (may be included in operational budget metrics)<br>» # of storage support FTEs per installed 100 GB<br>» Ratio of used gigabytes to installed gigabytes<br>» % of storage spend allocated to primary, nearline, archive<br>» Ratio of primary to nearline to archive storage<br>» % of total storage allocated to shared drives<br>» % of total storage allocated to end users |
| Network and | Network and telephony | » # of network ports per network |

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| IT Area | Description | Example Metrics |
|---|---|---|
| Telephony | metrics are intended for IT departments with well-defined tasks and activities that focus exclusively on network and voice management. | support FTE<br>» # of network ports per end user<br>» # of network ports per network device<br>» Network bandwidth to capacity ratio<br>» Network bandwidth capacity per user<br>» Network bandwidth consumption per user<br>» Ratio of users per network management FTE<br>» Ratio of non-VoIP to VoIP devices<br>» % employees with access to teleconferencing/videoconferencing<br>» Telecom staff as % of total IT staff<br>» Network staff as % of total IT staff |
| Risk Management | Security metrics are intended for IT departments who have a vested interest in tracking and monitoring security events, whether for regulatory purposes or as best practice. | » % of IT budget spent on security capital expenditures<br>» % of IT budget spent on security operational expenditures<br>» Security spending as % of IT budget<br>» Security staff as % of total IT staff<br>» Security staff as % of all staff<br>» % of security breaches that resulted in financial losses<br>» % of systems that have had formal risk or vulnerability assessments<br>» # of unique passwords per employee<br>» Average time to provision new |

| IT Area | Description | Example Metrics |
|---|---|---|
| | | employee accounts<br>» Average time to de-provision employee accounts<br>» Cost per Password Reset<br>» Cost per Virus Outbreak<br>» Cost per GB for data encryption<br>» % of manual to automated security processes |
| Help Desk | Help desk metrics relate to the measurement and control over support activities and troubleshooting for end users and the IT infrastructure at large. | » One-time technology spend per help desk FTE (may be included in capital expenses)<br>» Ongoing technology spend per help desk FTE (may be included in operational expenses)<br>» Help desk spend per each company FTE<br>» # of end users per help desk FTE<br>» # of help desk tickets per user per year<br>» % of help desk calls resolved in first call<br>» % of help desk calls sent to Tier 2 and 3 support<br>» % of help desk calls abandoned<br>» Average time for initial response<br>» Average time to resolution |
| Outsourcing | Outsourcing can be considered on a case-by-case basis (as found in capital or operational budget | » % of applications outsourced<br>» % of application development duties outsourced |

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| IT Area | Description | Example Metrics |
|---|---|---|
| | line items), or they can be treated as a separate standalone metrics category. Ultimately, it's up to the company's financial executives to decide how they want outsourcing metrics structured. | » % of application maintenance duties outsourced<br>» % of disaster recovery activities outsourced<br>» % of Web site/e-commerce work outsourced<br>» % of network operations outsourced<br>» % of voice network operations outsourced<br>» % of help desk activities outsourced |
| **Project Management** | There are many types of project metrics. Some provide information on project progress compared against schedules, plans, and promised deliverables. Others provide information on effort, resourcing, and costs (some of which may be included in capital expenses). | » % of milestones met per project<br>» % of deliverables met per project<br>» % of projects on budget<br>» % of projects over budget<br>» Ratio of actual versus planned task completions<br>» Ratio of actual versus planned durations<br>» Ratio of actual versus planned staffing profiles<br>» Ratio of actual versus planned costs<br>» Number of requirements changes/clarifications per project<br>» Ratio of actual versus planned profiles of computer resource utilization<br>» Ratio of actual versus planned number of personnel attending classes<br>» Ratio of actual versus planned code |

| IT Area | Description | Example Metrics |
|---------|-------------|-----------------|
|         |             | walkthroughs    |

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