Integrating Quality into Facility Management Operations

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Consistent facility management performance requires early integration of quality management standards in process design and delivery. The development of an operationally-specific Quality Management System (QMS) provides the framework required for ongoing management and continuous improvement of service delivery.

The purpose of this educational session is to provide information regarding the development and management of a Quality Management System. Objectives include:

a. Provide an overview of Quality Management System (QMS) concepts;
b. Define QMS attributes that are specific to Facility Management;
c. Describe how the QMS links to continuous improvement;
d. Review a Quality Management System case study.

Quality Management Systems – An Overview

A management system is typically defined as the "processes and procedures used to ensure that an organization can fulfill all tasks required to achieve its objectives."[1] Management systems exists for a variety of business needs and functions (ie, finance and accounting, sales and marketing, human resources, operations, etc). An organization may have a formalized system with well-defined processes or rely on a less formal approach. Regardless of complexity, the processes and standards used to deliver services create a "system" designed to produce an outcome or experience for customers.

The International Facility Management Association (IFMA) defines Facility Management as "a profession that encompasses multiple disciplines to ensure functionality of the built environment by integrating people, place, process and technology."[2] A Quality Management System (QMS) provides a framework for tying these disciplines into one integrated service delivery system. There are several quality management system (QMS) models available for one to use when determining the best fit for an organization. Some examples include:

- American Society for Quality/ANSI – Outlined in the document ANSI/ISO/ASQ Q90012008 "Quality management systems –Requirements." This model uses a process cycle including management responsibility, resource management, product realization and measurement, analysis and improvement to link customer requirements to customer satisfaction.

- Total Quality Management (TQM) – A philosophy for continuous improvement of products and processes. Several consultants are credited with developing TQM; notably W. Edwards Deming, Joseph M. Juran and A.V. Feingenbaum. TQM defines "Five Pillars of Quality:"
    - Quality starts with the customer;
    - A commitment to continuous improvement;
    - Measurement;
    - Employee empowerment;
    - Quality is a market differentiator.

- Baldrige National Quality Program – Named for President Reagan's Commerce Secretary, Malcolm Baldrige, the system emphasizes the relationships between different process groups/functions to create an integrated management system built on a foundation of measurement.

- EFQM Excellence Model – Promoted by the EFQM (formerly the European Foundation for Quality Management). The group has published a model that links leadership to business results by identifying groups of enabling processes and key results

- ISO – Considered the primary source of information for most companies looking for a model QMS. ISO includes several standards; the QMS is described in ISO9000.

After reviewing and consolidating common attributes from various models we are able to construct a "typical" QMS (Figure 1).

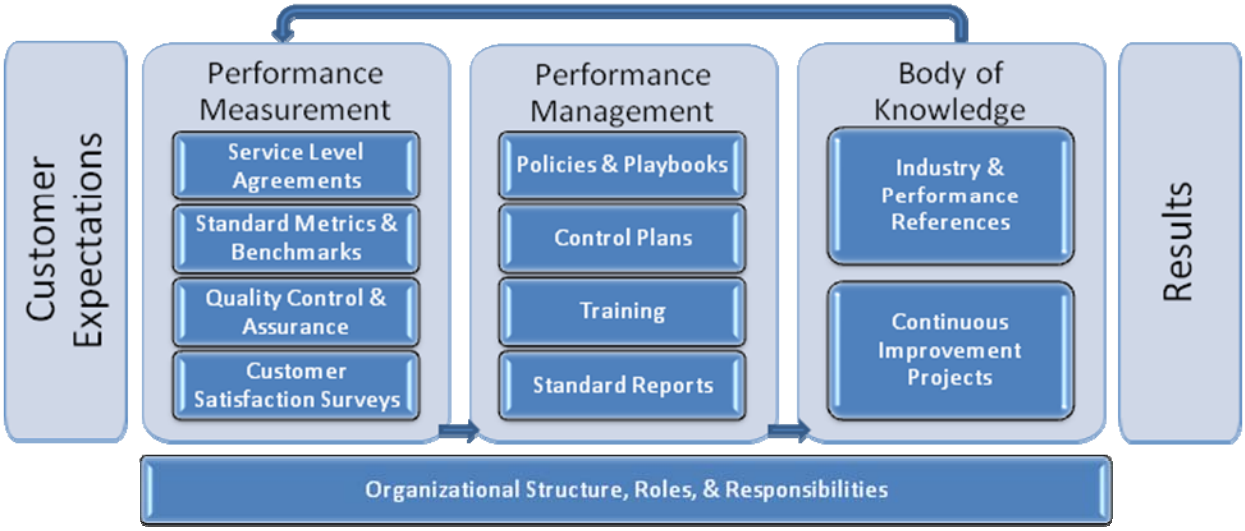

Figure 1: Standard Quality Management System – (Paul Henry and Robert Dawkins, 2012)

Implementation of a QMS provides numerous potential benefits to the organization including:

1. Alignment – Internally the QMS provides a platform for determining how, when, where and the impact as various processes and systems relate. Externally the QMS provides a "listening post" to understand performance and customer perceptions.
2. Knowledge – The QMS helps build a learning organization by identifying what does and does not work as well as a "body of knowledge" that can be referenced by the organization on an ongoing basis.
3. Continuous Improvement – The QMS identifies opportunities for improvements in cost, delivery time, customer satisfaction, employee engagement, productivity, etc

QMS Components and Facility Management

For most people, the term "quality management system" brings to mind the use of checklists to determine if services are performed correctly and surveys to rate customer satisfaction. These tools and techniques are only part of a robust QMS. A true quality management system collects data from a variety of processes and perspectives and then converts the data to knowledge and the knowledge to action. In this section we discuss the components that make a QMS work.

Customer Expectations

In the context of a QMS a customer is the person or group of people who receive benefit from a process or service. This ranges from the Chief Executive Officer to facility visitors. Customers can be both internal and external to the organization. The first step in understanding expectations is the identification of key customers. Once customers are identified essential information must be obtained:

- What is to be done (ie, what services apply to this customer)?
- Where is it to be done (ie, what location/area/building applies to this customer)?
- How often is it to be done?
- What does success look like, ie, what is the service target?
- How will performance be measured (data source, benchmarks, etc)?
- Is there a regulated standard to be met?

Collecting this information can be as simple as a discussion or as complex as surveys and focus groups. When a facility is occupied by multiple groups it's not unusual for a Facility Manager to serve as a mediator while trying to reach consensus on customer expectations. Agreements that result in a disparity between groups may result in tension between the groups as well as confusion for those delivering the service. For this reason it's recommended that exceptions from the larger group be kept to a minimum.

Once agreement is reached it is critical that the results be documented. Many companies use a form of Service Level Agreement (SLA) as a means to document expectations. Whether it's as formal as an SLA or as simple as an email or memo the need is the same: document the expectations, the service parameters, the metrics and the target results. Communication of service levels to building occupants is essential to prevent misunderstandings. This is especially true when there are significant changes in the level of service for a group or area.

Expect that customer needs and wants will evolve over time and may change with leadership and/or budgets. Documenting expectations makes it easier to show change in requirements as they occur.

Performance Measurement

Developing a measurement system begins with identifying metrics for each expectation or group of expectations. Research quickly reveals good sources of cost and performance information such as the IFMA "Benchmarks" data, Building Owners and Managers Association (BOMA), and RS Means. It's important to have a balanced measurement approach that provides performance insight for various functions (people, place, process, and cost) from two key perspectives: 1) efficiency (ie, cost); and 2) effectiveness (ie, outcomes/results).

Setting targets for each metric can be difficult. The most common approach is to use benchmark information for cost metrics associated with maintenance, cleaning and other "routine" services. It is important to remember that benchmark data has some context regarding how the data was collected, the location, type and use of the facility as well as occupancy. For this reason it is recommended that benchmarks be used cautiously and primarily for information only.

How can firms set targets for metrics without readily available benchmarks? Experience has shown that collecting data for a period of time is the best way to evaluate if a performance level is acceptable. By measuring a variety of perspectives it is possible to determine if a target is set correctly or requires adjustment.

To develop a broader understanding of Facility Management service delivery it is necessary to conduct both quality assurance and quality control testing. While these terms are frequently used interchangeably

it is important to understand the distinction between control and assurance. Quality Assurance (QA) includes those actions meant to prevent service failures prior to occurrence. Program or process compliance evaluations are the task most commonly associated with this effort. These evaluations are designed to confirm that the required processes are being performed correctly. Quality Control (QC) is the evaluation or inspection of the end result of the process. In Facility Management these are the evaluations and/or surveys that occur to confirm that a process has delivered the desired outcome or experience.

The use of Integrated Work Management Systems (IWMS) and Computerized Maintenance Management Systems (CMMS) has greatly improved the ability to analyze and report measurements. Whether using one of these systems or a simple spreadsheet it is still necessary to collect and enter data. This can be done manually, through integration with other systems or through use of handheld technology. The effort needed to collect the data must be considered when determining the value and frequency of each measurement.

Performance Management

Managing performance involves using the corporation's policies, standards and tools to deliver consistently satisfactory services to customers. The performance measurement system provides guidance as to the success or need for improvement in service.

One of the best and least used tools for managing performance is a "control plan." Simply put, a control plan outlines what is to be done if selected metrics indicate performance issues. The process of identifying and documenting these contingencies forces the organization to review a variety of protocols, including issue escalation, required data analysis and safety considerations.

At the heart of the control plan is the creation of "tolerances" for selected metrics. A tolerance is a "warning" light that indicates an approaching failure. Determination of which metrics will receive a tolerance level is based on the process and the customer's expectations. Select only those metrics that are critical to the facility operation. As an example, think of the dashboard in the typical automobile. While an automobile has literally thousands of possible measurement points there are five (voltage, temperature, oil pressure, speed and tachometer) that have been identified as critical to the driver's operation of the vehicle. More than that and the driver becomes overwhelmed with data and cannot act.

Defining warning levels permits action before there are significant issues or impact. These plans de-centralize decision making in the event a key indicator triggers a warning level. With the first three or four steps of a response already identified the organization can begin acting versus waiting for direction.

Determining a warning level can be as difficult as setting the actual target for the metric. A simple rule of thumb is to set the warning level at 85% - 90% of the target. Remember: it's important to have the alarm sound early enough to be able to intervene and prevent failure.

Identifying the reports and format to be used to communicate results must align with customer expectations. It's important the information be communicated in a way and at a frequency that is readily understood by customers. Equally important is that correct graphical and statistical analysis be identified and used. One common misunderstanding is the difference between common and special variation. By looking at a specific data point outside the context of time an organization can overreact.
Poor data analysis can quickly result in bad decision making.

Body of Knowledge

The Body of Knowledge (BoK) is considered first and foremost a reference library. It should be populated with good practices from both inside and outside the organization. A good BoK reflects the needs and experience of the organization.

Industry references maintained in the BoK include Original Equipment Manufacturers (OEM) manuals, articles, books, etc that are relevant to the standards and practices required for supporting the organization and its assets. Maintaining a connection to current information is an essential requirement for staying current with the latest advances in technique and technology.

The BoK must also include internal standards that describe how work is to be performed. These processes take general industry practice and make it specific to a facility or company. This information is a key part of training courses and ongoing development of skills.

Maintaining a record of past results and reports allows the organization to reference this material when needed. These records can be in the form of exception reports, archived CMMS or IWMS data, and/or electronic copies of monthly or quarterly reports. This history is critical to understanding performance over time and to providing context to the results (ie, what was happening when these results were obtained).

Project documentation associated with continuous improvement efforts should also be archived in the Body of Knowledge. Documented case studies permit the organization to leverage past effort to improve or correct issues associated with operations. By utilizing past experience the organization can better anticipate issues, make changes to internal standards and update training programs.

Knowledge to Action

The QMS tracks performance history and helps identify issues while still manageable. Occasionally, performance is such that the actions defined on the control plan are insufficient to bring the process back into control. A structured method for addressing performance issues is the key to a successful operation. There are a variety of continuous improvement processes available (Six Sigma, Lean Sigma, PDCA, etc). Each of these processes has application in the FM profession.

Some popular continuous improvement methods include:

- Six Sigma – Define Measure Analyze Improve Control (DMAIC) – very data intensive, best use tends to be for complex projects where statistical analysis is critical;
- Lean Six Sigma – Combines lean tools (kaizen, visual management, 5S, etc) with six sigma. This permits use of qualitative as well as quantitative analysis;
- 8 Disciplines – Team problem solving method that tends to focus on root cause identification using qualitative methods. Very helpful as a “grassroots” improvement method.
- Plan-Do-Check-Act – Sometimes referred to as the Deming or Shewart Cycle. Based on the scientific method, PDCA is an iterative method for continuous improvement.
- Theory of Constraints – Eliyahu Goldratt’s process that contends every system has a “weakest link” that sets the pace and ability of the process.

Review of these methods reveals some common characteristics:

1. Empirical Problem Statements – The need for a problem statement is central to good project management. These methods all ask for a “baseline” or starting point and some quantification of the current state.

2. Root Cause Identification and Analysis – At the core of continuous improvement is the identification and verification of "root causes." These are the underlying reasons the process is performing in an unacceptable manner.
3. Solution Development and Testing – Solutions are developed to either eliminate or mitigate the root cause. Testing is done to refine the solution before making it permanent.
4. Impact Verification – Following implementation of the solution measurements are taken to confirm the improvement has had the intended effect.

An effective Quality Management System not only provides "warning" of possible performance failures but provides the data necessary to continuously improve the measured operation. Table 1, below, shows the link between the common characteristics of continuous improvement methods and the QMS.

Table 1

Linking Continuous Improvement and Quality Management Systems

Common CI Method Characteristics	Quality Management System Component
Empirical Problem Statements	• Service Level Agreements – Defined metrics and targets • Measured Performance Gaps – Whether under- or overachieving these gaps point to an opportunity to improve cost, delivery time or satisfaction
Root Cause Identification and Analysis	• Standards Compliance – Measuring compliance with job or process requirements helps determine if the issue is the process design or execution. • Process Trends – Measuring over time allows analysis to determine if the result is normal variation or if there is really a change. Trends also require additional investigation to understand the reason for the results.
Solution Development and Testing	• Standards – Documented work requirements makes it easier to identify and implement improvements. • Projects –Properly documented CI improvements are more easily leveraged across the organization.
Impact Verification	• Standard Metrics and Measurement System – Confirmation of operational and financial impact.

QMS Case Study

Case Study 1

Facility Type: Headquarters

Facility Size: 6 million square feet

Facility Occupancy: Approximately 18,000

ARAMARK provides a variety of facility services for this client. Once customer expectations were defined and the Key Process Indicators (KPI's) were identified and performance goals agreed upon,

enhancements were made to ARAMARK's Quality Management System to allow for the interpretation of our client's multiple data streams. The monthly data streams include raw customer satisfaction survey data, formal vendor and client inspections, CMMS results, client Key Process Indicator (KPI) reporting and a formal peer benchmarking. Each month the data streams are loaded into a single database for analysis, reporting and action planning.

Using our site cleaning services as an example, our team is able to determine client satisfaction levels in a range of ways. Overall satisfaction can be measured by the entire campus or by building. At the building level, we are able to determine satisfaction by floor. Furthermore, we are able to pinpoint performance gaps against more than 50 specific measurements by building and floor. Once the overall satisfaction and performance gaps have been identified for each of the buildings and floors, our team is able to prioritize action planning initiatives to address performance shortfalls. By creating action plans to address the drivers of dissatisfaction (scores of 1 to 3 on a scale of 5), we have been able to reduce the cycle time it takes to restore a building's performance to within our pre-defined control limits.

In addition to managing specific building performance, we are able to identify employee performance and specific training needs by team or by associate. For example, our Building Leads are assigned specific buildings. Because we can interpret satisfaction by building, we are able to stack rank our supervisor's performance. The ranking allows our management team to understand who may need additional training and leadership to impact results. Since many survey respondents comment on our team members by name, we are able to monitor and reward client engagement. And since our data can point to common issues that are occurring across our business, we know the type of training we should be offering to our team.

Each month our on-site leadership team conducts an Operating Review meeting with our key client stakeholders. The review includes a snapshot of our performance against the established KPI's, an analysis of the data streams, action planning, and an overview of our short term operating goals. The meeting ensures ARAMARK and our client are aligned regarding KPI performance, action planning and goals with greater ability to challenge the status quo in our operation.

ARAMARK's Quality Management System, including our unique ability to manage and interpret multiple data streams, has been the key to our success at this client location. After implementing our enhanced QMS, we were able to improve service and quality satisfaction levels by more than 100 basis points over a six-month period. Satisfaction levels for the 18 combined services we provide to this client are in excess of 4.0. Our team's service engagement level averages more than 35% each month.

From our client's perspective, the ability to interpret and manage multiple data streams has been a significant point of differentiation from their other service providers. Our ability to make informed decisions has demonstrated ARAMARK's commitment to continuous improvement and has allowed our team to deliver consistent results while achieving our client's goals.

Conclusion Statement

Where FM seeks "…integration of people, place, process and technology" quality management systems seek integration of the various systems that enable successful FM. A Quality Management System provides the ability to identify and resolve performance issues that directly link to customer satisfaction. Using the system to convert data to knowledge and knowledge to action helps the FM organization meet and exceed customer expectations.

1 – International Facility Management Association website (www.ifma.org) July 28, 2012

2 - Anderson, Chris. How to Build Effective Management Systems, Bizmanualz, January 26, 2005.