

METRICS FOR IT OUTSOURCING SERVICE LEVEL AGREEMENTS

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By Ian S. Hayes

IT organizations turn to outsourcing for any number of reasons, and to fulfill a variety of needs. Whether the goal is to obtain expertise or to reduce costs, to offload application maintenance or help desk operations, outsourcing is here to stay. The typical outsourcing engagement will last for a number of years, and be governed by a contract setting the terms and conditions between the client and outsourcer for the duration of their relationship. To measure whether that relationship is working, and how well, Service Level Agreements are established.

A Service Level Agreement (SLA) is an essential part of any outsourcing project. It defines the boundaries of the project in terms of the functions and services that the service provider will give to its client, the volume of work that will be accepted and delivered, and acceptance criteria for responsiveness and the quality of deliverables. A well-defined and crafted SLA correctly sets expectations for both sides of the relationship and provides targets for accurately measuring performance to those objectives.

At the heart of an effective SLA is its performance metrics. During the course of the outsourcing engagement, these metrics will be used to measure the service provider's performance and determine whether the service provider is meeting its commitments. When properly chosen and implemented, the SLA metrics:

- measure the right performance characteristics to ensure that the client is receiving its required level of service and the service provider is achieving an acceptable level of profitability
- can be easily collected with an appropriate level of detail but without costly overhead, and
- tie all commitments to reasonable, attainable performance levels so that "good" service can be easily differentiated from "bad" service, and giving the service provider a fair opportunity to satisfy its client.

This article focuses on the issues surrounding the selection and implementation of SLA metrics. Although application outsourcing is used for many of the examples, the principles described within are applicable for any type of outsourcing engagement. This article does not attempt to define an exhaustive list of metrics that should be included in a SLA; the topic is too large and project variations are too great. Rather, it concentrates on the principles for selecting metrics, the categories of metrics, and how those metrics should be represented in a SLA. These topics are necessarily presented in an introductory manner. Organizations without extensive metrics experience are urged to consider professional assistance to guide them through the process of creating their first few SLAs.

Five Principles for Selecting SLA Metrics

Selecting the appropriate metrics to gauge project performance is a critical preparatory step for any outsourcing engagement. A variety of metrics is required to manage the numerous aspects of an outsourcing project. While some metrics will be unique to a given project, many are common to all outsourcing projects. Often, a metric that works well on one project may be ineffective, inaccurate or too costly to collect on another project. A poor choice of metrics will result in SLAs that are difficult to enforce and may motivate the wrong behavior or even cause a dispute that ends up in court.

The selection process is complicated by the enormous number of potential metrics and must be tempered by considerations such as organizational experience with metrics, the type of behaviors to be motivated and cost and effort of collection. Common sense must prevail when selecting metrics. Remember that the goal is to ensure a successful and positive working relationship between the service provider and the client. To meet these goals, organizations should consider the following five principles.

1. Choose measurements that motivate the right behavior

The first goal of any metric is to motivate the appropriate behavior on behalf of the client and the service provider. Each side of the relationship will attempt to optimize their actions to meet the performance objectives defined by the metrics. If the wrong metrics are selected, the relationship can go astray quickly. For example, paying programmers by the number of lines of code they produce will certainly lead to an increase in production, but may play havoc with quality and the true quantity of real work accomplished.

To motivate the right behavior, each side must understand the other side, its expectations and its goals, and the factors that are within its control. Realism must prevail. Clients have to anticipate that service providers will want to make a profit; service providers have to expect that clients will want to control costs.

When choosing metrics, first focus on the behavior that you want to motivate. What factors are most important to your organization? Reducing costs and/or defects? Increasing production or speeding time-to-market? Which factors are you willing to trade for improvements in another area? Pick an initial set of metrics that measure performance to these behaviors.

Put yourself in the place of the other side and test the selected metrics. How would you optimize your performance? Be creative. Does that optimization lead to the desired results? Often, secondary metrics are needed to provide checks and balances to avoid missteps. Also, consider whether the metrics are truly objective or are subjective enough to leave room for interpretation. Metrics that are based upon a subjective evaluation are open to different interpretations, and will likely lead to disagreement over whether a service provider has met its commitments. For example, state that "all printed invoices will be delivered to the post office within 4 hours after completion" rather than "all printed invoices will be delivered to the post office in a timely manner."

2. Ensure metrics reflect factors within the service provider's control

Ensure that the metrics measure items within the other party's control. Continuing the example from above, the service provider has control over bringing the invoices to the post office, but has no control over the speed by which the post office delivers the mail. Thus, a requirement that "all printed invoices will be delivered to our customers within 48 hours after production completion" is unfair and likely to be demotivating to the service provider.

Service providers should ensure that the SLA is two-sided. If the service provider's ability to meet objectives is dependent on an action from the client, the client's

performance must also be measured. For example, a service provider may be held accountable for the speed and quality of a system enhancement, but the quality is affected by the accuracy of client-developed specifications, and speed/delivery is held up by the client's approval cycle.

Conversely, refrain from choosing SLA metrics that attempt to dictate how the service provider is to do its job. Presumably, an outsourcing provider's core competence is in performing IT tasks, and embodies years of collected best practices and experience. Attempting to regulate these tasks will only introduce inefficiencies. Instead, concentrate on ensuring that the delivered work products meet quality, time and cost expectations.

3. Choose measurements that are easily collected.

If the metrics in the SLA cannot be easily gathered, then they will quickly lose favor, and eventually be ignored completely. No one is going to spend an excessive amount of time to collect metrics manually. Ideally, all metrics will be captured automatically, in the background, with minimal overhead; however, few organizations will have the tools and processes in place to do so. A metric should not require a heavy investment of time and money; instead use metrics that are readily available, compromising where possible. In some cases, it will be necessary to devise alternative metrics if the required data is not easily obtainable. For example, measuring whether a newly written program meets published IT standards require an arduous manual review. Conversely, a commercially available metric analysis tool can quickly and automatically calculate the program's technical quality. While the end result is not identical, the underlying goal -- motivating enhanced quality -- is met at a fraction of the manual cost.

4. Less is more.

Avoid choosing an excessive number of metrics, or metrics that produce a voluminous amount of data. At the outset of drafting the SLA, an organization may be tempted to include too many metrics, reasoning that the more measurement points it has, the more control it will have over service provider performance. In practice, this rarely works. Instead choose a select group of metrics that will produce information that can be simply analyzed, digested and used to manage the project. If the metrics generate an inordinate amount of data, the temptation will be to ignore the metrics, or subjectively interpret the results, negating their value in the SLA.

5. Set a proper baseline.

Defining the right metrics is only half of the battle. To be useful, the metrics must be set to reasonable, attainable performance levels. It may be difficult to select an initial, appropriate setting for a metric, especially when a customer does not have any readily available performance metrics or a historical record of meeting those metrics. Companies with active metrics programs will have the data needed to set a proper baseline. Others will have to perform an initial assessment to establish that baseline. Unless strong historical measurement data is available, be prepared to re-visit and re-adjust the setting at a future date through a pre-defined process specified in the SLA. Further, include a built-in, realistic tolerance level.

Consider the example of a customer that selects an outsourcing service provider to run its building operations. An important customer objective is to keep occupants comfortably heated and cooled. To that end, a metric is selected requiring the service provider to achieve a specified "comfort" level of 70 degrees. It would be tempting to set the comfort metric so that the service provider had to meet the threshold 100% of the time. But why require the service provider to keep the buildings heated and cooled 24 hours a day/seven days a week, even when unoccupied, especially since it will cost the customer money to do so? A better way would be to define a metric that accommodated different comfort levels at different times. In addition, since the customer has historically been able to maintain even heating and cooling only 95% of the time, it would be reasonable to grant the service provider the same tolerance level. By taking the time to weigh expectations and set reasonable, attainable performance goals, the customer is able to achieve its goal of comfort at a lesser cost while the service provider is motivated to do its best to meet those needs.

The Theory Behind SLA Metrics

Before discussing metrics selection in more detail, some context is necessary. A high level understanding of the factors affecting an outsourcing contract helps illustrate why certain categories of metrics are needed and highlights the issues that must be considered when developing the initial performance targets for those metrics.

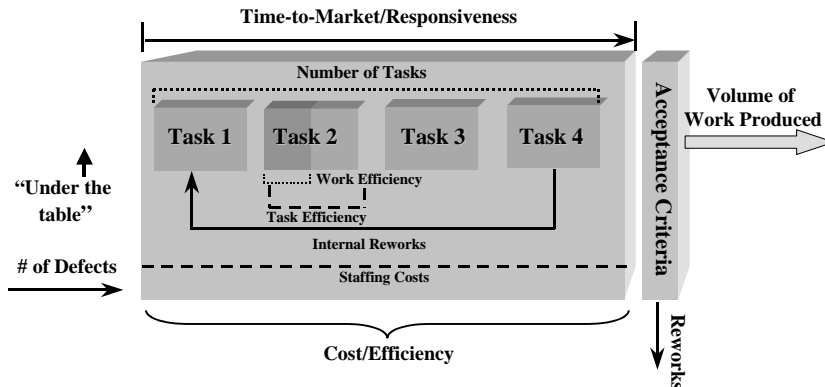


Figure 1

Figure 1 illustrates the types of metrics required to support a generalized outsourcing engagement. In its simplest form, the engagement can be viewed as a "black box" that accepts a **volume of work requests** and delivers a **volume of work produced**. The length of time needed to complete the work is time-to-market or **responsiveness**. The work is produced for an overall cost, and **efficiency** can be calculated as cost/work product unit. **Quality** is defined as the ability of a work product to pass its acceptance standards. Each of these factors represents an interface between the client and the outsourcer and can be manipulated as part of a SLA.

Certain factors are solely under control of the client. The client determines the volume of work requests. These requests include "official" requests following standard processes and "under the table" work which passes directly between the requestor and implementor. Identifying and quantifying the "**under the table**" work is a difficult, yet important, challenge in setting the initial SLA. Since it is not officially sanctioned, this work is invisible to client managers and fails to be included in the SLA. This failure is often the root of later client dissatisfaction with the outsourcer. Another factor is **pre-existing** defects. Inevitably, the client's processes, portfolio of applications to supported, etc., contain some level of existing defects. These defects influence the ability of the outsourcer to meet its work product quality commitments. While correction of these defects can be negotiated into an outsourcing contract, a smart service provider will want to quantify them before establishing delivery commitments.

Responsiveness, efficiency and volume of work produced are under the control of the outsourcer, yet the client typically sets the baseline standards of acceptability. It is the outsourcer's responsibility to determine if they can profitably meet these client-set commitments. While the outsourcer controls efficiency (cost per unit production), it cannot control costs unless volume is fixed. A **backlog** is created when the volume of work requests exceeds the maximum volume of work produced (capacity). **Reworks** are the number of outsourcer produced work products that fail to meet quality requirements and must be redone.

Factors within the outsourcing box, including number of tasks, task efficiency, work efficiency, internal rework levels and staffing costs, are typically fully under the outsourcer's control. By manipulating these items, an outsourcer influences its costs, capacity, responsiveness and ultimately, profitability. While extremely important to successful outsourcers, these categories of measures are generally not included in a SLA and are not explored in this article.

Categories of SLA Metrics

When setting up a SLA to control and manage the factors described above, there are many possible metrics from which to choose. The simplest way to approach these metrics is to group them into categories, decide which ones in a given category work best for the particular project, and then construct the desired metrics.

The key factors can be managed through four major categories of SLA metrics:

1. Volume of work

Volume of work is typically the key sizing determinant of an outsourcing project, specifying the exact level of effort to be provided by the service provider within the scope of the project. Any effort expended outside of this scope will usually be separately charged to the company, or will require re-negotiation of the terms of the SLA. Broadly defined as the number of units of a work product or the number of deliverables produced per unit of time, volume of work metrics should be specified for every major deliverable cited in the SLA. Pick the simplest volume metrics possible to ensure consistent results. More complex metrics, such as function point-based volume measures, can be difficult and costly to obtain for many organizations, and risk inconsistency and subjectivity. Projects that are billed on a time and materials basis may discuss volume in terms of number of resources, while a fixed price project will generally specify volume of deliverables. Example metrics include number of support calls per month, number of maintenance requests per month, etc.

2. Quality of work

Quality metrics are perhaps the most diverse of all of the SLA metrics. They cover a wide range of work products, deliverables and requirements and seek to measure the conformance of those items to certain specifications or standards. When deliverables fail to meet the acceptance criteria in the specifications or standards, quality problems arise. It is best if each major deliverable contained in the SLA has a corresponding acceptance criteria to judge the quality of the deliverable. When that is the case, quality of work can be expressed positively (% of deliverables accepted) or negatively (% of deliverables rejected).

A quality definition may contain several, individual metrics that may form part of the deliverable's acceptance criteria, or that may serve as standalone measurements of a single aspect of service. Briefly, these metrics include:

- **Defect rates**
Counts or percentages that measure the errors in major deliverables, including number of production failures per month, number of missed deadlines, number of deliverables rejected (reworks), etc.
- **Standards compliance**
Internal standards for application source code, documentation, reports and other tangible deliverables, including number of enhancement tasks passing standards reviews, number of documented programs, etc.
- **Technical quality**
Measurements of the technical quality of application code, normally produced by commercial tools that look at items such as program size, degree of structure, degree of complexity and coding defects. The actual metrics depend on the tool used, but may include items such as McCabe Cyclomatic Complexity, McCabe Essential Complexity, average program size, etc.
- **Service availability**
The amount of time/window of time that the services managed by the outsourcer are available, ranging from on-line application availability to delivery of reports by a specified time-of-day. Measures can be reported positively or negatively, and usually incorporate some level of tolerance. Examples include on-line application availability 99% of the time between the hours of 08:00 AM and 06:00 PM, etc.
- **Service satisfaction**
The client's level of satisfaction with the perceived level of service provided by the outsourcer captured for each major function through internal and/or external surveys. Ideally, these surveys are conducted periodically by a neutral third party. Although subjective, they are a good double-check on the validity of the other SLA metrics. For example, if an outsourcer meets all specified performance targets, but receives a substandard satisfaction rating, the current SLA metrics are clearly not targeting the right factors. Within the SLA, metrics specify the minimum satisfactory ratings in key survey categories.

3. Responsiveness

Responsiveness metrics measure the amount of time that it takes for an outsourcer to handle a client request. They are usually the most important ones from the client's perspective, and figure heavily in its perception of the quality of service provided by the outsourcer. Responsiveness to requests often motivates business areas to seek outsourcing in the first place. Metrics include:

- **Time-to-market or time-to-implement**
These metrics measure the elapsed time from the original receipt of a request until the time when it is completely resolved. Sample metrics include time to implementation of an enhancement, time to resolve production problems, etc.
- **Time-to-acknowledgement**
These metrics measure how responsive the outsourcer is by focusing on when a request is acknowledged, and accessibility of status information. Sample metrics include time to acknowledge routine support calls, programmer response time to production problems, etc.
- **Backlog size**
Another measure of responsiveness is the size of the backlog, typically expressed as the number of requests in the queue or the number of hours needed to process the queue. Metrics include # of resource-months of enhancements, # of unresolved support requests, etc.

4. Efficiency

Efficiency metrics measure the engagement's effectiveness at providing services at a reasonable cost. Pure cost metrics, while important, miss the relationship between volume of work and effectiveness of its delivery. For example, an outsourcer may commit to handle 1,000 telephone support requests per day for a fixed price of \$ 20,000/day. Even if the outsourcer doubles its effectiveness, it still handles 1,000 calls and charges \$ 20,000. If an efficiency metric such as average cost/call is used instead, the client will see a change from \$20/call to \$10/call. For the client, increases in efficiency often produce cost reductions. For the outsourcer, improved efficiency translates into increased profits. Outsourcing arrangements often share these benefits between client and outsourcer to encourage them to seek efficiency improvements. Establishing a history of efficiency metrics also enables volume adjustments. If the client later needs 1,500 calls/day, pricing is more straightforward. Similarly, efficiency can translate into either the same volume of service for less money or a greater volume of service for the same money. Examples of efficiency metrics include:

- **Cost/effort efficiency**
This efficiency indicator is typically tied to an index that is based upon cost per unit of work produced, and is used to document cost reductions or increases in productivity. Sample metrics include number of programs supported per person, cost per support call, etc.
- **Team utilization**
These metrics track the workload of each team member to aid in wise utilization of resources. Engagements that charge on a time and materials basis should include metrics on staff utilization to measure the effectiveness of staff deployment in order to encourage the outsourcer to make staff reductions as efficiency is gained. Sample metrics include % of time spent on support, % utilization, etc.

- **Rework levels**
Although rework metrics are also quality measures, they can be applied on a percentage basis to measure the effectiveness of implementing quality improvements. These metrics track the percentage of work products that returned to a previous step for additional work, correction or completion. They track "wasted effort" and help to measure the quality of a process and its efficiency. Metrics measure rework rates for particular tasks, and for specific processes.

Reporting Metrics Information

After specifying all major deliverables and their associated performance metrics in the SLA, the client and outsourcer must agree on how the information is to be presented during the outsourcing engagement. As always, simple is better. The key to effective reporting is to present the results in actionable form. Rather than provide a long list of metrics, summarize the results into trends. Methods such as balanced scorecards, weigh the value of individual metrics against the overall objectives of the project. Otherwise, a manager may be tempted to overreact to a decline in one metric when overall trends are improving.

Typically, the parties will draft a prototype report(s), reaching agreement on the selection of deliverables, the appropriateness of the metrics, the ability to collect the data, and the frequency and timing of reports. In some cases, this exercise will lead the parties to re-negotiate, modify or eliminate certain metrics altogether. Generally, if a metric is not important enough to directly contribute to the report, it is not important enough to collect. Depending on the structure of the project, a single report containing all metrics may suffice; other projects may require multiple reports for the different application or business areas involved.

Conclusion

Effective SLAs are extremely important to assure effective outsourcing engagements. The metrics used to measure and manage performance to SLA commitments are the heart of a successful agreement and are a critical long term success factor. Lack of experience in the use and implementation of performance metrics causes problems for many organizations as they attempt to formulate their SLA strategies and select and set the metrics needed to support those strategies. Fortunately, while reaching for perfection is difficult and costly, most organizations can achieve their objectives through a carefully chosen set of simple-to-collect metrics. Hopefully, this paper provides some insights into the "whys" and "hows" of this selection process.

About Clarity Consulting, Inc.

Clarity Consulting, Inc. is a management consulting firm specializing in Information Technology strategies and emerging trends in areas such as outsourcing, IT efficiency enhancement, process redesign, productivity and service level metrics, product and service offering development and IT product and service development.

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