The ITSM Process Design Guide
Developing, Reengineering, and Improving IT Service Management

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The purpose of every process is to produce an outcome that is of value to its customer. Metrics provide the ability to determine how capable a process is of producing the desired outcome (i.e., how capable it is of creating value).

A metric is a performance measure.

Metrics can be used to control, measure, predict, and improve process performance. They can be used to assess all aspects of a process including inputs, outputs, and activities. Like calculating the return on an investment, they can be used to measure both tangible and intangible process characteristics. Metrics can also be used to measure attainment of strategic (long term), tactical (shorter term), and operational (day-to-day) performance goals. Meaningful metrics help measure process characteristics such as:

- **Compliance**: Are we following the process?
- **Quality**: Are we executing the process effectively?
- **Performance**: Are we executing the process efficiently?
- **Value**: Is what we are doing facilitating business goals and objectives?

As illustrated in Figure 8.1, the most common types of process metrics include:

- **Efficiency**: A measure used to compare the value of a process (its effectiveness) with its cost
- **Effectiveness**: A measure used to show the capability of a process to deliver value (i.e., produce a desired output)
Cost: Also known as economy, a measure used to show the cost of the process inputs required to produce the desired outputs.

Efficiency, effectiveness, and cost are each important and a common mistake is to view them as mutually exclusive. Increasing efficiency, for example, is about saving time and reducing costs. But to what end? Effectiveness is about delivering quality and satisfying customer requirements. But does that mean no matter how long it takes or how much it costs? A process that becomes too efficient may become ineffective and vice versa and so measuring each metric type is important.

The demands of today’s work world make it more important than ever to measure and continually improve process performance. These demands include the need to:

- Satisfy customers’ ever-rising expectations
- Demonstrate compliance with regulatory controls
- Cut or maintain costs
- Optimize staffing levels
- Increase overall performance
- Do more with less

Well-designed and meaningful metrics can be used to:

- Justify existing or additional resources
- Compare performance against:
  - A baseline
  - A target or goal
  - Another organization
• Demonstrate proof of concept
• Initiate corrective action when needed

What are well-designed and meaningful metrics? The Process Maturity Framework (PMF) can be used to answer that question. This is because the ability to measure the performance of a process is one of the characteristics the PMF uses to assess the maturity of processes.

Table 8.1 illustrates that when a process is in the initial level of maturity, it is common that few results are being retained. As a process moves through the repeatable, defined, and managed maturity levels, organizations recognize the need to set objectives and measure achievements against targets. At the optimizing level, processes are being continually improved to ensure alignment with business goals.

So what is a well-designed and meaningful metric? It is a metric that reflects a strategic objective and is aligned with business goals.

### 8.1 Producing Meaningful Metrics: Common Practice

Designing and producing meaningful metrics is easier said than done. Common practice is that organizations:

• Measure what they can given available data
• Focus on operational performance
• Manually produce reports

Measuring what they can—versus what they should to demonstrate alignment with business goals—is a typical characteristic of an organization that lacks a process orientation. The most classic example is service availability. Since the earliest days of computing, IT organizations have reported on availability. What’s historically been lacking, however, is a true end-to-end service perspective. IT may report on server availability, for example, but not reflect in that metric network availability or the availability of other components used to deliver the service end-to-end. While reporting component availability is important from an IT perspective, it often leaves the business asking, “Who cares?”

<table>
<thead>
<tr>
<th>Optimizing</th>
<th>• Strategic objectives are aligned with business goals</th>
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<tbody>
<tr>
<td>Managed</td>
<td>• Objectives and targets are based on business goals</td>
</tr>
<tr>
<td>Defined</td>
<td>• Agreed-upon objectives and targets</td>
</tr>
<tr>
<td>Repeatable</td>
<td>• No clear objectives or formal targets</td>
</tr>
<tr>
<td>Initial</td>
<td>• Few results retained</td>
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So too does focusing on operational, or day-to-day performance metrics. Again, while tracking a technician’s performance during incident resolution is important, the business is much more interested in the IT organization’s ability to prioritize activities and deliver services that meet agreed targets.

It is common for organizations to manually produce metrics, particularly when processes are first being defined and designed. The act of manually producing metrics and performance reports has many downsides including that it is:

- Labor intensive
- Error prone
- Slow

Every day IT and business executives make decisions that require timely and accurate information. In the absence of well-designed and meaningful metrics, executives are forced to use recommendations and staff input that may—or may not—be accurate and unbiased to make decisions.

8.2 Producing Meaningful Metrics: Best Practice

Done right, metrics and performance reports enable:

- Fact-based decision making
- Governance
- Early detection of performance problems
- Continual improvement

Each of the ITSM and quality management frameworks, standards, and models previously discussed recognize the need to monitor, measure, and review performance metrics. One of the most widely recognized quality assurance and improvement models is the Deming Cycle, which involves executing four steps: plan, do, check, and act. The Deming Cycle is imbedded in ISO/IEC 20000 and the check step requires that organizations have in place:

- Methods for monitoring and measuring ITSM processes
- The ability to show that processes achieve planned results
- Planned reviews and audits to ensure that processes:
  - Conform to the ITSM plan
  - Are effectively implemented and maintained

Best practices for satisfying these requirements include:

- Implementing a metrics program
- Using metrics to achieve business and process improvement goals
- Automatically monitoring metrics and publishing reports
8.2.1 Implementing a Metrics Program

It’s quite common for management and staff to latch onto a single metric and deem that metric the most important. The upside of such an approach is that the organization is focused on a specific improvement opportunity. The downside of such a singular focus is that it can drive negative behavior. An emphasis on efficiency, for example, very often results in reduced effectiveness.

A metrics program or measurement framework describes the metrics needed to achieve business goals, how to collect them, and how to use them to continually improve performance. Examples of metrics programs include the Balanced Scorecard and Results that Matter approaches.

The Balanced Scorecard: A well-known and commonly used metrics program is the Balanced Scorecard. Popularized by Drs. Robert Kaplan and David Norton of the Harvard Business School in the 1990s, the Balanced Scorecard is a performance measurement framework that combines strategic non-financial performance measures with traditional financial metrics. The Balanced Scorecard approach suggests that organizations develop and analyze metrics relative to four key perspectives: financial, customer, internal business processes, learning and growth. This approach gives executives and managers a more balanced view of organizational performance.

Results that Matter: Popularized by the book Results that Matter: Improving Communities by Engaging Citizens, Measuring Performance, and Getting Things Done (Jossey-Bass, 2005), many government agencies are implementing performance measurement initiatives aimed at ensuring every department within the government has the tools and data needed for all employees to focus on delivering results that matter to citizens.

A metrics program uses a top-down approach to ensure that performance metrics support business objectives and performance improvement goals. An effective metrics program encompasses:

- What you should measure to achieve business goals
- Individual process performance
- Process interfaces

Ten steps for creating a metrics program include:

- **Step 1**: Determine management’s vision—identify strategic and measurable goals and objectives
- **Step 2**: Identify critical success factors—decompose the strategic goals and objectives into measurable results that must happen for processes to support the stated goals and objectives
- **Step 3**: Identify key performance indicators—identify the key measures to be used to monitor and measure process performance
- **Step 4**: Identify metrics—identify the measures to be used to monitor and measure process performance
• **Step 5:** Verify that metrics are *SMART*—ensure metrics are specific, measurable, achievable, relevant, and timely

• **Step 6:** Identify required data elements—identify the data elements required to produce the metrics and assess their accuracy

• **Step 7:** Test and pilot your metrics and reports—verify that metrics and reports are statistically valid and satisfy customer requirements

• **Step 8:** Document your metrics and reports—included its identity (e.g., unique name), purpose, audience, and associated data elements

• **Step 9:** Place approved metrics and reports under change management control—ensure proposed changes are assessed for impact

• **Step 10:** Continually review reports for effectiveness—continually ensure metrics and reports are aligned with business goals

This approach is used to determine the critical success factors (CSFs), key performance indicators (KPIs), and metrics for each process relative to each business goal. (Appendix D provides sample KPIs for each ISO/IEC 20000 process.)

| Quick Tip: | Use common reporting tools such as pie and bar charts to regularly assess data accuracy. Are data elements being specified accurately? Is “other” being used appropriately? Are individuals within a team or function specifying data elements consistently? Ensure that training covers not only how to log data, but how to log that data accurately and consistently as well. |

Roles that will be involved in defining CSFs, KPIs, and metrics include:

• **Service management program owner**—responsible for overall program

• **Process owners**—responsible for process specific metrics

• **Process stakeholders**—responsible for validating metrics and participating in baselining activities

• **Data analysts**—responsible for ensuring the needed data is captured, summarized, and assembled into appropriate reports and graphs

• **Technical specialists**—responsible for facilitating the implementation and administration of associated technologies

### 8.2.2 Using Metrics to Achieve Business and Process Improvement Goals

Can you have too many metrics? Absolutely! Some organizations measure every aspect of a process, but fail to ensure the process is contributing to the greater business goals. The end result is that people may be working very hard, but not really working on the right things.
Any number of metrics may be used to measure process characteristics such as cost, quality, efficiency, and effectiveness. However, it is recommended that no more than two to three CSFs and KPIs are defined at any given point in time. Limiting the number of KPIs makes it possible to (1) focus peoples’ efforts on what is important and (2) measure the effect of process changes aimed at improving a particular process characteristic. In an effort to drive positive behavior, it is common for organizations to tie performance plans and incentives to CSFs and KPIs. Figure 8.2 illustrates deconstructing a CSF for the change management process into KPIs and metrics.

Among all the performance measures available to managers to change peoples’ behavior and move the organization in a new direction, CSFs and KPIs are the most powerful. Care must be taken when selecting CSFs and KPIs to ensure peoples’ efforts are focused on doing the right things right.

**Quick Tip:**

An important step is to reflect metrics in employee job descriptions and performance plans and, when possible, provide appropriate incentives. Failing to take such a step invariably results in a disconnect between desired and actual behavior.

![Figure 8.2 Sample CSFs, KPIs, and metrics for change management](image)
Measuring Individual Performance

How management uses metrics influences their effectiveness. Having too many metrics that lack meaning typically means the staff is being required to capture more data than is needed. Using metrics to point fingers or punish will decrease moral and drive bad behavior. Common complaints and concerns from IT staff include:

- I’m entering all this data and no one is using it
- The data I’m entering is being used as a stick to criticize and find fault with my work
- The data being collected is not useful to me
- Process efficiency is just another word for downsizing

All of these complaints, when true, are valid and must be addressed. To avoid these complaints, management must use the data being collected to improve first and foremost, the quality of service being delivered to the business, but also the feeling of job satisfaction experienced by the IT staff. Management must communicate honestly with staff about its efforts to optimize staffing levels and ensure the IT organization has the skills needed to achieve ITSM goals.

It is also important to use performance metrics to drive continual improvement, rather than doing whatever it takes to “make the numbers right,” or keep management and customers happy. A spirit of learning, growth, and continual improvement will drive behavior that is consistent with corporate objectives, rather than conflicting behaviors that could arise if one person’s measures are at odds with another’s.

Measuring Process Integration

Every ITSM process has a relationship with:

- Every other ITSM process
- Other IT processes such as project management
- Other business processes such as financial management

To achieve higher levels of process maturity, these interfaces must be recognized and continually monitored, measured, and improved.

It is also important to recognize the impact that integrated processes can have on a single process. Figure 8.3 illustrates the positive effect that integrated processes can have on the number of incidents affecting the production environment.

Conversely, immature processes, or the absence of processes, can cause the opposite effect. An ineffective change management process, for example, is often the most common cause of incidents.

Successes as a result of process integration must be clearly communicated to: (1) recognize accomplishments, (2) show proof of concept, and (3) provide incentive to continually improve. For example:
By integrating incident management with problem and change management:

- Number of incidents being reported has decreased by X%
- Time to resolve incidents has decreased by X%
- First line resolution has increased by X%
- Customer satisfaction has increased by X%

By integrating incident management with service level management:

- Number of priority 1 incidents being reported has decreased by X%
- Number of customers contacting IT staff outside the service desk has decreased by X% (may be difficult to fully capture but is worth attempting)

Since the output of one process is the input to another, process design and improvement efforts must consider the effect of changes on all integrated processes.

**Quick Tip:**
Use the seven basic tools of quality to analyze performance and seek out trends. Each of these tools has a purpose and, used properly, serves as the foundation of an effective metrics program.

### 8.2.3 Automatically Monitoring Metrics and Publishing Reports

A sign of maturity is being able to automatically monitor metrics and publish reports. Automated reporting:

- Reduces the effort required to manually produce reports
The ability to automate reporting begins with understanding:

- What data is available?
- What is the definitive source of that data?
- Is the data located in disparate systems?
- What tools are available or needed to aggregate and summarize the data?
- What tools are available or needed to produce reports?

This simple set of questions provides insight into the fact that automatically monitoring metrics and publishing reports is easier said than done. To automate metrics and reports:

1. Identify the data sources
2. Identify and document the algorithms
3. Design reports that meet audience needs and aid understanding
4. Place the reports under change management control
5. Determine the appropriate distribution medium
6. Schedule and automate report distribution

Review metrics regularly to ensure they are worth the time spent collecting data, producing reports, and analyzing and acting upon the results. Involve all stakeholders to determine what is needed (i.e., what is meaningful) and what is sustainable.

### 8.3 The Role of Service Level Management

Service level management is a critical process as it determines targets for all ITSM processes. Unlike CSFs and KPIs that reflect goals and a future state, targets reflect the operational performance metrics that are agreed upon in SLAs.

Each process owner works with service level management to understand the service level requirements (SLRS), or customer requirements, and considers those requirements during process design and improvement activities. Figure 8.4 illustrates how options for satisfying the requirements must be considered during process design or redesign, along with the cost of satisfying those requirements.

A fundamental premise of ITSM is that the business must be willing to fund the resources needed to satisfy requirements. For example, if the business requires that all incidents reported by a particular business area be viewed as priority 1 incidents, the business must be willing to fund the resources needed to satisfy that requirement.

Once targets are understood, milestones can be identified that can be used to monitor process performance, reflect control points along the way, and proactively ensure the targets can be met. These milestones may be recorded in OLAs.
for internal organizations, or in contracts for external organizations. Figure 8.5 illustrates using metrics to monitor and ensure SLA compliance.

OLAs and contracts ensure each of the stakeholder groups involved in a process understands its role, responsibilities, and associated targets. Table 8.2 shows sample OLA metrics.

Metrics tied to OLAs and contracts can be used to ensure targets are being met or to trigger an improvement plan. Having stakeholders work together to determine the appropriate metrics to monitor is an effective way to initiate more positive communication between groups and manage expectations relative to results.

### 8.4 Keys to a Successful Metrics Program

Producing metrics based on what you can (vs. should) measure, or on what you think management and customers want to see (but aren’t sure) is a waste of time and will do little to help the organization mature and improve. Well-designed and meaningful metrics drive positive behaviors and can be used to demonstrate an ROI on process design and improvement activities.

Keys to success include:

- Ensure metrics are meaningful and aligned with business goals
- Use baseline metrics and indicators or thresholds initially rather than nothing at all
- Keep it simple—produce metrics that are “good enough” to control, monitor, and predict performance

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**Figure 8.4** Using SLRs during process design and improvement activities

**Figure 8.5** Using metrics to monitor and ensure SLA compliance
Figure 8.5 Using metrics to monitor and ensure SLA compliance
• Automate metrics collection as much as possible
• Analyze performance and seek out trends
• Use metrics to provide constructive, timely feedback

The most effective metrics programs foster an honest appraisal of the current environment, trigger constructive feedback and communication, and enable the continual alignment of process and business goals. If metrics are moving in the wrong direction, investigate quickly and determine an appropriate course of action. If metrics are moving in a positive direction—even if only slightly—celebrate that fact and encourage continued progress.

Use a variety of methods to communicate performance and initiate a two-way dialog about how performance can be improved. Methods may include:

• Themes
• Presentations
• Dashboards
• Reports
• Portals/intranets
• Newsletters

Table 8.2 Sample OLA metrics

<table>
<thead>
<tr>
<th>Service desk</th>
<th>Sample target</th>
</tr>
</thead>
<tbody>
<tr>
<td>Response within target</td>
<td>99%</td>
</tr>
<tr>
<td>Resolved on initial contact</td>
<td>85%</td>
</tr>
<tr>
<td>Reopened</td>
<td>&lt;5%</td>
</tr>
<tr>
<td>Assigned within target</td>
<td>98%</td>
</tr>
<tr>
<td>Assigned correctly</td>
<td>Increasing</td>
</tr>
<tr>
<td>Overall quality</td>
<td>&gt;4 (out of 5)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Desktop support</th>
<th>Sample target</th>
</tr>
</thead>
<tbody>
<tr>
<td>Status requests—unrecorded incidents</td>
<td>Reducing</td>
</tr>
<tr>
<td>Acknowledged within target</td>
<td>98%</td>
</tr>
<tr>
<td>Status alerts per incident</td>
<td>&lt;2</td>
</tr>
<tr>
<td>Reassigned after 75% of target</td>
<td>&lt;2%</td>
</tr>
<tr>
<td>Resolved within SLA target</td>
<td>99%</td>
</tr>
<tr>
<td>Reopened</td>
<td>&lt;5%</td>
</tr>
<tr>
<td>Overall quality</td>
<td>&gt;4 (out of 5)</td>
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</tbody>
</table>
An effective metrics program provides all stakeholders the ability to assess performance and see and understand the results of their efforts. Metrics can be a starting point for problem-solving, relationship building, and communication. The act of sitting down to discuss what metrics are needed and determining CSFs and KPIs alone is a positive step in the right direction.

The organizational change management activities discussed in the next section help to keep everyone moving in the same direction.

**Summary**

The purpose of every process is to produce an outcome that is of value to its customer. Metrics can be used to control, measure, predict, and improve process performance. Meaningful metrics help measure process characteristics such as: compliance, quality, performance, and value. The most common types of metrics are: efficiency, effectiveness, and cost. Each of these metric types can influence the others thus measuring them all is important.

Well-designed and meaningful metrics are tied to strategic objectives and continually improved. Best practices for designing and improving meaningful metrics include: implementing a metrics program, using metrics to achieve business and process improvement goals, and automatically monitoring metrics and producing reports.

Creating a metrics program involves a ten step, top-down approach aimed at ensuring performance metrics support business objectives and performance improvement goals. Key steps include determining management’s vision, determining CSFs, and then deconstructing CSFs into KPIs and metrics. Approved metrics and associated reports should be placed under change management control and reviewed regularly for effectiveness.

A sign of maturity is being able to automatically monitor metrics and publish reports. Automated reporting reduces the effort required to produce reports, reduces the number of errors reflected in reports, and increases the timeliness of reports. Automated reporting requires a comprehensive understanding of the data and tools available or needed to produce reports.

Service level management is a critical process as it defines targets for all ITSM processes. Unlike CSFs and KPIs that reflect goals and a future state, targets reflect the operational performance metrics that are agreed upon in service level agreements. OLAs and contracts ensure each of the stakeholder groups involved in a process understands its role and responsibilities and associated targets.

Well-designed and meaningful metrics drive positive behaviors and can be used to demonstrate an ROI on process design and improvement activities. A variety of methods should be used to communicate performance and initiate a two-way dialog about how performance can be improved. Organizational change management activities can be used to keep everyone moving in the same direction.
**Discussion Topics**

- Metrics such as efficiency, effectiveness, and cost can influence each other. What are the consequences of placing too great an emphasis on cost?
- Care must be taken to ensure metrics are worth the time and effort. What factors influence an organization’s ability to produce meaningful metrics?
- How management uses metrics influences their effectiveness. How can metrics be used to increase the morale of an organization?

**Review Questions**

1. Meaningful metrics help measure what four process characteristics?
2. List and describe the three most common metric types.
3. How do organizations view metrics at the defined level of maturity?
4. What is the downside of focusing on a single metric?
5. Define the term metrics program and provide two examples.
6. What is the first step to take when creating a metrics program?
7. True or false. You can have too many metrics. Explain your answer.
8. How can management address valid complaints from IT staff regarding how metrics are used?
9. Why is measuring process integration important?
10. Describe the role service level management plays in producing metrics.