Maturity Model for IT Managed Services

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Abstract. There is a growing trend for Enterprises to engage Managed Service Providers in order to outsource their IT related activities. The delivery capability of an MSP needs to be assessed in a standardized manner, which can be achieved by way of conceiving a Maturity model for the purpose. A study was conducted to develop a Maturity model for Managed Service providers. This model was implemented on a specific environment and the results were documented. The model had to undergo a few iterations and was refined during the implementation.

Keywords: Managed Service Provider, Managed Service, Maturity Model, IT Service Delivery

1. Introduction

Managed IT Services comprise of a set of Information Technology activities performed by the service provider for its clients. A Managed service provider (MSP) takes care of the clients’ IT requirements. This could be done remotely, on the customer's premises or a combination of both. A Managed service could include a diverse set of tasks ranging across Network monitoring, server administration, database and application support. In fact, it can touch any of the IT assets of an Enterprise. The scope and range of services gets defined by the commercial agreement between the customer and the MSP. The basic intention of adopting a managed service is to transfer the responsibility of managing IT assets to the MSP for a financial consideration. This goes with the business paradigm of 'Outsource to the experts and focus on core functions'. Thus, IT service provider manages and takes on the responsibility for providing a series of services to the customers, either in a proactive manner or as and when the services are asked for. The managed service provider is liable for the functionality of IT services, and the customer pays for such services, on pre-agreed terms.

Given this scenario, it has become essential to quantify the delivery capability of an MSP. The capability and maturity need to be assessed on the basis of existing delivery parameters, which in turn triggers the requirement for a Maturity model for Managed service providers.

2. Scope and Levels of Service

The scope of managed services can extend from basic support to complex problem solving. Generally, a managed service provider takes on the responsibility for support and management of IT services/equipment against a predefined monetary charge for availing such services. The scope or nature of the services may vary, but the essence lies in transferring the maintenance and management of IT activities from the customer to a service provider. The most common model of Managed services is Remote management of servers, desktops and mobile devices. This includes monitoring of server health and regular maintenance like patching, upgrades etc. Another key model is that of application support, wherein the server provider maintains all applications and supports resolution of any issues pertaining to the functionality of those applications. The extent to which a managed service provider provides the services is defined by the levels of service, which outlines the granularity of the MSP's delivery. The services range from basic helpline support.
operations to higher levels of technical support, product functionality, bug resolution etc. Managed service provider is governed by Service Level Agreements, which define the robustness, effectiveness and accuracy of the services so provided. SLAs are the measure of success for the service delivery. Ideally, the pricing of the service is dependent on the stringency of the SLAs.

3. **Material & Methods**

   **a. Maturity Levels**
   Maturity level, in IT context, is a milestone towards achievement of a mature process. A higher maturity level would denote an increased competence in handling of service delivery. Maturity levels are an appropriate metric to identify the service capabilities of an MSP. The maturity is defined by way of several parameters, each having a specific level of achievement. A metric attached to a level is an indicator of the robustness or capability for that parameter. The levels would vary from a non-existent level to one of perfection and are assigned a numerical grading accordingly.

   **b. Models**
   In order to develop the model, a few existing models for IT support were studied, along with the best practices being followed in the Industry. Some of the commonly existing models are CMMi and ITIL. While CMMi is suitable for software development, ITIL is largely appropriate for IT support. The current study focuses on development of a maturity model specific to managed services, which has attributes spanning across development, support, monitoring and maintenance of devices, network, applications et al. Another model that was considered is the Gartner model for MSPs, which describes maturity levels from 'Chaos' to 'Value'. Several aspects of ITIL framework and Gartner model were adopted to create a customized model specific to the services being provided in case of MSPs. We started by identifying the success factors of the MSP. The service contracts, SLAs and customer expectations acted as the basis for identifying these success factors, for which we conducted a series of interviews with the system users and workshops with the delivery teams of a few service providers. The success factors, so derived, were classified into two groups - Explicit and Implicit. Explicit factors are the ones which are quantifiable and where performance can be measured. Implicit factors are the ones which concern softer aspects and are subjective in nature. The success factors so compiled are:

   - Explicit success factors:
     - Business Understanding
     - Operational Processes
     - Continuous Improvement

   - Implicit success factors:
     - Ownership
     - Skills
     - Communication
The Model so devised, comprised of mapping the explicit factors to various ITIL processes and their corresponding metrics. Implicit factors were correlated with the attributes in the Gartner Model.

The Mapping of explicit factors to corresponding ITIL processes and metrics is depicted below:

| Level of Dimension | ITIL Process | Metric                          | 1 - Reactive | 2 - Proactive | 3 - Service | 4 - Value                  |
|--------------------|--------------|---------------------------------|--------------|---------------|-------------|---------------------------|
| Business Understanding | Business Relationship Management | Dependency index | | | | | IT and Business Linkage, Future scenario modeling |
| Service Portfolio Management | No of Planned/ Unplanned new Services | Basic knowledge of customer processes | | | Complete Knowledge of customer processes and business alignments | |
| | No of Strategic Initiatives | | | | | | |
| Continuous Improvement | Knowledge Management | No of KM documents created/ accessed | Very few improvement initiatives, inaccurate documentation | Significant level of improvements, Trend analysis, Problem prediction, Fragmented documentation/regular planned activities | Analyze metrics, Suggest & implement automation, documentation in place, well-defined dependencies and interfaces | | |
| | Improvement Process | Saved/pen hours per off | | | | \* Resource and replace decisions, driven by business values, IT as strategic business partner. | |
| | No of repeat incidents reduced | | | | | | |
| Operational Processes | Incident Management | Alerts Monitoring | Processes managed but not standardized | Standardized processes; Guarantee SLAs (Service Metrics, Process Metrics), Availability metrics, Capacity Management, SOPs | | | |
| | Case Quality Index | | | | | | |
| | No of Escalations | | | | | | |
| | MTTR | | | | | | |
| | OTD | | | | | | |
| | Backlog Index | | | | | | |
| | Problem Management | RCA | | | | | |
| | Capacity Management | Utilisation | | | | | |
| | Availability Management | Application Availability | | | | | |
| | Service Measurement | C&IT | | | | | |
| | Service Reporting | | | | | | |
The next step is to define the maturity levels of each success factor. The success factors are numerically graded from 1 to 4, 1 being lowest and 4 being highest.

c. Case Background
The case under study comprised of a Managed service provider and a customer organisation (names withheld for confidentiality). Here, the MSP is providing support in respect of L2, L3 and Project services for a set of pre-defined applications. The delivery structure is logically grouped into four functional domains:

- Business Applications (Biz Apps)
- Transactional Applications (Trx Apps)
- Financial Systems (Fin Sys)
- Reporting Applications (Reporting)

The delivery has been baselined in terms of both volumes and capacity. Besides regular support and maintenance, there is a steady inflow of project activities which keeps varying, and accordingly there is a provision of flexible resourcing to take care of such variations. The customer also has deployed few of their own resources (mostly L3 and Projects areas).

The model was implemented to assess the current maturity level of the services being provided. Implicit and explicit success factors were evaluated for each domain. Service parameters were scored on the basis of values for corresponding metrics. However, the soft aspects were evaluated on the basis of observations and interactions.

d. Evaluation

The implicit factors were evaluated on the basis of actual observations. Each success factor was further drilled down to a few parameters as under:

- **Ownership**:
  - Sense of Urgency
  - End-to-End follow-ups
  - Involvement of Customer/ other teams

- **Communication**:
  - Daily/ Weekly Reports
  - Monthly Reports & Reviews
  - Work log updates

- **Skill Levels**:

| Level | 1 - Reactive | 2 - Proactive | 3 - Service | 4 - Value |
|-------|--------------|--------------|-------------|-----------|
| Dimension | Limited ownership, Execute tasks as directed | Proactive approach in resolving an incident/ issue, Regular follow-ups | Assume end-to-end ownership of a task/ incident | Exhibit personal interest and ensure proper closures |
| Ownership | Limited communication | Regular reporting and updates | Regular incident updates, Collaboration and periodic reviews | Effective communication & knowledge sharing |
| Communication | Basic skills necessary for delivery | Skilled & adept at resolving tech issues | Cross-skilled and self-reliant workforce. | Expertise and analytical capability in all domains |
| Skill Levels |
- Time taken for problem analysis
- Cross-skilling
- Internal SME support
- Human error

All these parameters were assigned an Impact factor. Impact factor is conceived as a measure of contribution of any parameter to its success factor. The impact factors are classified as Low, Medium, High and critical. Each impact factor is assigned a numerical value as: Low – 1, Medium – 2, High – 3 and Critical – 4.

Next, the parameters were scored for each of the functional domains. Each individual parameter was allocated a rating of Low, Medium, High or Optimal, based on the usage and robustness of that parameter. These ratings are translated into numeric scores by a mapping pattern of: Low – 1, Medium – 2, High – 3, Optimal – 4. For each parameter of a domain, the average score is calculated as a weighted average over the respective impact factors. A comprehensive scoring table for implicit factors evolved as under:

| Success Factor | Parameter | Impact Factor | Biz Apps | Trx Apps | Fin Sys | Reporting |
|----------------|-----------|---------------|----------|----------|---------|-----------|
| Ownership      | Sense of urgency | Critical | High | 3 | Medium | 1 | 3.00 | High | 1 | Medium | 2 | 2.70 | High | 3 | Medium | 2 | 2.70 | High | 3 | 2.70 |
|                | End to End follow ups with User involvement of NetApp/ other tools | High | 3 | Medium | 2 | High | 1 | Medium | 2 | High | 3 | Medium | 2 | 2.70 | High | 3 | Medium | 2 | 2.70 | High | 3 | 2.70 |
|                | Daily/ Weekly Reports published at Director level. Monthly Reports & Reviews | High | 3 | Optimal | 4 | High | 1 | Medium | 2 | Medium | 2 | High | 3 | Medium | 2 | 2.70 | High | 3 | Medium | 2 | 2.70 | High | 3 | 2.70 |
|                | Work log updates - user communication | High | 3 | Medium | 2 | Optimal | 4 | High | 1 | Medium | 2 | High | 3 | Medium | 2 | 2.70 | High | 3 | Medium | 2 | 2.70 | High | 3 | 2.70 |
| Skill Levels   | Time taken for Problem Analysis | High | 3 | High | 1 | High | 1 | Medium | 2 | Medium | 2 | High | 3 | Medium | 2 | 2.70 | High | 3 | Medium | 2 | 2.70 | High | 3 | 2.70 |
|                | Cross-skilling | Medium | 2 | High | 3 | High | 1 | Medium | 2 | Medium | 2 | High | 3 | Medium | 2 | 2.70 | High | 3 | Medium | 2 | 2.70 | High | 3 | 2.70 |
|                | Internal SME support | High | 3 | High | 3 | High | 1 | Medium | 2 | Medium | 2 | High | 3 | Medium | 2 | 2.70 | High | 3 | Medium | 2 | 2.70 | High | 3 | 2.70 |
|                | Human Error | High | 3 | High | 3 | High | 1 | Medium | 2 | Medium | 2 | High | 3 | Medium | 2 | 2.70 | High | 3 | Medium | 2 | 2.70 | High | 3 | 2.70 |

Explicit factors were evaluated on the basis of scoring of service dimensions (mapped to ITIL processes). Specific metrics were identified for each of the service dimensions. The evaluation of service parameters included Incident Analysis, Trend Analysis and service assessment. Each of the metrics was scored on a scale of 1 to 4, for all the functional domains. The overall score for each explicit factor was computed as the average of its metric scores. The calculation for these scores is tabulated below:

| Dimension          | ITIL Processes | Metric                                  | Biz Apps | Trx Apps | Fin Sys | Reporting |
|--------------------|----------------|------------------------------------------|----------|----------|---------|-----------|
| Business Understanding | Service Transition | Evaluation No of KM documents created/ accessed | 2        | 2        | 2       | 2         |
|                     |                 | Knowledge Management No of incidents fixed using KB | 3        | 2        | 2       | 2         |
|                     |                 |                                          | 2        | 2        | 2       | 2         |
| Continuous Improvement | Continuous Service | Improvement process Saved person hours per qtr | 1        | 1        | 1       | 1         |
| Improvement              | No of repeat incidents reduced | Process Audits | Weekly/ Monthly Dashboards |
|-------------------------|--------------------------------|----------------|---------------------------|
| Service Reporting       | 3                              | 4              | 4                         |
| Service Design           | Capacity Management Utilization| 3              | 4                         |
|                         | Availability Management Application Availability | 4              | 4                         |
| Service Transition       | Transition Planning & Support Change Management Utilization | 2              | 2                         |
|                         | Change Case Quality No of Emergency Changes | 4              | 4                         |
| Service Asset & Config Mgmt | Service Asset & Config Mgmt Defects in Production | 1              | 1                         |
| Service Validation & Testing | Service Validation & Testing Incidents caused by new releases | 3              | 3                         |
| Service Operation        | Event Management No of incidents created using Alerts No of Incidents created based on Monitoring | 3              | 3                         |
|                         | Incident Management Incident Case Quality Index No of Escalations MTTR OTO | 3              | 3                         |
|                         | Request Fulfillment No of RFS, Backlog | 4              | 4                         |
| Continuous Service Improvement | Service Measurement CSAT | 3              | 3                         |

| Weighted Score | 3.0 | 2.8 | 2.8 | 2.8 |

The overall maturity rating for all the factors (implicit and explicit) was calculated by considering the weighted average of each factor across all the functional domains. The weights for computing this average were taken as the number of support personnel for each functional domain. The current maturity rating matrix was derived as:

| Dimension | Biz Apps | Tmx Apps | Fin Sys | Reporting | Weighted Score |
|-----------|----------|----------|---------|-----------|----------------|
|            |          |          |         |           |                |
|            |          |          |         |           | 3.3            |
|            |          |          |         |           | 3.3            |
|            |          |          |         |           | 3.1            |
|            |          |          |         |           | 3.1            |

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4. Conclusions

The Maturity model was developed on the basis of various attributes specific to managed service providers. The model was implemented in the case under study and the current maturity levels were computed. Maturity scores for target rating were finalized after discussions with the customer teams from functional domains. The mapping is depicted as:

The current maturity rating chart was shared with both the customer and the service provider. Thereafter, they mutually agreed on a desired 'To-be' rating. The Gap analysis comprised of highlighting the low-scoring parameters and identification of improvement areas. The redressal of gaps led to mitigation for each improvement line item, which emerged into an action plan for service improvement.

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